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November 8, 2024

VIA RESS AND EMAIL

Nancy Marconi
Registrar
Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

Dear Nancy Marconi:

Re: Enbridge Gas Inc. (Enbridge Gas, or the Company)
EB-2020-0091 – Enbridge Gas Asset Management Plan 2025-2034

As promised in the Integrated Resource Planning (IRP) Framework proceeding, Enbridge Gas will file an Asset Management Plan (AMP) or an Addendum to the AMP annually.

During the deferred rebasing term, the AMP or an Addendum to the AMP was filed in the annual rate applications to support the request for Incremental Capital Module (ICM). In Q4 2023, Enbridge Gas filed an Addendum to the AMP as a stand-alone document with a cover letter as there was no ICM request for 2024 Rates. In 2024, Enbridge Gas is again filing its 2025-2034 AMP as a standalone document.

This AMP provides the capital budget for 2025 to 2034. An update will be provided in Enbridge Gas's next addendum to the AMP which will be filed in Q4 2025.

The AMP is being filed for information purposes, and Enbridge Gas is not seeking any approvals in relation to this filing.

Please contact the undersigned if you have any questions.

Sincerely,

Justin Egan

Justin Egan
Technical Manager, Regulatory Applications

cc: David Stevens, Aird and Berlis LLP
EB-2020-0091 and EB-2022-0200 Intervenors

EGI Asset Management Plan 2025 – 2034

November 8, 2024

Report

Company: Enbridge Gas Inc.

Owned by: Asset Management Governance Department

Controlled Location: Asset Management TeamSite

EGI Asset Management Plan 2025 – 2034

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1 Executive Summary

1.1 Overview

Enbridge Gas Inc. (EGI) is North America's largest natural gas utility by volume, and the third largest by customer count, delivering safe, reliable service to more than 3.9 million residential, commercial, and industrial customers in Ontario, serving over 320 municipalities and Indigenous communities. EGI serves about 75% of Ontario residents and has 281 billion cubic feet of storage assets tied to large and growing demand centres in Canada and the U.S. and provides a critical link to a significant supply of natural gas.

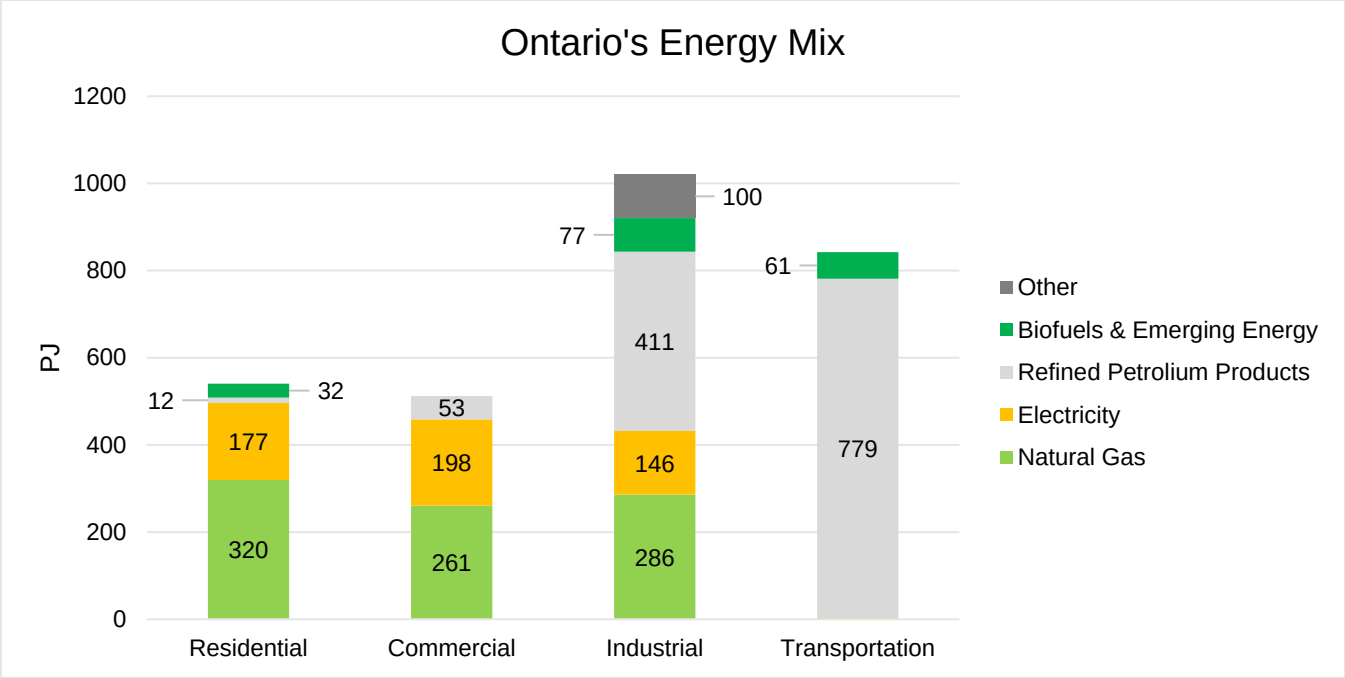
EGI is committed to the safe, reliable, and affordable provision of energy to its customers. This document is intended to meet the expectations of the Ontario Energy Board (OEB) as set out in the *Handbook for Utility Rate Applications, October 13, 2016,* and the *Filing Requirements for Natural Gas Rate Applications, February 16, 2017* and *EB-2020-0091 Enbridge Gas Inc. Integrated Resource Planning Proposal, July 22, 2021.*

Asset management at EGI focuses on maximizing value from its assets while managing risk and opportunity. The Asset Management Plan (AMP) applies to the OEB-regulated assets (excluding renewable natural gas, compressed natural gas, and community expansion projects) that EGI owns and operates. The purpose of the AMP is to outline:

- The policy and strategies for establishing effective asset management for all utility assets within EGI's regulated operations
- The considerations for energy transition in the asset management process, asset class objectives, and life cycle management strategies
- The approach to Integrated Resource Planning (IRP) including EGI's IRP Binary Screening and associated IRP alternative (IRPA) evaluation by project (see **Appendix B**)
- The EGI strategies and stakeholder-related commitments as linked to asset class strategies
- The process and governance for asset management planning including linkages to EGI's processes for managing risk
- The asset inventory, condition methodology, condition findings, risks, benefits, and renewal strategies
- The optimized 10-year capital plan to manage assets from 2025 to 2034

1.2 The Role of Natural Gas in Ontario

Natural gas meets a significant portion of Ontario's energy needs on both a peak and average basis. EGI provides this energy safely, affordably, and reliably, and aspires to deliver this energy with net zero operational emissions by 2050. EGI also seeks to contribute to the transition to a low-carbon economy through its investments in innovative lower emission solutions such as hydrogen and renewable natural gas. In addition, when compared on an energy basis with electricity, natural gas continues to be cost-effective, delivering approximately two times the provincial electricity demand annually and over four times the peak electricity demand (see **Figure 1.2-1**). Underground gas infrastructure is also less susceptible to the weather events that impact electrical infrastructure, offering superior resiliency.



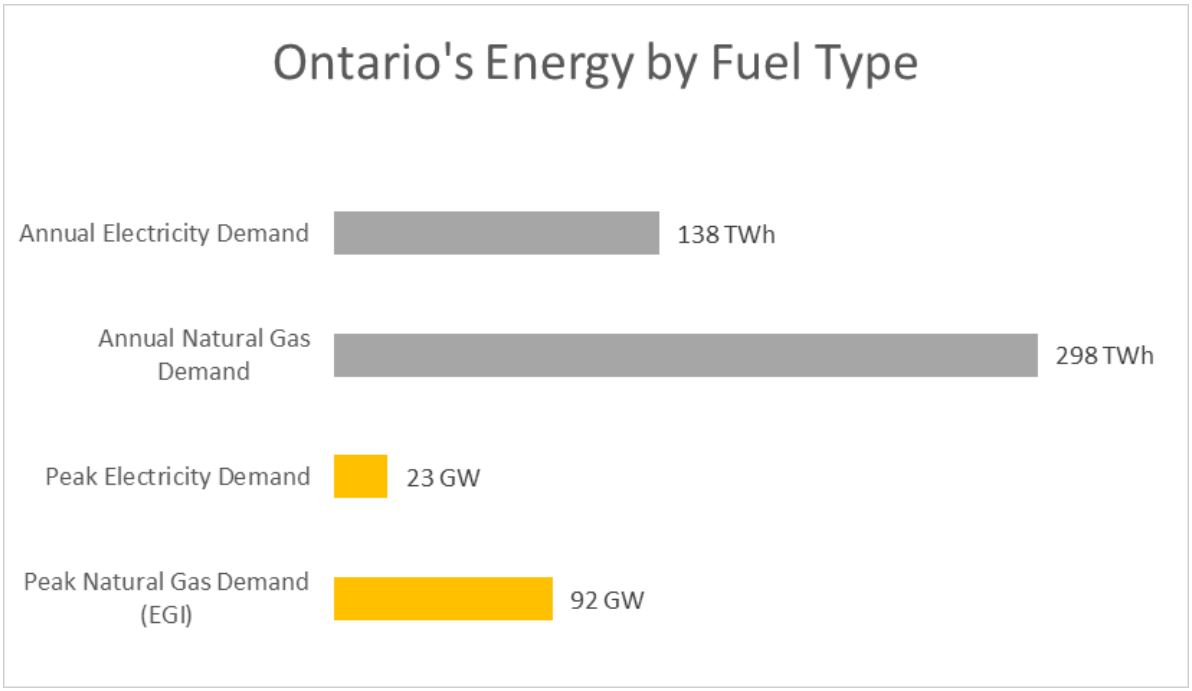


Figure 1.2-1: The Energy Landscape in Ontario[1]

[1] EB-2022-0200, Exhibit I.1.10-ED-73

EGI's System in Ontario

EGI's system delivers almost all of the natural gas in Ontario (see **Figure 1.2-2**) and has been constructed over more than 100 years. EGI's system is composed of distribution and transmission pipe, storage wells, compressors, stations, and customer specific assets. To ensure the continued reliability of natural gas deliveries to end-use customers, EGI has developed a comprehensive asset management program.

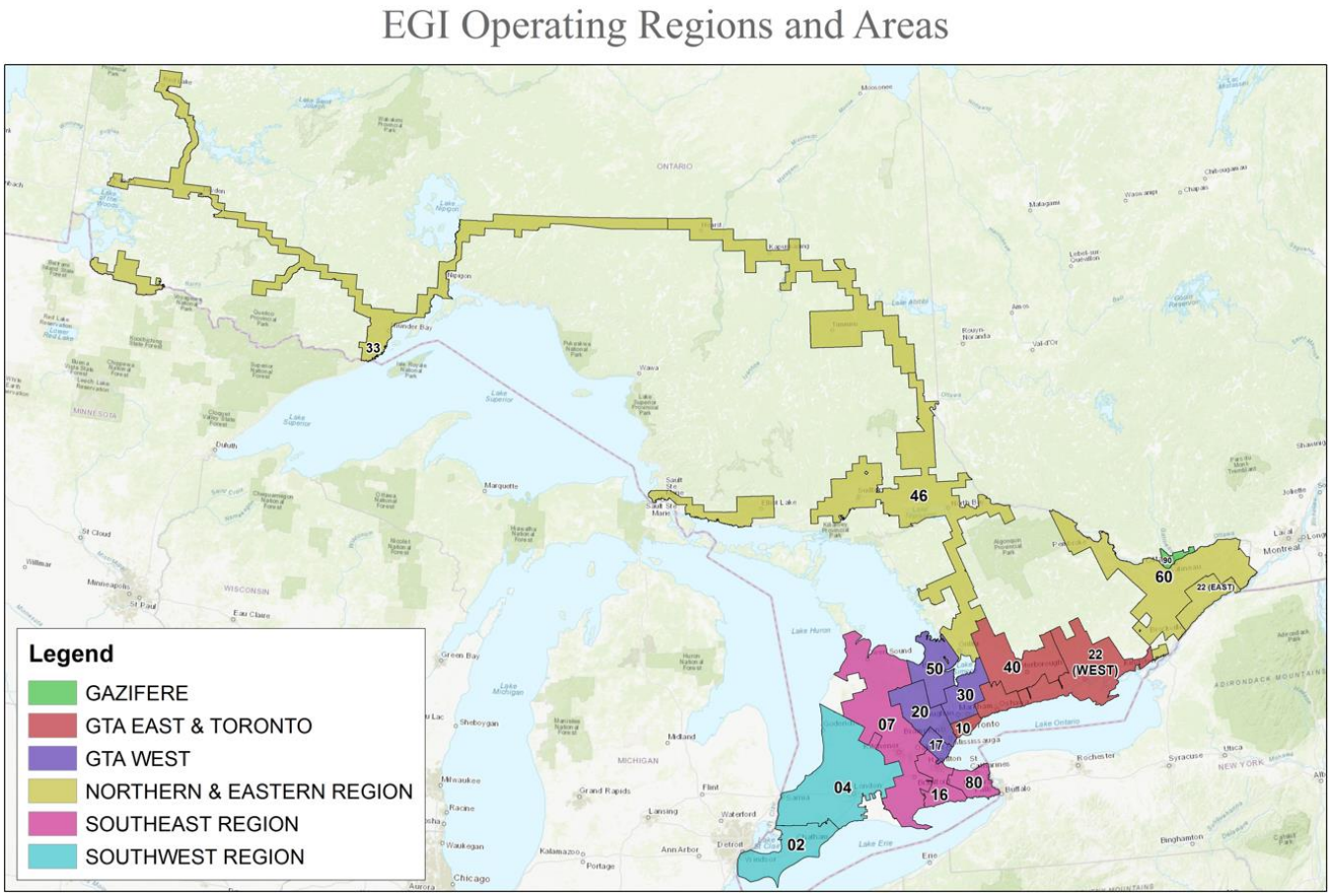


Figure 1.2-2: EGI Ontario Operating Regions

1.3 Energy Transition and Stranded Asset Risk

EGI acknowledges that an energy evolution is taking place, will evolve over time, and is reflected in policy objectives at every level of government. EGI supports a rational energy transition where Ontarians continue to have access to reliable, resilient, and affordable energy and where stranded asset risk is appropriately managed. Investment decisions will be based on the best information at the time, including consideration of the Independent Electricity System Operator's (IESO) current forecast electricity demand and government policy.

Although there is uncertainty regarding how and when Ontario's energy transition will unfold, statements made by the Government of Ontario and the passing of Bill 165 (*Keeping Energy Costs Down Act, 2024*) are clear signals that natural gas is expected to be a critical part of the energy landscape for the near future. EGI will continue to monitor the evolving policy landscape, including Ontario's integrated energy resource plan expected in 2025, and will incorporate changes to the AMP as appropriate.

In response to the OEB's direction related to energy transition risk, as outlined in the OEB's Decision and Order in Phase 1 of EB-2022-0200, EGI has taken steps to more clearly demonstrate how energy transition will continue to be incorporated into its business and system planning. As noted in EGI's *EB-2022-0200* Argument-in-Chief, EGI will annually review external energy transition signals to prudently account for energy transition impacts to EGI's business and system planning. EGI has

completed the annual review for 2024 and has implemented Energy Transition adjustments to its demand forecast and design elements which are reflected in the system reinforcement plans and the AMP.

The objective of the Energy Transition adjustments is to account for the potential of reduced future annual, peak hour and peak day demands in the AMP. These adjustments are based on information, policy signals, and market trends that are currently available.

In 2024, EGI created regional Energy Transition adjustments for the 2025 to 2034 forecast for the City of Toronto and Ontario-wide (excluding Toronto). EGI applied specific regional Energy Transition adjustments to the forecast related to the City of Toronto because the City of Toronto represents a significant portion of EGI's existing customers, continues to show new construction (residential and commercial) growth, has put forward detailed energy transition policies (e.g., TransformTO, and the goal of net zero greenhouse gas (GHG) emissions by 2040), and has taken material action in relation to those policies (e.g., Toronto Green Standard). EGI will continue to monitor how Ontario municipalities implement actionable energy transition initiatives and explore how and if regional Energy Transition adjustments can be further incorporated into EGI's forecasts.

The factors considered in the Energy Transition adjustments to 2024 demand forecasts and design elements are:

1. **Existing Customers:** EGI relied upon the following internal and external data and signals to make Energy Transitionadjustments to the existing customer demand forecast:

    a. **Internal**: EGI's data related to permanent meter disconnections from 2019 to 2023; Home Efficiency Rebate Program (HER+); and EGI's 2023 Residential End-Use Survey.

    b. **External**: City of Toronto data related to building permits involving heating systems, City of Toronto's Municipal Code Chapter 367 (Building Emissions Performance Bylaw), signals from the City of Toronto related to the future development of a municipal Emissions Performance Standard, City of Toronto incentive and loan programs (i.e., Home Energy Loan Program), and Canadian Home Builders Association (CHBA) data related to its Net Zero Labeling Program for 2022 and 2023.

2. **Customer Additions** EGI relied upon the following internal and external data and signals to make Energy Transition adjustments to the customer additions forecast:

    a. **Internal:** EGI's market intelligence gathered from stakeholders, and EGI's internal data trends related to customer conversions.

    b. **External:** Toronto Green Standard (TGS) Version 4 (V4) and signals that TGS V5 and TGS V6 will be released in 2025 and 2028, respectively.

Although continued customer growth is expected over the 10-year term of the AMP after considering Energy Transition adjustments, the rate of growth is expected to decline over time. EGI will continue to evaluate new connection activity and update the forecast accordingly. The declining rate of customer attachments is shown in the graph below.

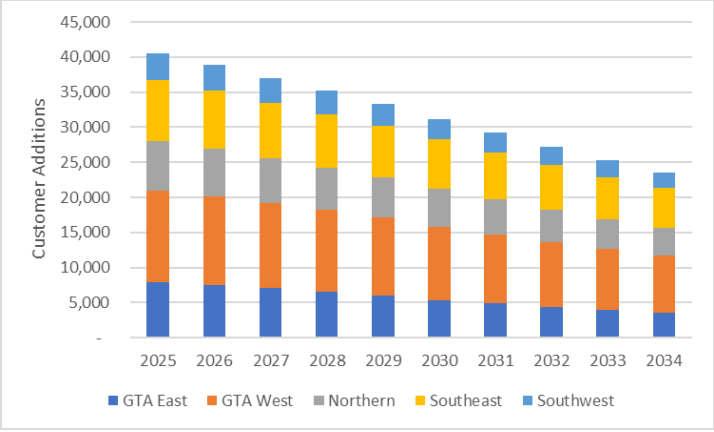


Figure 1.3-1: EGI 10-Year Customer Growth Forecast[2]

[2] Based on 2024 LRP with Energy Transition Assumptions

3. **Average Annual Use:** EGI relied upon the following factors to make Energy Transition adjustments to the Average Annual Use Forecast:

    a. Federal Carbon Charge, Ontario Building Code (OBC) 2024, and TGS V4 to V6.

4. **Design Hour:** EGI relied upon the following data and signals to make Energy Transition adjustments to EGI's Design Hour forecast:

    a. Energy Transition Scenario Analysis (ETSA) peak hour trends observed in the ETSA Reference Case scenario, which included impacts from future demand side management (DSM) programming, carbon pricing, natural gas commodity pricing, building performance, and appliance efficiency improvements for existing customers.

5. **Design Day:** EGI relied upon the following data and signals to make Energy Transition adjustments to EGI's Design Day forecast:

    a. Historical Use Per Customer trends for existing general service customers, which has a gradual downward trend over time that reflects observed energy efficiency gains or process or behavioural changes. In addition, the Design Day forecast includes general service customer growth, which incorporates Energy Transition adjustments and ETSA peak hour factors.

This AMP outlines the needs and resultant investments associated with EGI's assets to ensure that EGI can safely and reliably meet the design hour and design day demands of new and existing customers net of the Energy Transition adjustments noted above.

1.4 Integrated Resource Planning

In addition to Energy Transition adjustments made to the demand forecast and design elements, EGI is continuing to advance its approach to integrated resource planning (IRP). IRP seeks to find alternative solutions to the replacement of assets when it is determined that intervention is required.

EGI has been focused on advancing IRP as directed in the OEB's IRP Framework Decision (EB-2020-0091). EGI developed an approach to screen and evaluate integrated resource planning alternatives (IRPAs) to traditional facility projects in alignment with the high-level IRP process laid out in the OEB's IRP Decision. In the development and initial implementation of this approach, EGI has directed significant efforts towards the following activities:

1. **Binary Screening:** The binary screening serves as a preliminary filter to determine whether a capital investment project should undergo further technical and financial evaluations for IRP solutions. The review of projects and application of the IRP binary screening criteria was completed for the 2991 gas-carrying projects and programs within the 2025 – 2034 Capital Plan.

2. **Technical Screening:** Investments undergo an initial technical screening to determine whether a detailed technical evaluation is required. Further details on this technical screening process can be found in **Appendix B**.

3. **Technical Evaluation:** A technical evaluation is the first step of the IRP two-stage evaluation process for projects that pass binary and technical screening. **Appendix B** contains the status of the fully complete technical evaluations to date.

4. **Economic Evaluation:** An economic evaluation is the second step of the IRP two-stage evaluation process. This step relies on the Discounted Cash Flow-plus (DCF+) test. At the time of filing the 2025 – 2034 AMP, EGI is engaging in discussions with the IRP Technical Working Group (TWG) to refine the use of the DCF+ test in the context of IRP. The group is looking to improve the test to better list and define the costs and benefits of facility alternatives and IRPAs and to clarify how these costs and benefits should be considered within the DCF+ test.

In addition to advancing IRP through the IRP evaluation of the AMP, the OEB's IRP Framework Decision[3] also required the selection and implementation of pilot projects. EGI has engaged with the TWG for feedback on the pilot project selection and plan development as well as the IRP evaluation process. Further information regarding both topics can be found in EGI's IRP Annual Report filed in EB-2024-0125.

[3] EB-2020-0091

1.5 Asset Life Extension

In contrast to IRP, where EGI seeks to find alternatives to traditional facility projects, asset life extension activities are actions taken to extend an asset's life beyond the identified date of required replacement. EGI's existing integrity programs support asset life extension.

EGI's systems are complex networks of subsystems of piping, fittings, and components with compounding internal and external factors that impact physical asset life. The AMP outlines strategies to operate the natural gas system safely and reliably using a combination of preventive maintenance (e.g., corrosion prevention and coating programs), threat assessment techniques, condition monitoring, and damage prevention programs, which reduce the risk of failure and also increase asset life. The outcome of these data-informed asset strategies may be a recommendation to continue to maintain and/or repair the asset or pursue component replacement or full replacement as further described in **Section 3**.

Where asset design and technology allow for condition monitoring to take place, regular inspections are conducted on transmission assets through the Transmission Integrity Management Program (TIMP) (see **Section 6.2.3.3**).

For distribution systems, it is not practical or cost effective to directly inspect all belowground gas distribution assets through the Distribution Integrity Management Program (DIMP). EGI develops an understanding of condition and risk for these assets through failure data and field-validated condition findings that feed into reliability and risk modelling. Leak failure data is a critical input for reliability analysis that informs the probability of failure and asset health. The analysis incorporates failure factors that may affect the typical service life of an asset. Some common factors used in the analysis include cathodic protection data, geographic factors, soil conditions, and stress intensification factors on plastic piping systems.

For the aboveground assets including regulator sets, stations, bridge crossings, and risers, EGI's Integrity Management programs leverage inspection data to inform the condition of assets and develop appropriate plans to mitigate the assets in poor condition.

Although age is closely correlated with time-dependent failures, the age of the asset does not determine EGI's intervention strategies. The use of failure factors and inspection data ensures the analysis drives a condition-based asset strategy. These practices continue to evolve as more data is received and models and technology advance.

In some cases, failure records, field verifications, and modelling results indicate a population of distribution assets may be beyond or approaching end of life and are anticipated to fail at accelerating rates. Given the critical role of EGI's distribution and transmission system in meeting customer energy needs, and the requirement to ensure safe, reliable, and resilient operations, asset life extension options may be limited or not possible depending on the asset type or investment driver. EGI employs asset strategies and programs that seek to find the optimal intervention point to manage failure risk and frequency to safely extend asset life.

1.5.1 Enhanced Distribution Integrity Management Program

The Distribution Steel Pipe asset subclass comprises mains (together with associated services and components) that fall under the DIMP and the Enhanced Distribution Integrity Management Program (EDIMP).

Launched in 2024, the EDIMP, a sub-program of DIMP, evaluates the integrity condition of distribution steel pipelines with highest potential risk and criticality compared to the rest of the steel distribution network. The program focuses on these higher-risk distribution pipelines by enhancing the understanding of the asset condition, fitness for service, and risks associated with operating those assets. The 2024 inspection program has been developed based on pipelines previously identified for replacement in the AMP, in conjunction with a prioritization model that selected the pipeline assets of most concern from the distribution system.

The inspections under the EDIMP include in-line inspections (ILIs), Direct Current Voltage Gradient (DCVG) surveys, Close Interval surveys, Depth of Cover surveys, and Integrity Digs, etc. The EDIMP will assess the condition of individual distribution pipelines and provide risk-informed recommendations for managing the assets.

This approach will build upon EGI's existing Integrity programs to evaluate and identify Asset Life Extension (ALE) alternatives. By completing these additional assessments, EGI will further ensure that the most cost-effective methods (e.g., mitigation actions, partial replacement, or full replacement) are proposed while maintaining appropriate levels of risk and reliability for distribution assets. For more information on the EDIMP program, see **Section 6.2.3.4**.

1.6 Implementation of $250 Million Capital Budget Reduction

During the 2024 Rebasing Phase 1 Application, EGI identified that $1.62B of Utility Capital Expenditures was required in 2025[4]. Of this amount, $1.47B was in the scope (including $6.7MM for Panhandle Regional Expansion Project [PREP]) of the AMP (see **Table 3.2-1**) with the balance in Community Expansion and Other including Renewable Natural Gas (RNG) and Compressed Natural Gas (CNG).

In its Decision and Order in the 2024 Rebasing Phase 1 Application, the OEB ordered a $250MM reduction to EGI's 2024 capital budget envelope to $1.2B. This reduction in capital was reflected in the 2024 Draft Rate Order which was approved by the OEB. The 2024 capital budget of $1.2B sets a new expectation on capital expenditure in each year going forward that EGI would be expected to manage within. While EGI expects to safely operate and maintain the natural gas system within the $1.2B capital constraint (subject to annual adjustment for inflation and growth), there may be additional negative outcomes/risk associated with system operations, higher future costs, the ability to execute on strategic objectives like energy transition investments, and to serve new customers. The details of these impacts as it relates to 2025 are shown in **Table 3.2-1**.

EGI recognizes that it could be required to make significant capital investment during the 10-year AMP, which may cause capital expenditures to exceed the $1.2B constraint noted above. Significant capital investment could be required to support Ontario government goals, including the addition of 1.5 million homes by 2031, the pursuit of economic development projects (electric vehicle, greenhouses, power generation, and mining), the pursuit of projects that reduce emissions (steel, cement, and refining), and large growth projects on the distribution or transmission system, such as data centres. Significant capital expenditures could also be required to support renewal / life cycle projects. Where such discrete large expenditures cannot be accommodated within the Incremental Capital Module (ICM) threshold, EGI will request incremental funding treatment for these projects through the appropriate mechanism.

The OEB Decision in Phase 1 of EB-2022-0200 also determined that the revenue horizon for natural gas connection costs for small volume customers would be set to 0 years. On May 16, 2024, the Ontario government passed the *Keeping Energy Costs Down Act* that reversed the OEB's decision[5] on customer connection revenue horizons. Pursuant to the Act, regulations[6] were made to reset the revenue horizon for natural gas connection costs to 40 years.

The capital forecast and all corresponding data contained in the AMP reflects a 40-year revenue horizon for small volume customers. EGI acknowledges that the revenue horizon is subject to change based on future regulatory proceedings and OEB determinations related to the revenue horizon for natural gas connections. EGI will update the AMP to reflect any changes to the revenue horizon as appropriate.

Section 5 speaks to both capital and O&M strategies that are currently employed to maximize the expected life of assets. Programs such as standards for inspection on station assets; integrity inspections and condition monitoring of TIMP mains; the Meter Exchange, Corrosion Prevention, Painting/Coating, and Compressor Station Overhauls programs continue to extend the life of assets and asset systems. As shown in **Figure 3.1-2** in comparison to the pre-optimized view in **Figure 3.1-1**, the capital expenditures associated with EGI's programmatic subcategories[7] underwent changes through optimization: **Maintain** increased by 2%, **Component Replacements** reduced by 14%, and **Full Replacements** reduced by 25% over the 10-year period. This shows the ongoing focus on system maintenance and reduction of replacement work, especially full replacements as deemed appropriate. The results in the profile for programmatic spend were smoothed and asset strategies were adjusted, as necessary.

EGI was successful in achieving these reductions by reprioritizing its capital portfolio based on value-based decisions and managing risk, while still maintaining safe and reliable operations through:

- Reassessment of project needs to focus on component replacements to address short-term critical needs. This creates risk of increased cost to the customer in the long term as it can be less efficient to perform replacement work at the same location over multiple years compared to a full replacement in one year.
- EDIMP – As a subprogram within the DIMP, EDIMP focuses on a subset of distribution pipelines (based on criticality to operations) and is expected to increase understanding and data collection through improved condition-monitoring techniques. Inspections to capture field data on condition and asset health will be collected, where possible, through ILI technology, nondestructive examination (NDE), high-resolution leak detection, and computational methods in order to recommend alternatives to pipe replacement and to effectively manage risk.
- IRP Program and Pilots – Investments that pass the IRP Screening process resulting in IRPAs are expected to further defer capital spend as the program evolves. For more details on IRP, see **Section 4.6**.

[4] EB-2022-0200, Exhibit 2, Tab 5, Schedule 2, p. 2, updated July 6, 2023
[5] EB-2022-0200, Decision and Order, Enbridge Gas 2024 Rebasing (Phase 1), December 21, 2023, p. 2
[6] O. Reg. 273/24: REVENUE HORIZON (NATURAL GAS)
[7] For details of the programmatic subcategories, see **Section 3.1.3**.

- Continuing to replace distribution pipe annually at a modest pace (see **Figure 1.6-1**), targeting the needs of the system towards proactive replacements that seek to mitigate expected failures, maintaining compliance and contractual obligations. Historically, on average less than 0.02% of distribution pipe was replaced annually through all categories (maintain, component, and full) – representing less than 125 km of 82,000 km.

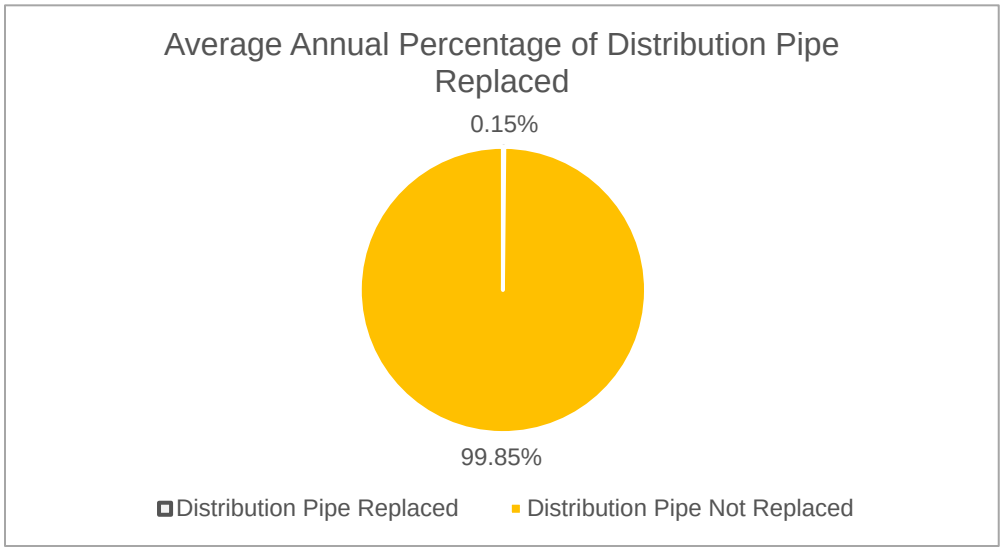


Figure 1.6-1: Average Annual Percentage of Distribution Pipe Replaced

1.7 Optimization Results

EGI optimized its 2025 – 2034 Capital Plan based on the Asset Investment Planning and Management (AIPM) process - in particular the "Optimize Portfolio of Solutions" step (outlined in **Section 5.4**). The pre-optimized spend profile (see **Figure 3.1-1**) is reflective of the forecasted asset needs as identified by the business and confirmed by asset managers. After considering both asset needs and capital constraints, adjustments were incorporated as necessary through consultation with asset managers and key stakeholders, using the value framework for project comparison to find an optimal capital portfolio.

The optimization result addresses EGI's baseline facility needs and includes known risks and opportunities requiring action (see **Figure 1.7-1**) over the next 10 years. The optimized 10-year portfolio of capital is $11.0B (see **Figure 3.1-2**). The optimized 10-year portfolio includes 2,992 investments -- a reduction of 599 investments from the initial pre-optimized portfolio. Overall, EGI removed an average of ~$165MM/year over the 10-year plan.

The final 10-year capital plan reflects the current facility needs. As investments go through the IRP Assessment process (see **Section 5.3.3**), investments will be removed, reduced, or deferred where economically and technically feasible IRPAs are identified.

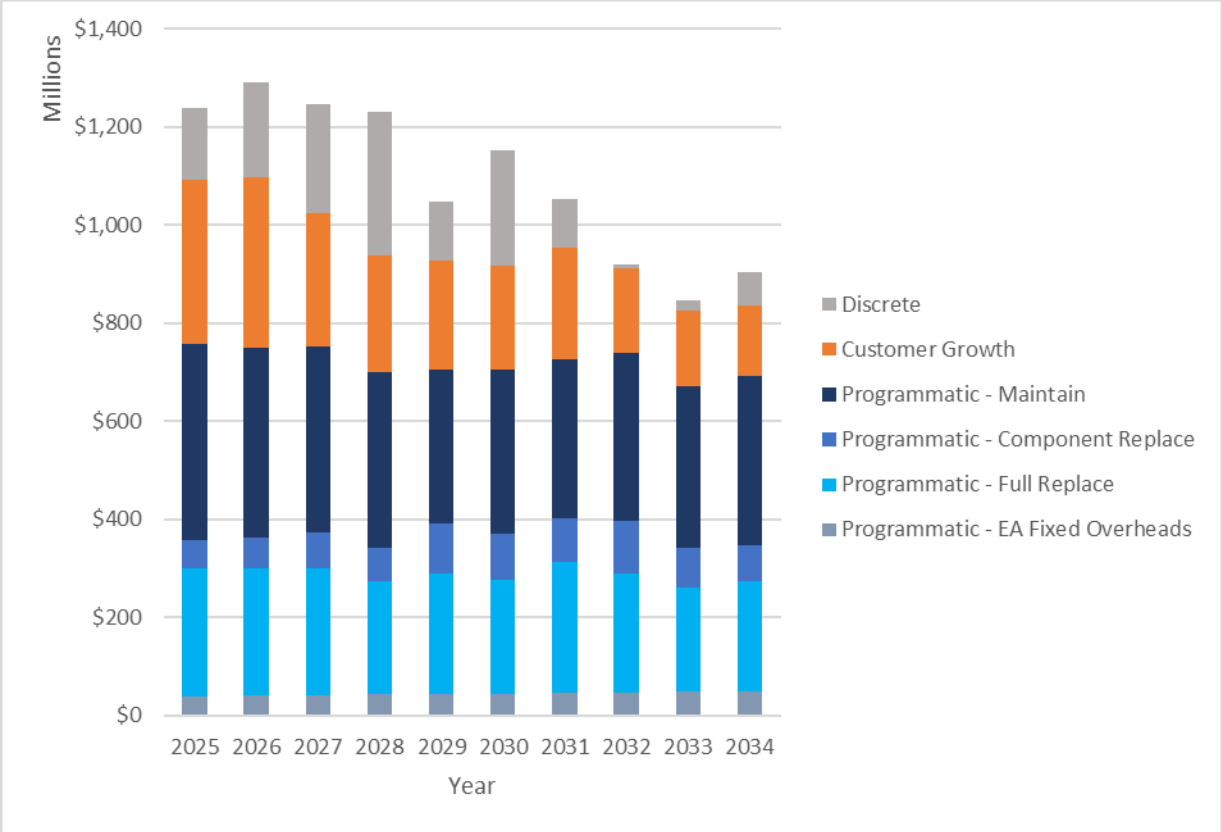


Figure 1.7-1: 2025 –2034 Post-Optimized Spend Profile by Capital Program – EGI

NOTE: *The total forecasted capital expenditure categorized by capital program is comprised of each investment's direct costs and the associated overheads. For definitions of investment categories, see* ***Section 3.1.3****.*

2 Introduction

2.1 Purpose of the Asset Management Plan

EGI is committed to the safe, reliable, and affordable provision of energy to its customers. EGI manages its assets through a robust process that includes rigorous governance and adheres to industry standards and best practices including those related to ISO5500X, the Institute of Asset Management (IAM), and the Global Forum on Maintenance and Asset Management (GFMAM).

2.2 Enbridge Gas Inc.

Enbridge Gas Inc. (EGI) is North America's largest natural gas utility by volume and third largest by customer count. EGI delivers safe, reliable service to more than 3.9 million residential, commercial, and industrial customers in Ontario, serving over 320 municipalities and Indigenous communities. EGI serves about 75% of Ontario residents and has 281 Bcf (approximately five billion cubic metres [Bcm]) of storage assets that are tied to large and growing demand centres in Canada and the U.S. providing a critical link to significant natural gas supplies.

EGI's franchise area in Ontario is divided into five operating regions (see **Figure 1.2-2**):

- **GTA East and Toronto:** Comprised of Toronto, Oshawa, and Coburg to Kingston
- **GTA West:** Comprised of Brampton/Mississauga, Barrie and Halton, Oakville/Burlington and Markham/Richmond Hill
- **Northern and Eastern:** Comprised of North Bay/Thunder Bay, Ottawa/Kingston and the Cornwall depot
- **Southwest:** Comprised of Windsor/Chatham and Sarnia/London
- **Southeast:** Comprised of Waterloo/Brantford, Hamilton, and Niagara

EGI has storage and transmission assets which receive, store, and transport natural gas for markets in Ontario, Québec, the Maritimes, and major U.S. natural gas-consuming areas. EGI's Dawn Hub in southwestern Ontario is connected to most of North America's major natural gas basins, including gas supplies in the Western Canadian Sedimentary Basin and the Utica and Marcellus regions in the U.S.

2.3 Stakeholder Commitment

EGI is committed to its customers, regulatory bodies, and other stakeholders to identify, build, and maintain mutually beneficial relationships. EGI engages its stakeholders to maintain awareness and drive involvement at the inception of new projects and throughout regular operations. Understanding stakeholders and their concerns is critical to making good business decisions and mitigating risk.

2.3.1 Customer Engagement Results

As per the Rate Handbook released by the OEB on October 13, 2016, utilities are expected to develop an understanding of their customers' needs and preferences and to incorporate the findings into their Utility System Plan (USP). EGI's AMP is a component of the USP[8].

EGI conducted customer engagement throughout 2021 and early 2022 for the 2024 Rate Rebasing application, and again in late 2023 and early 2024, referred to as the 2023 AMP Customer Engagement (see **Appendix C**). In considering the levels of safety, reliability and customer service, most customers indicated that EGI should maintain current levels of investments; and when thinking about the outcomes that matter most, customers continue to cite affordability, safety, and reliability as most important.

Results referenced in this AMP are summarized here:

- **Customers support EGI looking at the long-term health of the system** and investing to spread out costs over time rather than focus on the immediate impact on rates (i.e., spending only what is needed now). Generally,

[8] EB-2022-0200, Exhibit 2, Tab 6, Schedule 2

customers also give preference to pipeline replacement, as opposed to additional spending to inspect, repair, and maintain (with the goal to delay replacement), or alternatives that may cost more in the long run.

- **Most customers agree that EGI should actively invest in lower-carbon solutions** and when considering benefits to reduce GHG emissions, it should first consider the cost-effectiveness of the project.
- **Distribution Pipe and AMP Fittings:** The majority of residential customers and business customers would prefer EGI to address pipelines at risk before leaks are detected and prevent leaks as much as possible. Similarly, customers prefer EGI to replace AMP fittings proactively rather than wait for leaks to occur, even when that requires increased spending now to save money in the long term.
- **TIS, Fleet and Equipment:** The majority of customers agree that EGI should seek to optimize the size of its vehicle fleet and manage replacement and maintenance costs accordingly. Customers also support investments in technology benefits that improve efficiency and help achieve savings over the longer term.

These results demonstrate that customers are aligned with EGI's commitment to the safe, reliable, cost-effective, and environmentally responsible provision of energy. It also informs and reinforces EGI's asset management decision-making framework. EGI's values and guiding policy statements (see **Section 4.3**) align with the preferences of customers in the following ways:

- Asset management goals include employee and public safety, compliance, financial performance, and value-based decision-making that incorporates the goal of environmental sustainability. EGI is committed to providing the right energy solutions that meet customer needs, which include lower-carbon energy solutions.
- EGI is committed to prudent value-based decision-making for all asset-related investments on a holistic evaluation of risk, cost, and performance.
- EGI is committed to understanding and delivering value to its customers.

2.3.2 Indigenous Consultation and Engagement

EGI is committed to building respectful and foundational relationships with Indigenous groups. In Ontario, the Community and Indigenous Engagement (CIE) team supports all utility engagement, and regularly interfaces with Indigenous communities that are current or prospective natural gas customers or that are in proximity to EGI operations. EGI's life cycle approach to engagement includes standards of practice for formal consultation on proposed projects, but also engagement for building respectful, constructive, and enduring relationships that foster trust with and generate benefits for Indigenous groups over the life cycle of EGI assets. An Indigenous Working Group was established through the Settlement Agreement in 2024 Rebasing Phase 1. The purpose of the working group is to provide information, receive feedback and engage in discussion about matters of interest to the IWG in relation to EGI rates and services.

For new asset initiatives, EGI seeks to achieve early and meaningful engagement so communities' input can help define projects and plans that may traverse Treaty lands and traditional territories of the Indigenous Nations.

3 Summary of Capital Expenditure

3.1 Portfolio Optimization

This section summarizes the capital expenditures required to meet EGI's asset management goals and to balance risk, benefits, cost, and performance. **Section 5.3.3** outlines the optimization methodology used to derive these expenditure requirements. Through careful consideration of the key inputs to the asset investment planning and management process (risk, benefits, cost, customer engagement feedback, and resource constraints), this plan provides critical direction for EGI's baseline facility needs over the next 10 years.

3.1.1 Assumptions

The 10-year capital investment plan is based on the best available information at the time of completion. Key assumptions are highlighted in **Table 3.1-1** to **Table** 3.1-4.

Table 3.1-1: All Categories Assumptions

Assumption	Basis for Assumption
Optimization results are based on available information as of May 2024.	Based on EGI's Optimize Portfolio of Solutions process, the portfolio of spend is determined through the completion of Copperleaf leveling and subsequent reviews. Results are based on best available information.
All investments are considered in-scope for optimization.	Investments have passed through the Solution and Value assessment stage of the AIPM process (see **Section 5.4**) and have forecasted capital between 2025 and 2034.
Future costs are valued at 2024 Present Value.	Current practice forecasts projects based on 2024 rates.
Future costs do not include inflationary measures.	Normal inflationary measures and impacts such as rising material costs, foreign exchange, and labour are expected to be covered within investment contingency. Incremental shifts in inflation caused by global supply chain shortages, pandemics, or other unusual circumstances have not been considered. A small number of programs with defined scope/unit rates have included a factor where information was available to inform the assumption (such as meter purchases and vehicle purchases).
Cost estimates are based on available information as of March 2024.	Using EGI's AIPM process, these forecasts will be reviewed and revised as investments mature.
All Risk Assessments are based on risk models and methodology as of March 2024.	Using EGI's Risk Management process, EGI's significant operational risks are reviewed quarterly and revised as required.
Projects in flight that span over multiple years must continue until complete.	Once a project is in progress, it is inefficient and costly to terminate.
The proposed capital expenditures represent facility alternatives.	EGI has applied the IRP Framework to all investments identified in the AMP. The current assessment status of all applicable investments can be found in **Appendix B**.

Table 3.1-2: Renewal Assumptions

Assumption	Basis for Assumption
Asset health provides a reasonable representation for asset condition and remaining asset life for forecasting purposes.	Reliability engineering is used to understand asset health based on projected life cycles, consequences of failure, tacit knowledge, asset data, and risk.

Table 3.1-3: Customer Growth Assumptions

Assumption	Basis for Assumption
Customer growth is forecast using historical trends, economic projections for the planning period, and Energy Transition adjustments.	The customer growth forecast considers projected housing starts, municipal growth forecasts, general economic indicators and projections, localized trends, and macro-economic factors. Energy Transition adjustments are also included in the Customer Additions forecast, as noted in **Section 4.5**.

Table 3.1-4: Solution Planning Assumptions

Assumption	Basis for Assumption
Budgeting and forecast are determined through the Solution Planning & Value Assessment process.	EGI determines the forecast by following appropriate project planning processes and considering region and work type.

3.1.2 Investment Criteria

In preparation for optimization, comprehensive governance reviews were completed on proposed investments using the following criteria:

- Investment scope met EGI's capitalization policy.
- Investments presented a well-articulated purpose; need and timing aligned with asset class objectives and life cycle management strategies (see **Table 5.2-1**).
- Investment scope definition and alternatives adequately addressed project risks and/or benefits.
- Investments supported the asset management principles of balancing risk, benefits, cost, and performance.
- Execution risks were reasonable (resource capacity).
- Initiatives identified as Mandatory or Compliance (see **Table 5.2-2**).
- In-flight Investments with costs continuing into 2025 to 2034 have remaining work that could not be shifted.
- Investments with variable timing (optimizable) had accurate value assessments completed.

In total, 3,591 investments were included in the initial pre-optimized request for capital. The initial pre-optimized request is illustrated in **Figure 3.1-1**, generated from the asset investment planning tool (Copperleaf).

3.1.3 Capital Considerations

The optimization process is based on EGI management setting a capital constraint or threshold from which a portfolio of work driven by asset needs is defined. The capital constraint is determined based on the asset needs and financial considerations. Determining the capital constraint involves EGI's Asset Management, Finance, and Regulatory departments. To complete EGI's latest portfolio optimization, EGI considered optimization conditions and constraints for two time intervals: (1) 2025 to

2028, which comprises the budget year 2025 plus a three-year Long-Range Plan (LRP) and (2) the remainder of the 10-year plan.

EGI's conditions and constraints for optimization were determined through the following efforts:

- Capital required to meet asset class strategy needs and ability to operate assets safely, reliably, and in compliance with regulatory obligations and standards
- Consideration of the Decision and Order for EGI Application for 2024 Rates – Phase 1[9]
- Examined inflated average historical asset class spend to guide programmatic capital spend and pacing the impact to customers over each of the optimization time intervals
- Considered rate recovery treatment and timing of discrete investments
- Included effect of energy transition on customer growth
- Screened for IRP as per the criteria laid out in **Section 4.6**
- Considered asset life extension opportunities to continue and further capital spend pertaining to maintenance, inspection, and repairs where possible

To support in illustrating the categorization of investments and importance of sustaining the base business as well as EGI's obligation to meet growth demands, new capital definitions have been created:

1. **Programmatic –** Capital expenditures deemed necessary through asset condition assessments and other forecasting methodology to sustain safe, reliable, and compliant operations by maintaining asset function and extend the life as well as improve operational efficiency and customer service.

   Programmatic spend can be further divided into:

   a. **Maintain –** Capital activities associated to extending life and restoring service or function of assets. Included in these activities may be small scale replacements for risk management, failures, and where repair or inspection alternatives are not feasible or practical.

      For linear assets (i.e., pipelines), these replacements are considered to be ≤ 10 m which allows for safe excavation and construction practices. For non-linear assets (i.e., stations or storage assets), these replacements are considered to be modifications to small sections or fittings within a subsystem (e.g., valve replacements).

      Programs within the Maintain subcategory include but are not limited to:

      - Integrity Management Program (IMP) investments supporting asset inspections or remediations (e.g., capital repairs, maximum operating pressure [MOP] downgrades, and retrofits, etc.)
      - Emergency or reactive programs (e.g., emergency blanket spend and reactive service replacements)
      - Risk management investments where risk thresholds may be exceeded
      - Corrosion Prevention Program (e.g., installation of anodes, rectifiers, bridge repairs, and painting and coating investments)
      - Overhauls
      - Well stimulation
      - Meter Exchange Program

   b. **Component Replacement –** Replacement activities pertaining to pipe relocations, assets that are not viable or cost-effective to repair, or where increased risk of failure is anticipated. These activities extend the life of the overall system by targeting localized needs and limit replacement scope.

      For linear assets, a component replacement is considered to be >10 m but ≤ 250 m. For non-linear assets, these are considered to be replacements of one to two subsystems. For descriptions of station subsystems, see **Sections 6.2.2** and **6.3.2**.

      Programs within the Component subcategory include but are not limited to:

      - Station subsystem replacements due to condition or obsolescence (e.g., heating, electrical, odourization, and controllers, etc.)

[9] EB-2022-0200

- General Main replacements of distribution pipe (e.g., short relocations, depth of cover, and condition-based replacements, etc.)
- Well components (e.g., casings and valves, etc.)

c. **Full Replacement –** Replacement activities pertaining to relocations, assets that are not viable or cost-effective to repair, or where increased risk of failure is anticipated. These activities are largely driven by compliance or obligatory contractual requirements and risk-based strategies.

For linear assets, a full replacement is considered to be > 250 m. For non-linear assets, these are considered to be the replacement of more than two subsystems. For descriptions of station subsystems, see **Sections 6.2.2** and **6.3.2**.

Programs within the Full subcategory include but are not limited to:

- Class Location
- Depth of Cover
- Municipally-driven relocations
- Widespread pipeline replacements associated to condition (e.g., bare unprotected and distribution station rebuilds)

2. **EA Fixed Overheads –** Extended Alliance (EA) Fixed Overhead. The EA Fixed Overhead asset class includes costs for Alliance Partner overheads and contractor prework costs.
3. **Customer Growth –** Includes costs associated with connecting customers (new mains, services, meters, and regulating equipment) and distribution system reinforcement but excludes large transmission and distribution reinforcements covered under Discrete.
4. **Discrete –** Spend for projects with significant magnitude, scope, and scale as compared to programmatic. Also includes aggregated EDIMP outcomes.

The initial pre-optimized request for capital was $12.6B. Since investment timing can shift during optimization while overheads remain fixed, the annual capitalized overheads are treated as a separate investment during optimization. Once optimization is complete, overheads are applied to all investments and are reflected as such throughout this section. Overhead amounts are approximated based on the most recent approved plan at the time of optimization and then refined at the investment level once project timing is confirmed.

Prior to optimization, investments were categorized into investment categories (see **Table 5.2-2**) in Copperleaf based on asset management principles and aligned with EGI's capital programs.

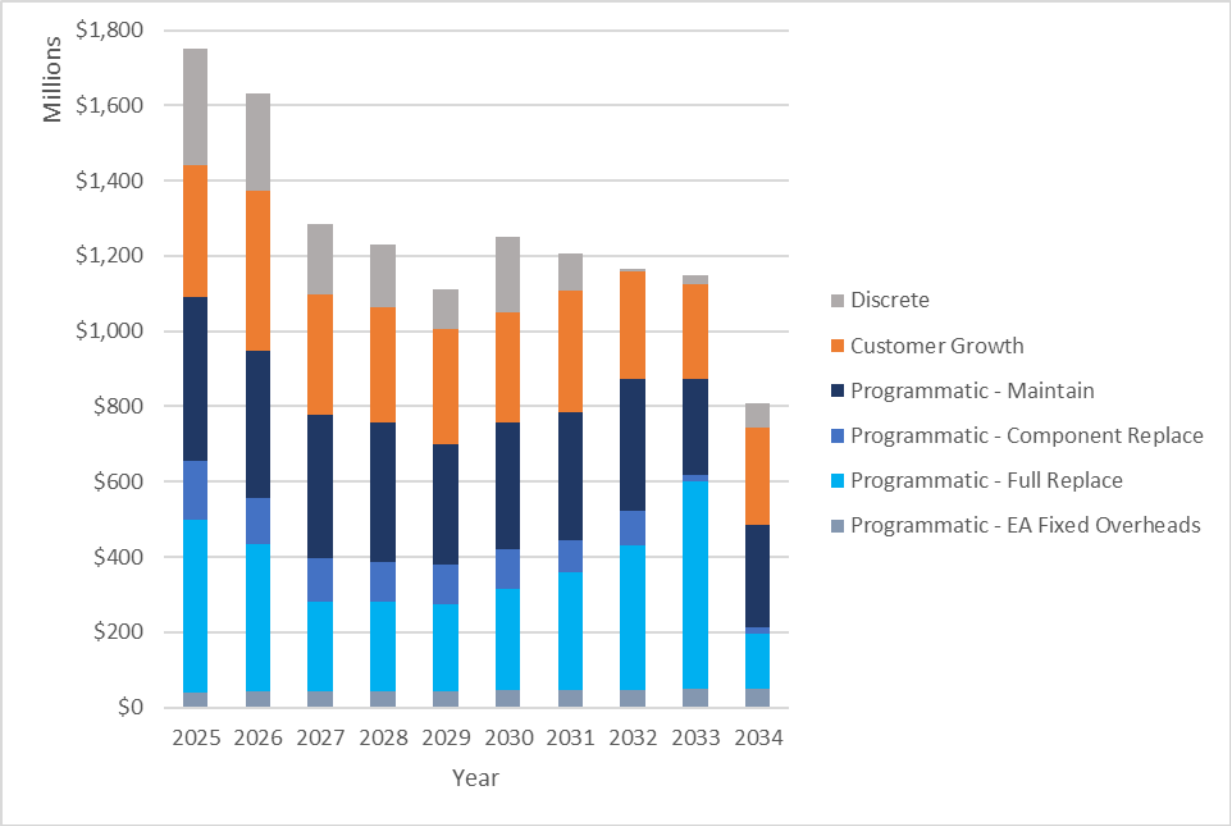


Figure 3.1-1: 2025 – 2034 Pre-Optimized Spend Profile by Capital Program

NOTE: *The total forecasted capital expenditure categorized by capital program is comprised of each investment's direct costs and the associated overheads.*

3.1.4 Optimization Results

The Capital Plan was optimized from 2025 to 2034 using the Optimize Portfolio of Solutions step of the AIPM process (outlined in **Section 5.4**). The pre-optimized spend profile (see **Figure 3.1-1**) is reflective of the forecasted needs of the assets as identified by the business and confirmed by asset managers. Copperleaf factors in both asset needs and capital constraints to find an optimal capital portfolio. Adjustments were incorporated as necessary through consultation with asset managers, key stakeholders and using the value framework for project comparison.

As described in **Section 5.4.4**, the optimized results were reviewed with all asset managers and business stakeholders. Adjustments were proposed to better align the plan to life cycle management strategies, opportunities to pursue integrated resource planning, resource balancing requirements, other external project dependencies (e.g., moratoriums and customer requests), and the capital budget target. Investments that were not properly time-constrained in Copperleaf were adjusted to reflect more appropriate timing to support long-term resource management. Updates for any discrete projects were also reviewed and adjusted.

The optimization result addresses the organization's baseline facility needs and includes known risks and opportunities requiring action over the next 10 years. The optimized 10-year request for capital was $11.0B (see **Figure 3.1-2**). The optimized 10-year request includes 2,992 investments – 599 less than the initial pre-optimized request. Overall, EGI removed an average of ~$165MM/year over the 10-year plan. For 2025, 61% of the capital is programmatic spend, 27% customer growth, and 12% discrete projects. For the remaining years, the programmatic capital spend averages 67% of annual plan:

- Full replacement spend is split between external project drivers and risk-based projects in the LRP time frame. Risk-based projects are namely distribution stations being rescoped to **component** or **maintain** levels as the 10-year period goes on, Proactive Vintage steel which is likely to evolve in proposed scope as EDIMP continues, and the Waubuno Life Cycle project. Externally-driven programs are largely Municipal Relocations, Class Location, and Depth of Cover which are generally prescriptive when determining project scope (i.e., length of pipe to be replaced). Non-

commodity-carrying asset full replacement forecasted spend contributes approximately one-quarter ($75MM average per year) of the total full replacement post-optimization spend.

- Component Replacements are expected to increase over time as Full replacements get rescoped through EDIMP and risk assessments, etc.
- Maintain is largely driven by capital spend for the Meter Exchange Program, Integrity inspection programs, and service relays (reactive and proactive).

The reduction in the number of investments was achieved using optimization to assign timing to investments in order to maximize the value of the portfolio while still meeting business needs and through adjustments EGI made in consultation with internal stakeholders. The investments that were assigned timing outside of the 10-year window were primarily Real Estate and Workplace Services (REWS) property upgrades and full replacements in the Distribution Pipe and Distribution Station asset classes. The remaining reductions were achieved through review of the proposed capital for each asset class and comparing for alignment with the asset class strategies and to historical spend levels.

The final 10-year capital plan reflects the current needs, as EGI completes the evaluation of investments through the IRP Assessment process (see **Section 5.3.3**), investments will be removed, reduced, or deferred where economically and technically feasible IRPAs are identified.

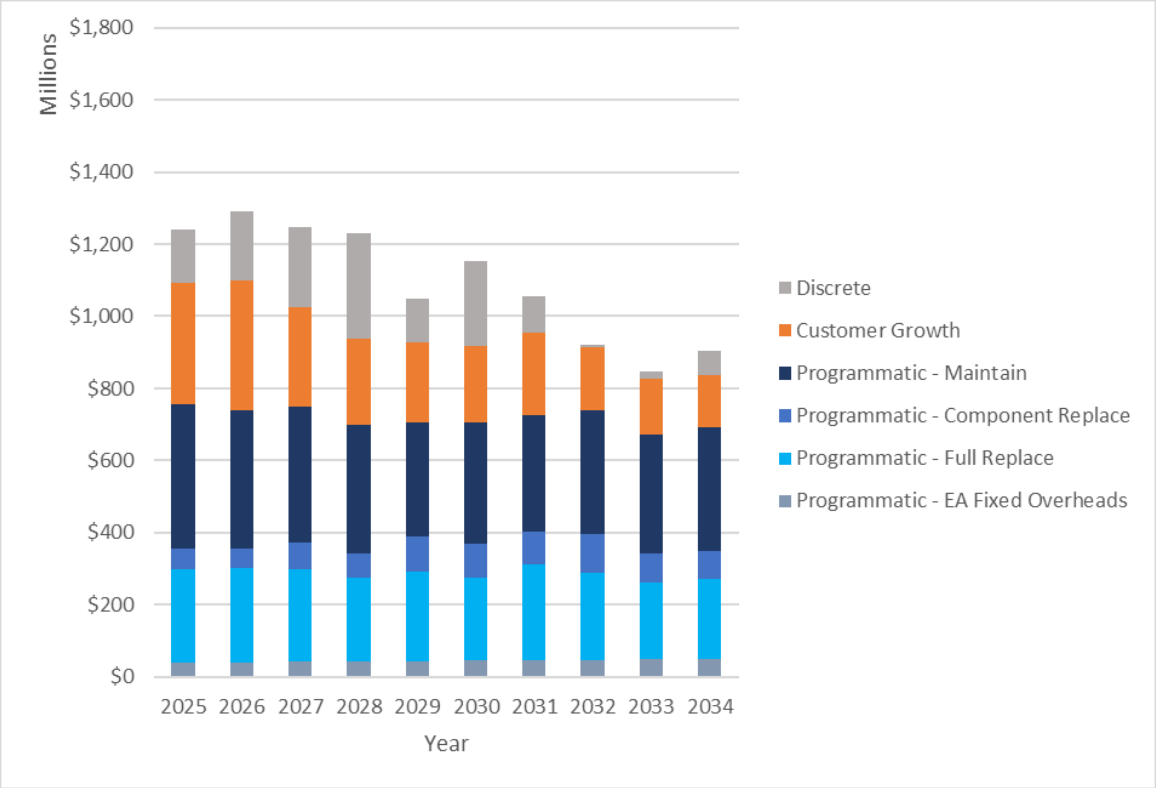


Figure 3.1-2: 2025 – 2034 Post-Optimized Spend Profile by Capital Program – EGI

NOTE: *The total forecasted capital expenditure categorized by capital program is comprised of each investment's direct costs and the associated overheads.*

3.1.5 Methodology to Implement Capital Budget Reduction

Section 5 speaks to both capital and O&M strategies that are currently employed to maximize the expected life of assets. Programs such as standard for inspection on station assets; integrity inspections and condition monitoring of TIMP mains; and the Meter Exchange, Corrosion Prevention, and Painting/Coating programs continue to extend the life of assets and asset systems. As shown in **Figure 3.1-2** in comparison to the pre-optimized view in **Figure 3.1-1**, the capital associated to the programmatic subcategories changed through optimization: **Maintain** increased by 2%, **Component Replacements** reduced by 14%, and **Full Replacements** reduced by 25% over the 10-year period. This shows the ongoing focus on system

maintenance and reduction of replacement work, specifically full replacements as deemed appropriate. The results in the profile for programmatic spend were smoothed and asset strategies were adjusted, as necessary.

EGI was successful in achieving these reductions by reprioritizing its capital portfolio using value-based decisions and managing risk while still maintaining safe and reliable operations by leveraging:

- Continuous reassessment of project needs to focus on component replacements in order to address short-term critical needs. This may result in increased cost to the customer in the long term as component replacements over time may cost more than full replacement.
- Launching the EDIMP Program – As a subprogram within the DIMP, EDIMP focuses on a subset of distribution pipelines (based on criticality to operations) and is expected to increase understanding and data collection through improved condition monitoring techniques. Inspections to capture field data on condition and asset health will be collected, where possible, through ILI technology, nondestructive examination (NDE), high-resolution leak detection, and computational methods in order to recommend alternatives to pipe replacement and to effectively manage risk.
- IRP Program – investments that pass the IRP Screening process resulting in IRPAs are expected to further reduce capital spend as the program evolves. For more details on IRP, see **Section 4.6**.
- Continuing to replace distribution pipe annually at a modest pace, targeting the needs of the system towards proactive replacements that seek to mitigate expected failures, maintaining compliance and contractual obligations. Historically, <1% average of distribution pipe was replaced annually through all categories (maintain, component, and full) – approximately 100 km of 82,000 km. This same pace of pipeline replacement is expected over the 10-year term.

3.2 Summary of Capital Variance

The capital profile is presented at an EGI level for 2025 to 2034 (see **Figure 3.1-2)**. The direct 10-year capital profile for EGI from 2025 to 2034 totals approximately $11B in proposed asset expenditures. **Table 3.2-1** and **Table 3.2-2**: show the 2025 capital profile and variance explanations.

Table 3.2-1 shows the 2025 forecast published in the 2023 Capital Update and the proposed 2025 capital budget and lists any variance explanations. A large variance that applies to all asset classes is the reduction to the capitalized indirect overheads which has been reduced by $118MM as per the 2024 Rebasing Phase 1 Decision, as well as the Settlement Agreement. As discussed in **Section 5.3**, emerging and revised projects were identified and evaluated based on the existing 2025 portfolio. Updated cost estimates were prepared for new or revised 2025 projects.

Table 3.2-1: 2025 EGI Capital Budget and Variance Explanations (Includes Overheads)[10]

Asset Class	2025 Budget (2023 Capital Update) ($million)	2025 Budget (Current AMP) ($million)	Variance ($million)	Variance Explanation
Growth	448.1	321.4	(126.7)	**Growth:** The decrease of $163MM is attributed to the deferral of $93.5MM for the Hamilton Reinforcement Project to 2028; the deferral of $28.5MM for the Owen Sound Reinforcement project due to energy transition demand assumptions modelling update, and the cancellation $20.5MM for the Wonderland MOP and station upgrade. The remaining $39.6MM decrease is a result of deferrals due to capital reductions. Several projects had small increases to capital; the most significant being a $3.0MM increase to the Mississauga Shelburne, Blind Line Reinforcement. **Customer Connections:** The increase of $36.4MM is attributed to the changes in the Extended Alliance (EA) contract (updated Fall 2023) as the result of Inflationary pressures in construction and material costs.
Distribution Pipe	414.4	331.5	(82.9)	The decrease of $82.9MM is attributed to the St. Laurent Project reduction of $35.7MM due to a revised execution plan which deferred some scope to 2026. An additional reduction of $90.2MM was due to the deferral of four major projects (i.e., Wilson Avenue, Glenridge Avenue, Martin Grove Phase 2, and Port Stanley works) driven by restrictions on the capital budget. There was the cancellation of $17.4MM Moulton BU project and the $5.6MM Erin Aldyl A replacement. A reduction of $1.1MM in corrosion was due to a change in engineering standards. This decrease is offset by increase of $38.0MM to General Main Replacements, $3.8MM to Relocations Blankets, and $1.8MM to Service Relay Blankets increased by $1.8MM. The Dig Program increased by $23.1MM to match the updated projected dig volume; other minor revisions in individual retrofit projects were offset by reprioritization of the Retrofit Program.
Distribution Stations	113.1	73.7	(39.4)	The decrease of $39.4MM is attributed to $33.8MM in deferrals due to reprioritization of the portfolio to execute 2024 deferrals and re-evaluating component level replacement instead of executing on significant rebuilds. Integrity Initiatives decreased by $8.3MM due to capital constraints. This decrease is offset by increase of $2.7MM to install refueling CNG stations in Peterborough, Sudbury, and Waterloo, which were deferred out of 2024 due to capital constraints.
Utilization	160.1	166.0	5.9	The increase of $7.1MM in the Regulator Refit is attributed to the changes in the Extended Alliance (EA) contract. This is partially offset by $1.8MM reduction in meter purchase and an increase of $0.4MM to the remediation forecast due to the deferral of the 2024 work into 2025.

[10] 2025 Capital update as filed in the Rebasing application

Asset Class	2025 Budget (2023 Capital Update) ($million)	2025 Budget (Current AMP) ($million)	Variance ($million)	Variance Explanation
Compression Stations[11]	64.3	49.3	(15)	The decrease of $15.0MM is attributed to the deferral of $15.3MM for the Dawn C Compression Life Cycle project to allow time for completion of an asset health review and reliability assessment for the Dawn Hub to support solution alternative analysis. Other notable changes within the asset class include the addition to new projects identified through inspection activities and deferrals of some projected overhauls based on current run hours of the units.
Transmission Pipe & Underground Storage	151.5	113.9	(37.6)	The decrease of $37.6 MM is attributed to the deferral of $26.70MM for the Leamington Interconnect, deferral of $1.9MM Dow A McPlank Connection, and the cancellation of $31.8MM Panhandle Line – Risk Mitigation. There is also a decrease of $2.2MM in the Panhandle Regional Expansion Project's (PREP)[12] Dawn Facilities, an increase of $1.7MM in PREP's NPS 36 Pipeline, and an increase of $0.2MM in Dawn-Parkway's Kirkwall-Hamilton. This decrease is offset by an increase of $10.7MM for Integrity Dig Program due to the deferral of the 2024 Trafalgar NPS26 and NPS34 Lowering Projects to 2025 and the addition of $2.9MM Trafalgar NPS 34 Hamilton-Milton-Oldenburg Road class location project. There is also an increase of $3.6MM from other smaller projects and programs due to inflationary pressures in construction and material costs.
Fleet & Equipment	35.4	38.0	2.6	The increase of $2.6MM is attributed to a capital tools purchase for double block and bleed isolation equipment.
Real Estate & Workplace Services	61.3	32.3	(29.0)	The decrease of $29.0MM is attributed to project deferrals.
TIS	78.0	73.8	(4.2)	The decrease of $4.3MM is attributed to a reduction in IT Infrastructure (includes Network Sustainment, Business Application Solutions) and the deferral of Corrosion Protection and Leak Survey Enhancement Project.
EA Fixed Overheads (O/H)	40.8	40.0	(0.8)	The decrease of $800K is attributed to a reduction of $3.2 MM for Fixed Overhead – STIP. This was offset by an increase of $1.3MM to Growth and $1.1 MM to Pipe.
Total	1,567.0	1,239.9	(325.6)	

[11] Compression Stations includes LNG
[12] EB-2022-0157

Table 3.2-2 shows the 2024 Forecast compared to the proposed 2025 Capital Budget. Due to the timing of the 2024 Forecast data, the 2025 Budget may include investments that have shifted out of 2024 that are captured in the 2024 Forecast.

Table 3.2-2: 2024 EGI 8+4 Forecast vs 2025 EGI Capital Budget and Variance Explanations (Includes Overheads)

Asset Class	2024 8+4 Forecast ($million)	2025 Budget ($million)	Variance ($million)	Variance Explanation
Growth	317.8	321.4	3.6	**Growth:** The consultation process for Hydrogen Blending has taken longer than anticipated in 2024; therefore, $2.6MM of the forecast has been deferred to 2025. In addition, there is the deferral of the $10.2MM Hamilton Reinforcement Project and the cancellation of $0.5MM Grimsby-Lincoln Expansion Project. **Customer Connections:** the fluctuations seen between 2024 and 2025 are largely represented by the uncertainty of the OEB's decision and the Ontario Government's response; therefore, the overall variance in the Customer Connections portfolio is showing a reduction in 2025 by $8.3MM.
Distribution Pipe	234.0	331.5	97.6	The increase of $97.6MM is attributed to $81.5MM for the pending Leave to Construct (LTC) approval for the St. Laurent Project. In addition, there is an increase of $2.7MM for Corrosion Mitigation and $13.5MM for Relocation.
Distribution Stations	34.6	73.7	39.1	The increase of $39.1MM is attributed to $36.1MM reprioritization of the portfolio to execute 2024 deferrals and re-evaluating component level replacement instead of executing on significant rebuilds. Significant projects include GTAW Parkway Gate Station Rebuild Phase 2, Albion Feeder Control Valve upgrade, and the Leamington N Gate station. In addition, there are increases by $1.8MM to install 2024 deferred fleet refueling CNG stations and $1.2MM to the Inside Reg & ERR Program.
Utilization	172.4	166.0	(6.5)	The 2025 budget was largely based on historical workload completion rates for the Meter Exchange Program, and 2024 has shown higher completion rates compared to recent years. Also, the Advanced Metering Infrastructure (AMI) Pilot Program will be going into a monitoring phase and has no spend in 2025 for meter technology purchases.
Compression Stations	67.6	49.3	(18.3)	The decrease of $18.3M in the Compression Stations Asset Class is largely attributed to the $42.0MM Dawn to Corunna Pipeline[13] project going into service in 2023 and all planned carry-over work completed in 2024. This decrease is largely offset by an increase of $9.6MM for the Improvements Asset Program (includes several planned emission reduction investments), an increase of $10.7MM for the Replacements Asset Program (identified through inspection activities and programs), and a $3.4MM increase for Life Cycle Replacement of the Waubuno Compressor.

[13] EB-2022-0086

Asset Class	2024 8+4 Forecast ($million)	2025 Budget ($million)	Variance ($million)	Variance Explanation
Transmission Pipe & Underground Storage	250.6	113.9	(136.7)	The decrease of $136.0MM is attributed to $151.3MM PREP's NPS36 Pipeline Loop anticipated completion in 2024, offset by a $5.4M increase in PREP's Dawn Facilities. There is an overall reduction of $5.0MM for the Integrity Dig Program and $0.5MM for the anticipated completion of Bluewater and Mandaumin Observation Wells in 2024. This decrease is offset by an increase of $5.5MM for the Waubuno Replacement Wells Project, $5.1MM for the Class Location Program (due to the atypical low forecast in 2024 deferring expenditures), $5.4MM for the Depth of Cover Mitigation Program, $5.0MM for the Retrofit Program and $2.5MM for Metering Station Filter projects and in other programs (i.e., High Performance Coating, Well Acid Stimulation, and Atmospheric Storage Tank Level Instrumentation).
Fleet & Equipment	19.7	38.0	18.3	The increase of $18.3MM is attributed to program deferrals. Fleet & Equipment has been operating with a reduced budget since 2022 increasing the age of the assets.
Real Estate & Workplace Services	62.6	32.3	(30.4)	The decrease of $30.4MM is attributed to the deferral of Ottawa New Building.
Technology & Information Systems	54.2	73.8	19.6	The increase of $19.6MM is attributed to projects that are required to support process and system enhancements while in parallel reducing EGI's operational and cybersecurity risks. Significant projects include Contract Market Systems - Technology Obsolescence and Contract Market Harmonization.
EA Fixed Overheads (O/H)	39.8	40.0	0.2	N/A
Total	1,253.3	1,239.9	-13.4	

3.2.1 Asset Class Capital Summaries

Variations in asset class spend profiles represent changes in how EGI sustains the base business and EGI's obligation to meet growth demands as defined by the capital programs described in **Section 3.1.2.** The variance explanations noted in **Table 3.2-1** and **Table 3.2-2**: are tied to the asset class strategies described in **Section 6**.

Note that the total forecasted capital expenditure categorized by capital program in the following asset class summaries is comprised of each investment's direct costs and the associated overheads.

3.2.1.1 Growth

The average annual capital spend for the Growth asset class is forecast to be $229MM over the 10-year plan (**Figure 3.2-1**: **)**. Pre-optimization of the capital spend averaged $311MM as shown in **Figure 3.2-2**. This reduction of $819MM over the 10-year plan reflects an update to the customer connections forecast and system reinforcement plan during optimization accounting for the effect of energy transition. Higher spend of discrete capital in 2026 and 2027 post-optimization is due to a shift in timing of the Hamilton Reinforcement project (see **Appendix A**). For further details on the Growth asset class, see **Section 6.1**.

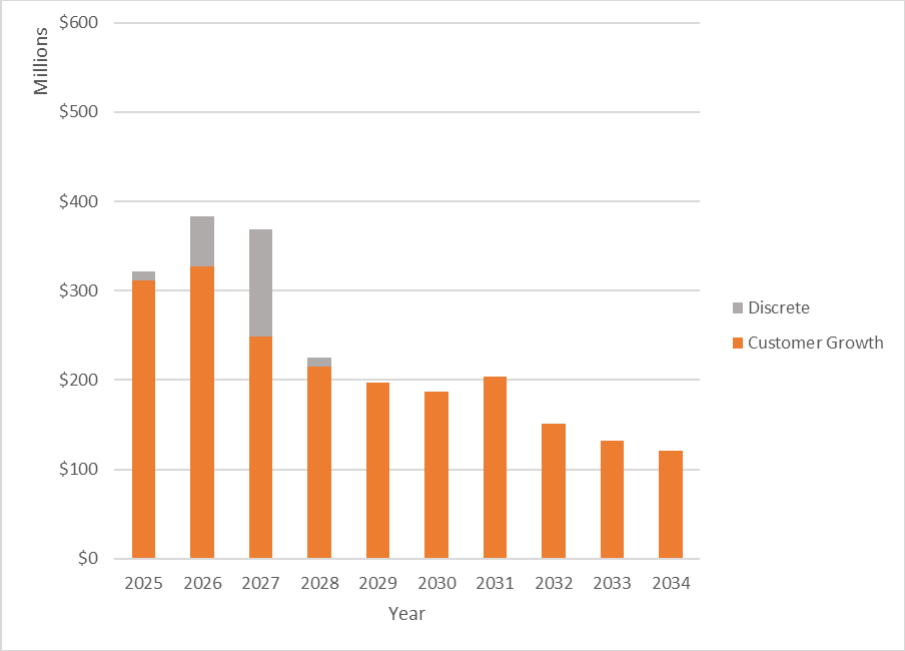


Figure 3.2-1: Post-Optimization Capital Expenditure for Growth

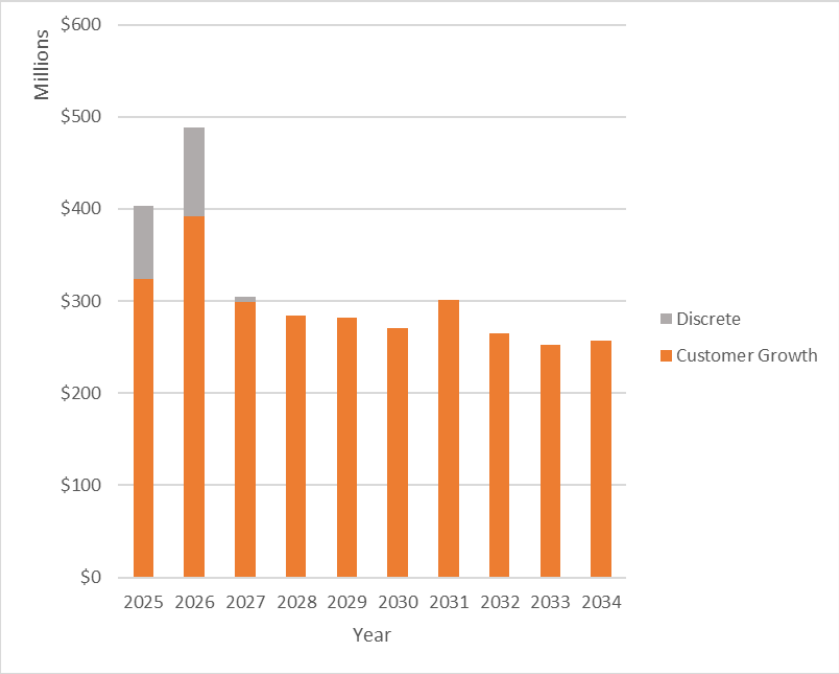


Figure 3.2-2: Pre-Optimization Capital Expenditure for Growth

3.2.1.2 Distribution Pipe

The average annual capital spend for the Distribution Pipe asset class is forecast to be $280MM over the 10-year plan as shown in **Figure 3.2-3**. Pre-optimization of the capital spend averaged $352MM as shown in **Figure 3.2-4**. This represents an overall reduction of $721MM over the 10-year plan and reflects lower spending mainly in the proactive Vintage Steel Replacement Program. Lower spend of discrete capital in 2025 and 2026 post-optimization is due to a shift in timing of A10 Wilson Ave, NPS 8 Port Stanley, and Martin Grove Road replacements which are all under assessment in the EDIMP (see **Appendix A**). For further details on the Pipe asset class, see **Section 6.2.3**.

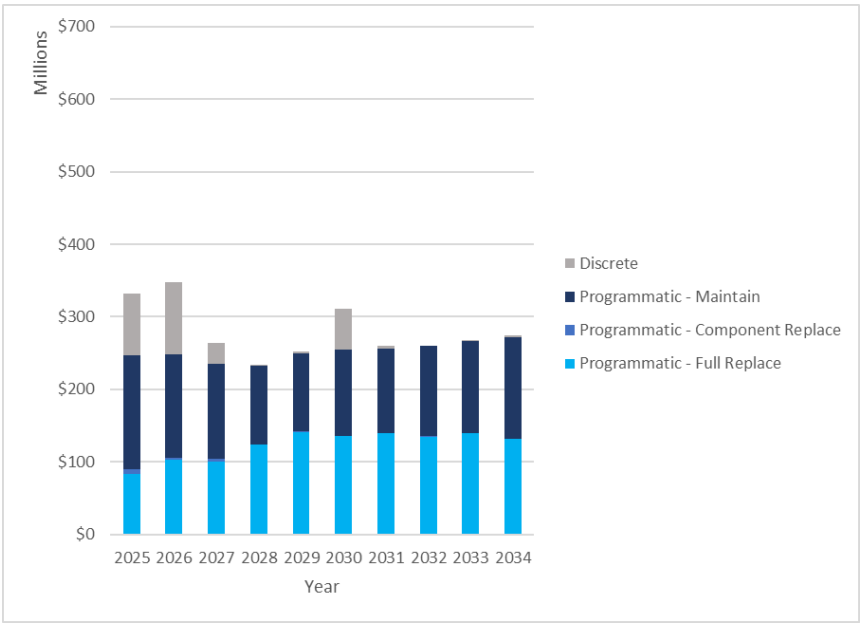


Figure 3.2-3: Post-Optimization Capital Expenditure for Distribution Pipe

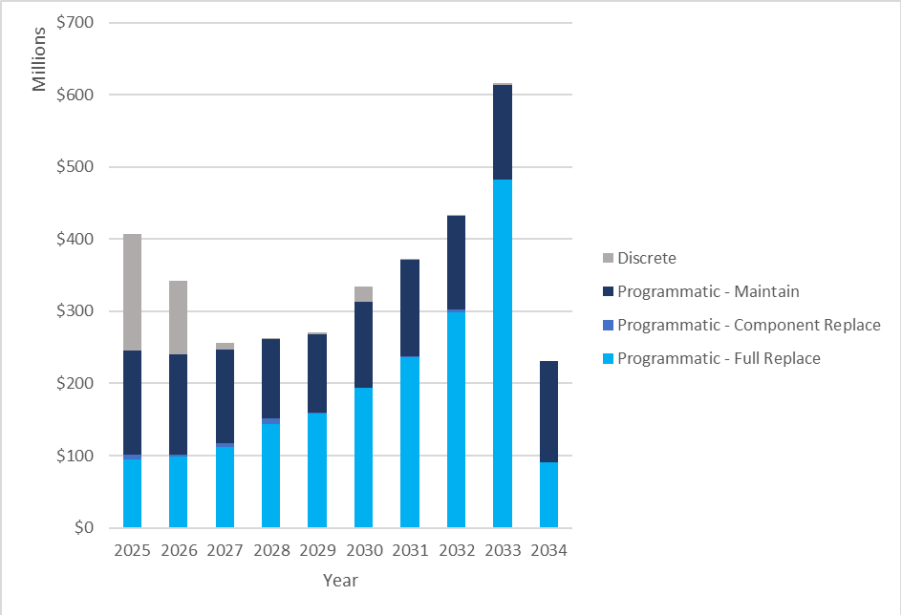


Figure 3.2-4: Pre-Optimization Capital Expenditure for Distribution Pipe

3.2.1.3 Distribution Stations

The average annual capital spend for the Distribution Station asset class is forecast to be $83MM over the 10-year plan as shown in **Figure 3.2-5**. Pre-optimization of the capital spend averaged $92MM as shown in **Figure 3.2-6**. This represents an overall reduction of $88MM over the 10-year plan and reflects lower spending mainly in the Distribution System Station Replacement program. For further details on the Distribution Stations asset class, see **Section 6.2.4**.

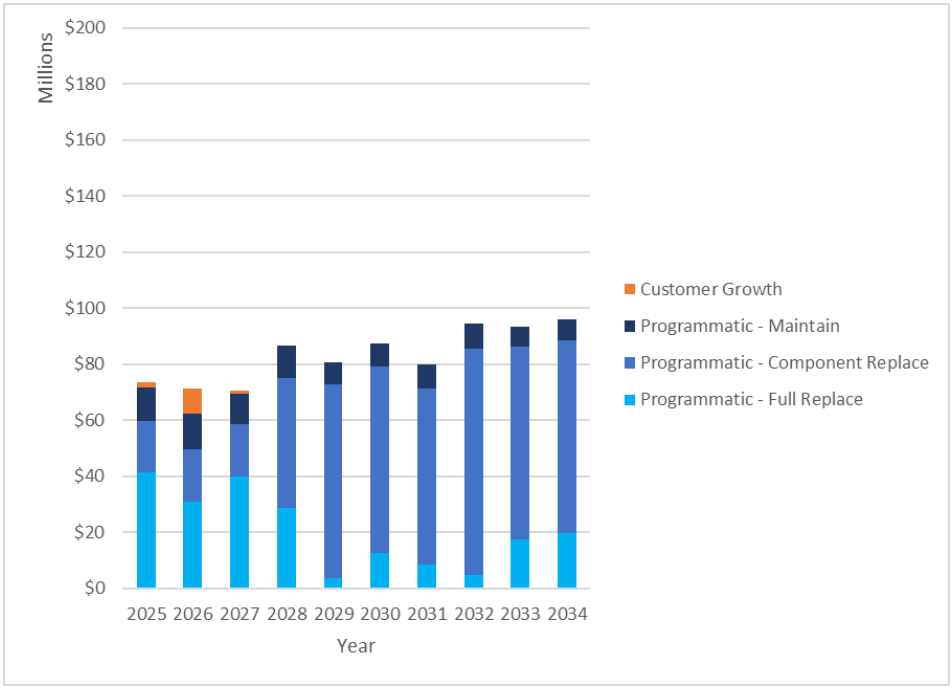


Figure 3.2-5: Post-Optimization Capital Expenditure for Distribution Stations

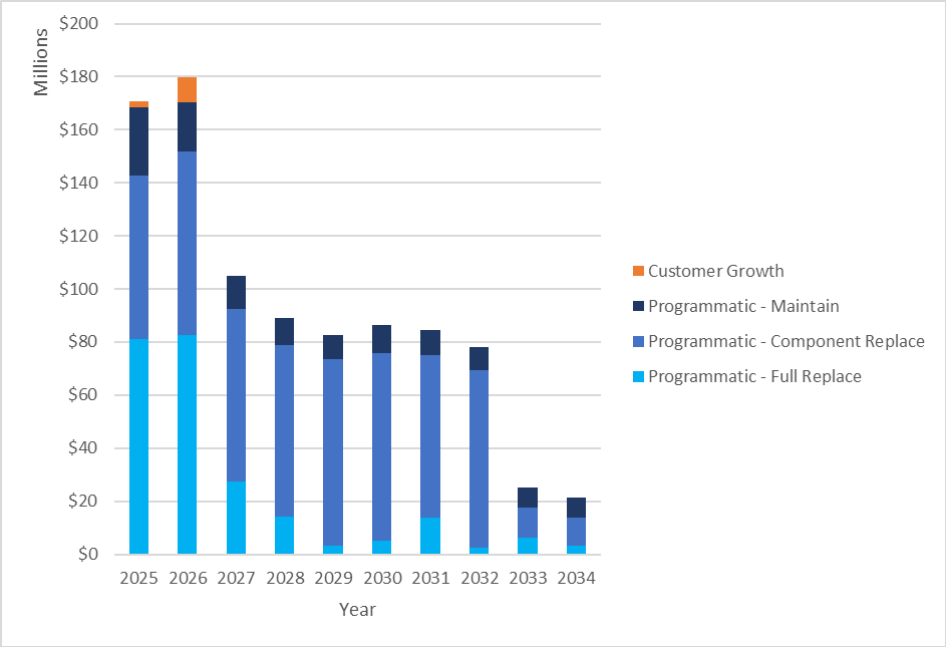


Figure 3.2-6: Pre-Optimization Capital Expenditure for Distribution Stations

3.2.1.4 Utilization

The average annual capital spend for the Utilization asset class is forecast to be $166MM over the 10-year plan as shown in **Figure 3.2-7**. Pre-optimization of the capital spend averaged $145MM as shown in **Figure 3.2-8**. This represents an overall increase of $211MM over the 10-year plan. This increase over the pre-optimization capital request is a result of missing program spend in 2033 and 2034 which was identified and corrected during optimization. For further details on the Utilization asset class and life cycle strategies, see **Section 6.2.5**.

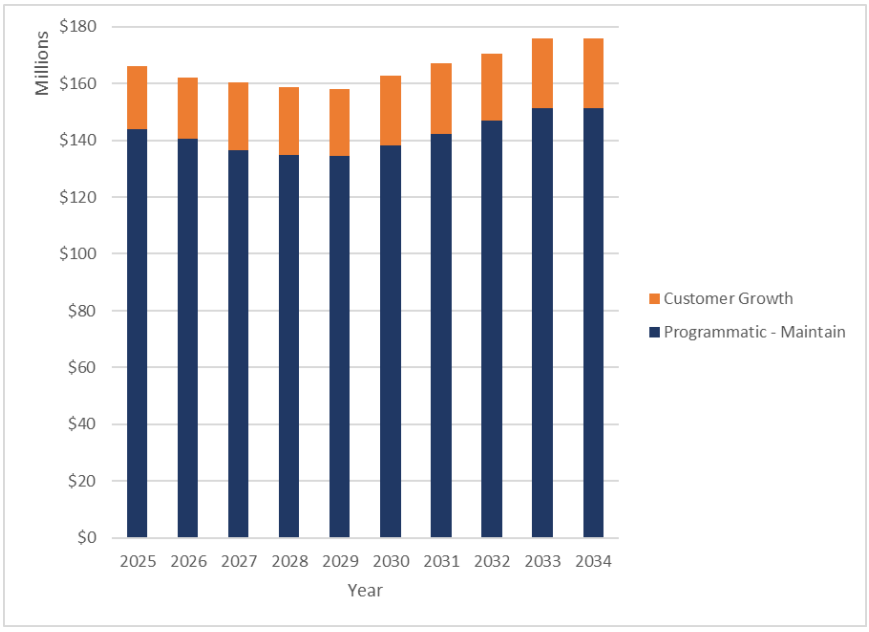


Figure 3.2-7: Post-Optimization Capital Expenditure for Utilization

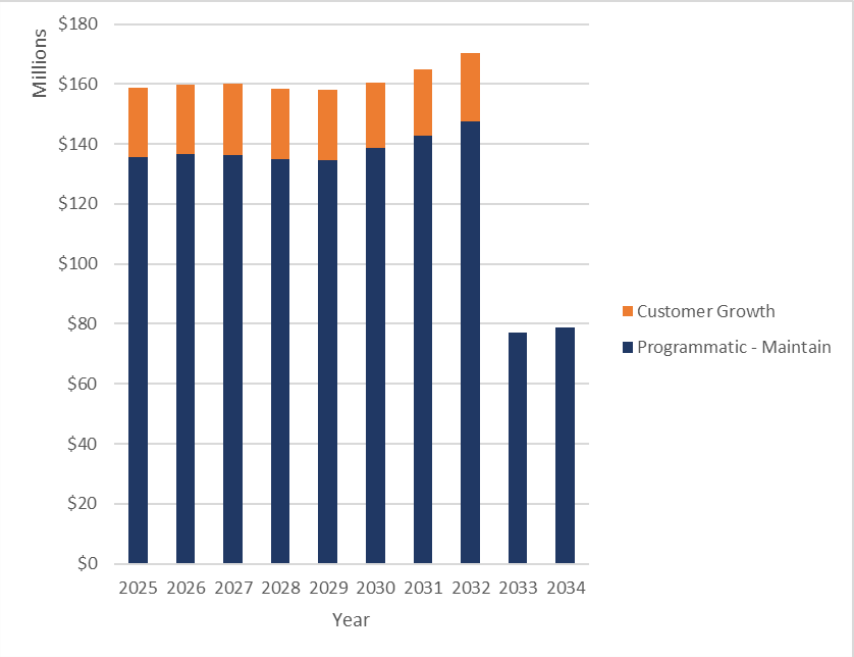


Figure 3.2-8: Pre-Optimization Capital Expenditure for Utilization

3.2.1.5 Compression Stations

The average annual capital spend for the Compression Stations asset class is forecast to be $47MM over the 10-year plan as shown in **Figure 3.2-9**. Pre-optimization of the capital spend averaged $55MM as shown in **Figure 3.2-10**. This represents an overall reduction of $81MM over the 10-year plan and reflects lower spending mainly in the condition-based replacements program. Timing of discrete capital spend was largely unchanged. For further details on the Compression Stations asset class, see **Section 6.3.5**.

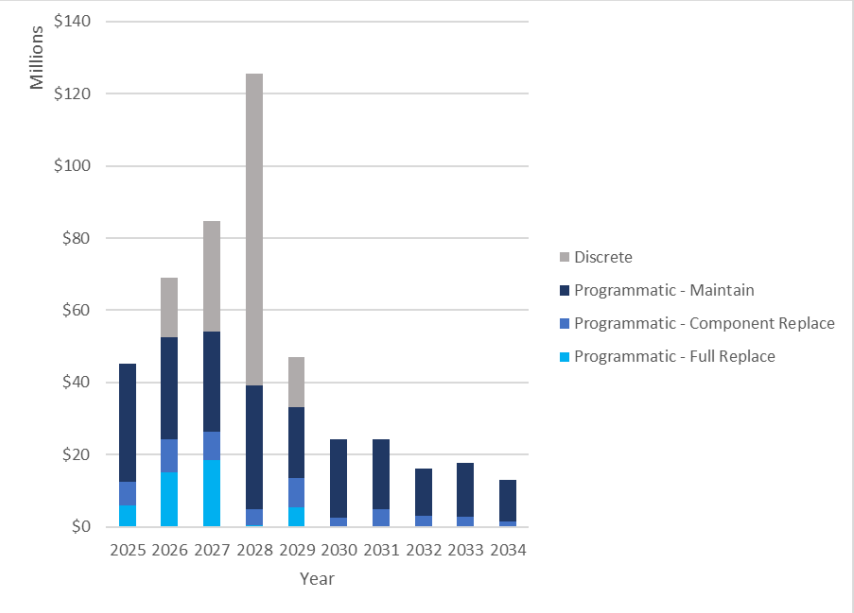


Figure 3.2-9: Post-Optimization Capital Expenditure for Compression Stations

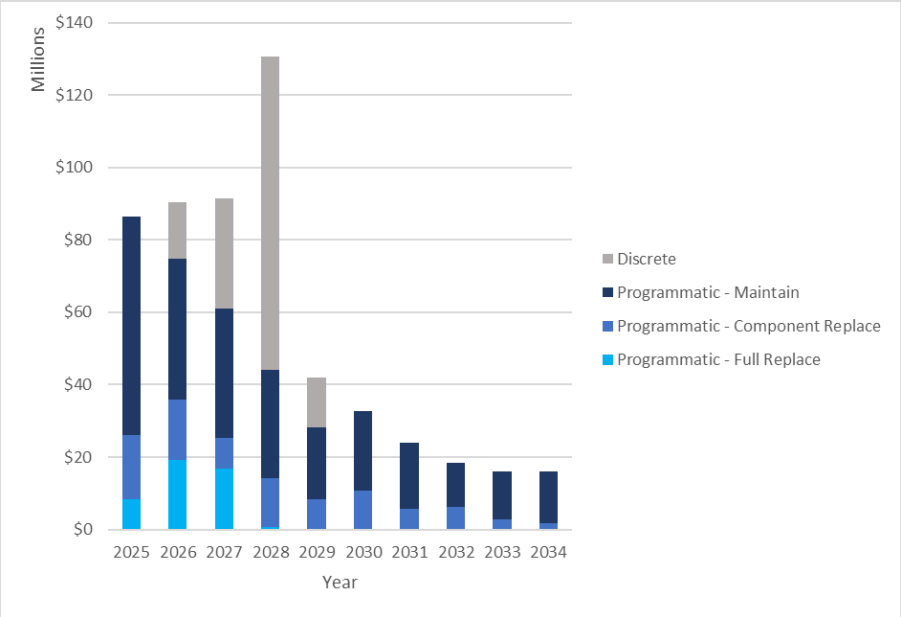


Figure 3.2-10: Pre-Optimization Capital Expenditure for Compression Stations

3.2.1.6 Transmission Pipe and Underground Storage

The average annual capital spend for the Transmission Pipe and Underground Storage (TPUS) asset class is forecast to be $121MM over the 10-year plan as shown in **Figure 3.2-11**. Pre-optimization of the capital spend averaged $124MM as shown in **Figure 3.2-12**.This represents an overall reduction of $22MM over the 10-year plan, which is attributable to lower spending mainly in the class location program in 2025 and 2026. Higher spend of discrete capital in 2028 post-optimization is due to a shift in timing of the Dawn Parkway Expansion Kirkwall-Hamilton project from 2027 (see **Appendix A**). For further details on the Transmission Pipe and Underground Storage asset class, see **Section 6.3.6**.

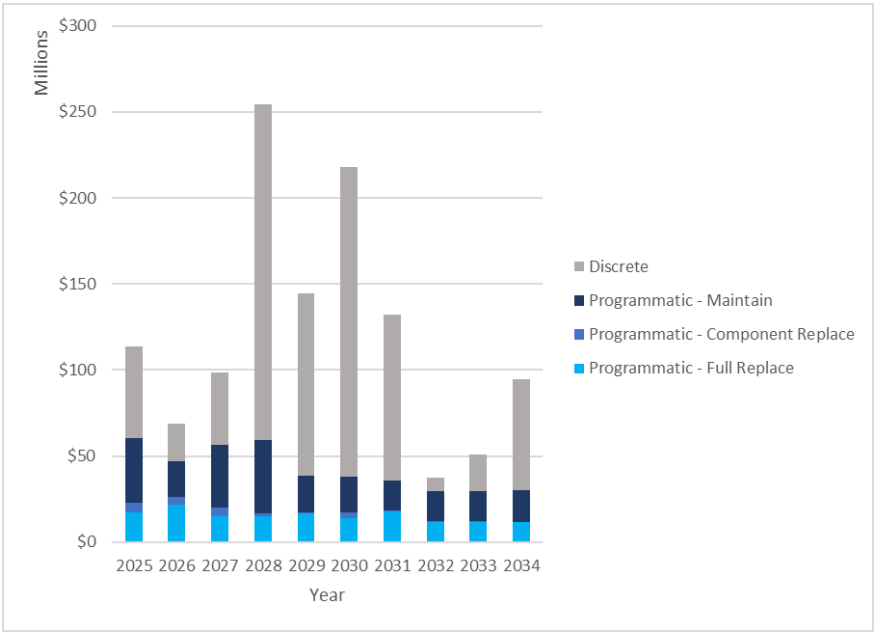


Figure 3.2-11: Post-Optimization Capital Expenditure for TPUS

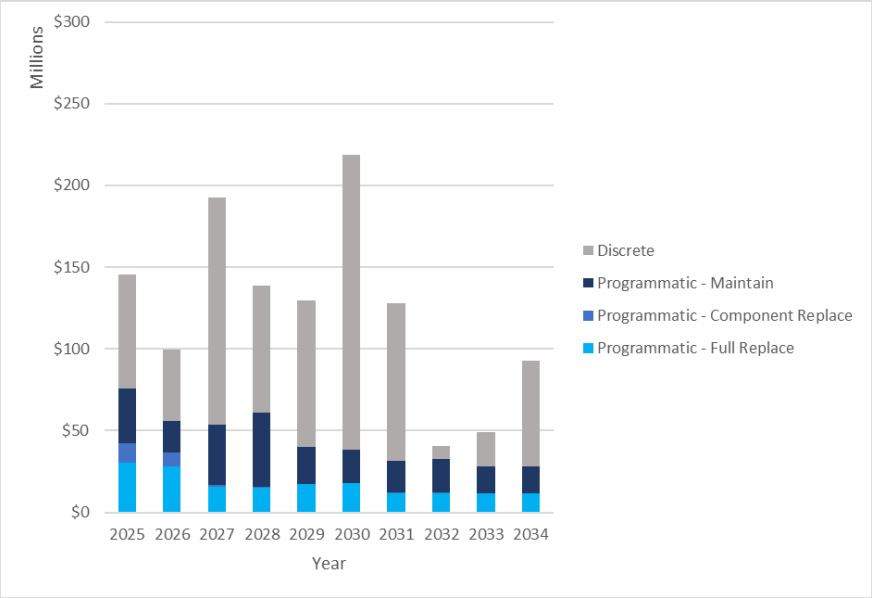


Figure 3.2-12: Pre-Optimization Capital Expenditure for TPUS

3.2.1.7 Liquefied Natural Gas

The average annual capital spend for the Liquefied Natural Gas (LNG) asset class is forecast to be $7.9MM over the 10-year plan as shown in **Figure 3.2-13**. Pre-optimization of the capital spend averaged $5.8MM as shown in **Figure 3.2-14**. This represents an overall increase of $21MM over the 10-year plan to the equipment modernization program. For further details on the LNG asset class, see **Section 6.3.7**.

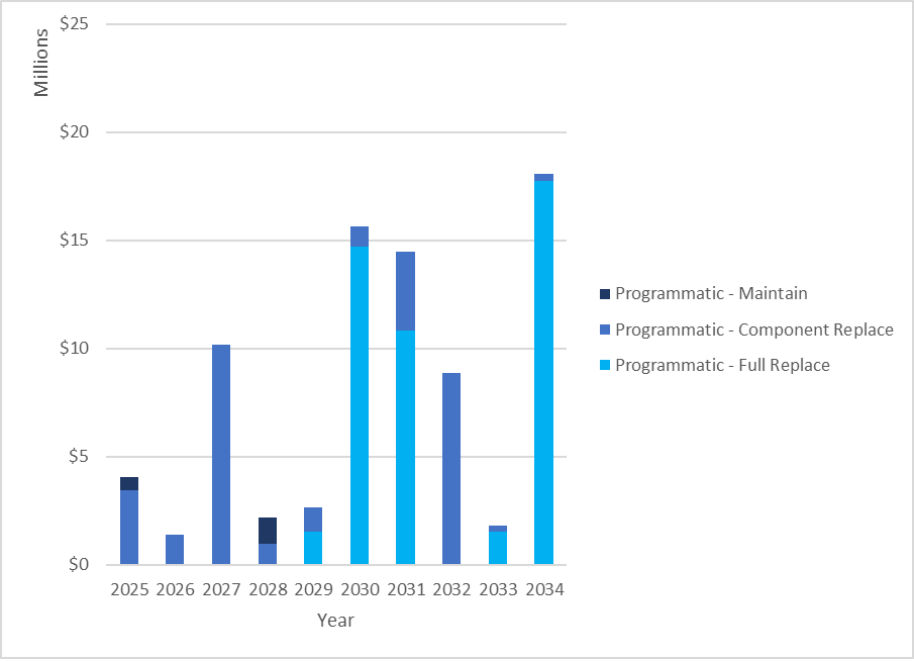


Figure 3.2-13: Post-Optimization Capital Expenditure for LNG

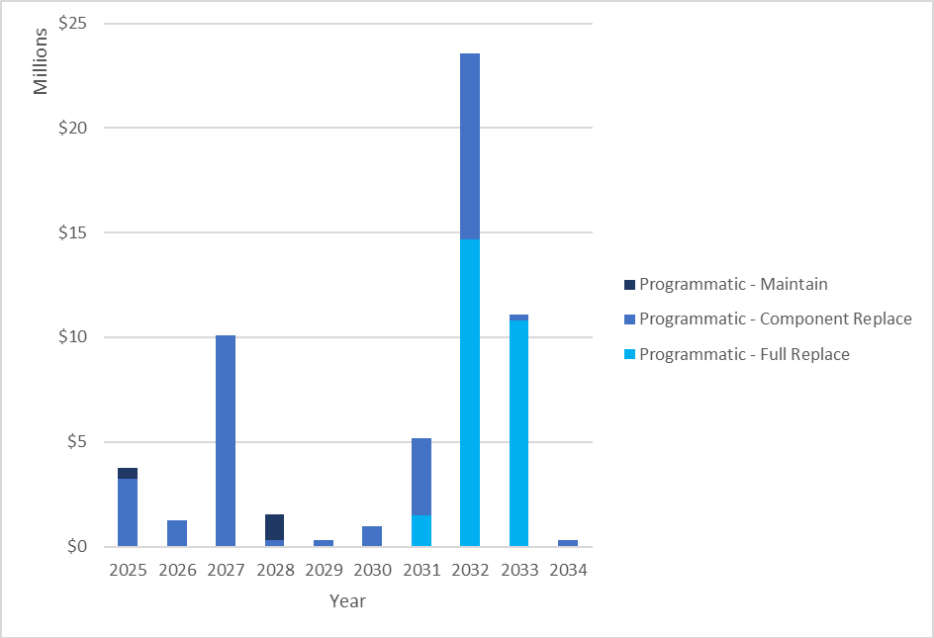


Figure 3.2-14: Pre-Optimization Capital Expenditure for LNG

3.2.1.8 Real Estate and Workplace Services

The average annual capital spend for the Real Estate and Workplace Services (REWS) asset class is forecast to be $28MM over the 10-year plan as shown in **Figure 3.2-15**. Pre-optimization of the capital spend averaged $43MM as shown in **Figure 3.2-16**. This represents an overall reduction of $145MM over the 10-year plan representing investments from the New Build and Property Upgrades programs that were removed from the planning window. For further details on the REWS asset class, see **Section 6.4**.

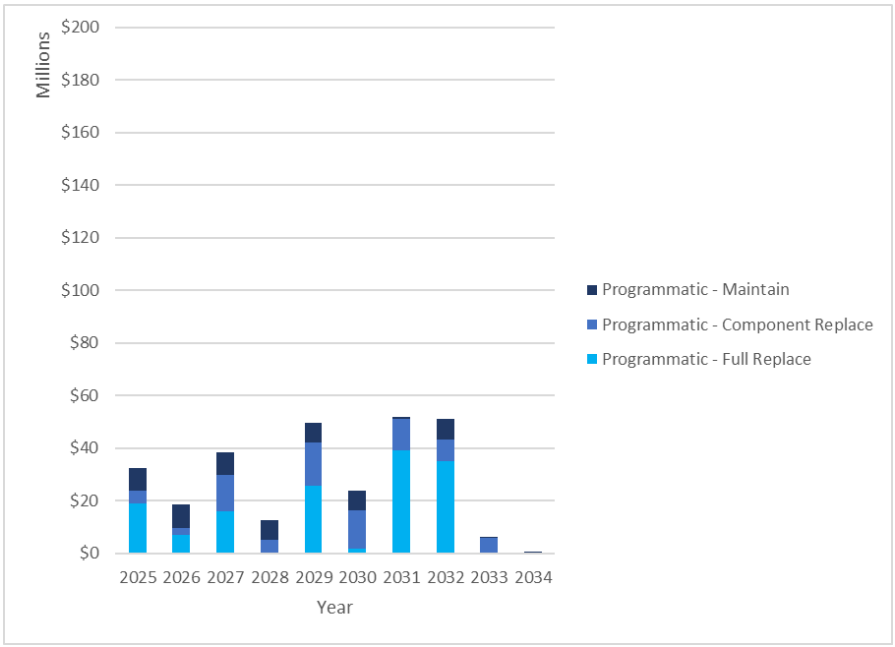


Figure 3.2-15: Post-Optimization Capital Expenditure for REWS

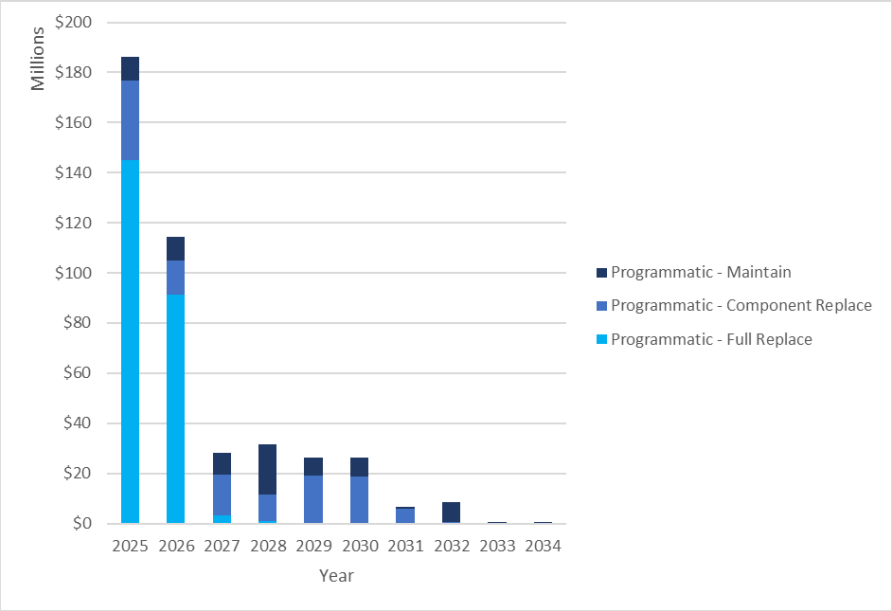


Figure 3.2-16: Pre-Optimization Capital Expenditure for REWS

3.2.1.9 Fleet and Equipment

The average annual capital spend for the Fleet and Equipment asset class is forecast to be $37MM over the 10-year plan as shown in **Figure 3.2-17** which aligns with the pre-optimization of the average capital request as shown in **Figure 3.2-18**. There is an overall reduction of $7MM over the 10-year plan. For further details on the Fleet and Equipment asset class, see **Section 6.5**.

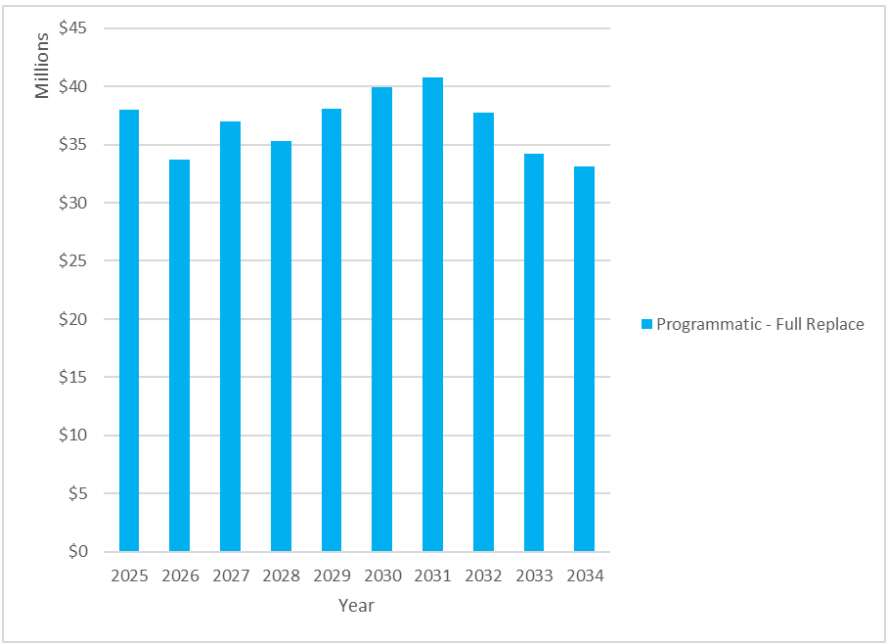


Figure 3.2-17: Post-Optimization Capital Expenditure for Fleet and Equipment

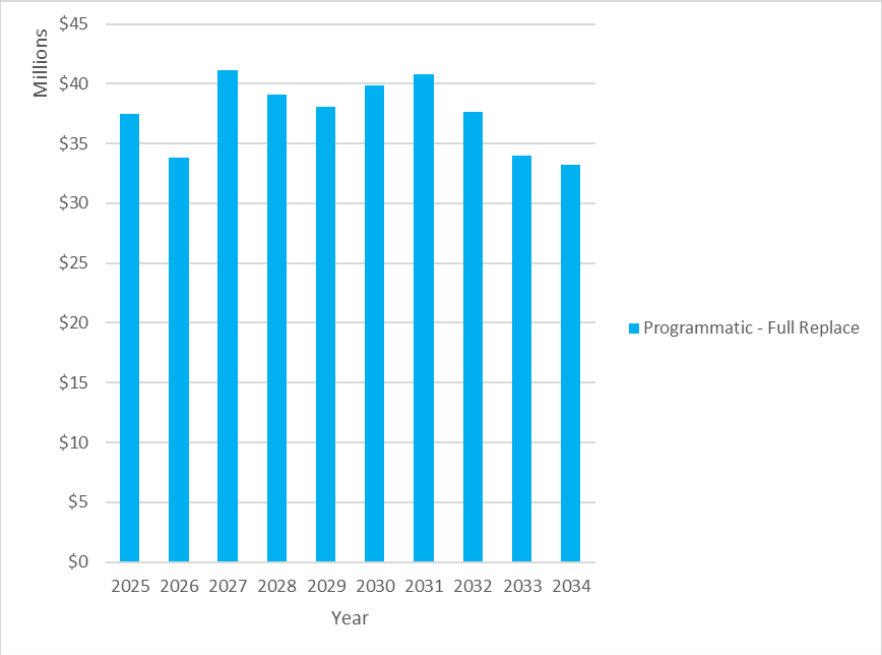


Figure 3.2-18: Pre-Optimization Capital Expenditure for Fleet and Equipment

3.2.1.10 Technology and Information Services

The average annual capital spend for the Technology and Information Services (TIS) asset class is forecast to be $49MM over the 10-year plan as shown in **Figure 3.2-19** which aligns with the pre-optimization of the average capital request as shown in **Figure 3.2-20**. There is an overall increase of $0.8MM over the 10-year plan. Higher full replacement spending in 2025 and 2026 is driven by Contract Market Modernization (see **Appendix A**). For further details on the TIS asset class, see **Section 6.6**.

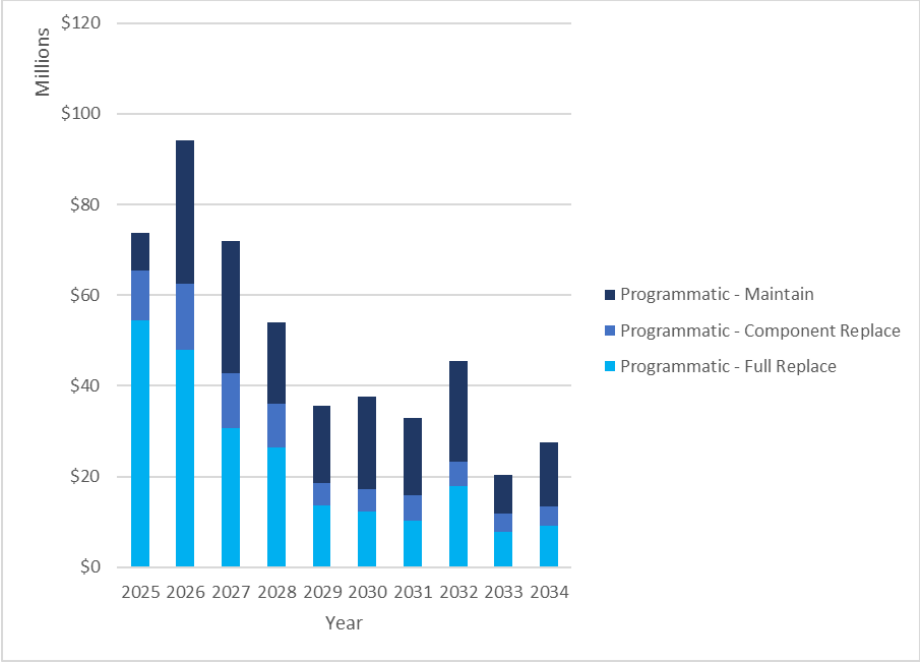


Figure 3.2-19: Post-Optimization Capital Expenditure for TIS

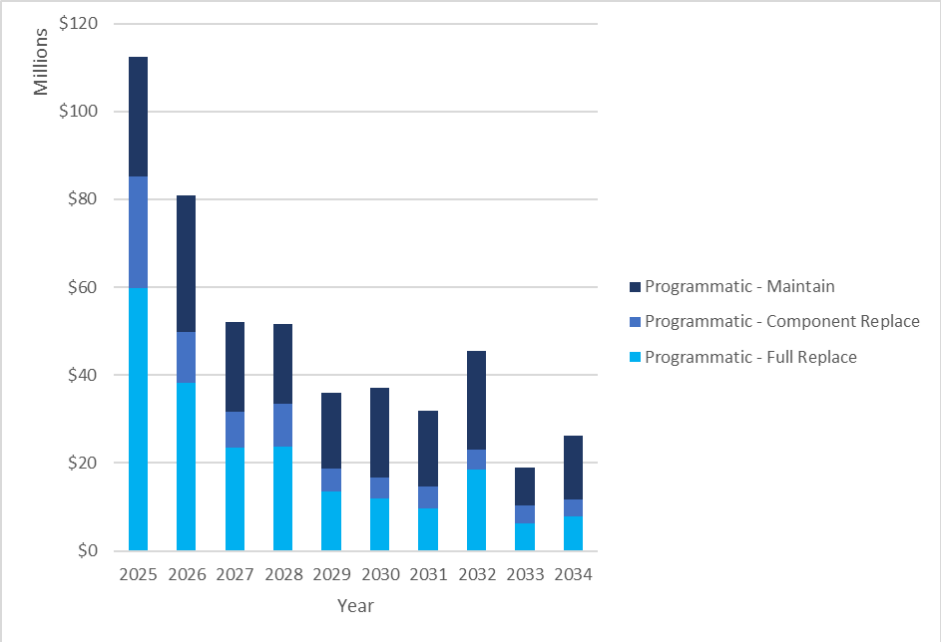


Figure 3.2-20: Pre-Optimization Capital Expenditure for TIS

4 Asset Management Strategic Framework

4.1 Integrated Management System

The Integrity Management System (IMS) describes how EGI manages its business to be safe and reliable. Specifically, the IMS outlines high-level management expectations common across the organization and considers over 300 management system requirements from several regulatory, corporate, and business unit sources, as well as industry standards. The Asset Management Program (AMP) is one of 10 management programs that comprises the IMS, provides more detail on how the program meets its regulatory and corporate obligations related to safety and operational reliability, and aligns with the EGI AMP (see **Figure 4.1-1**).

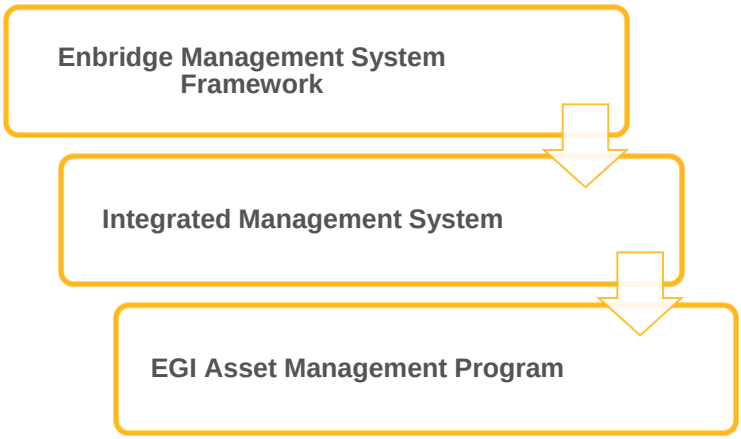


Figure 4.1-1: Alignment of Standards and Requirements

The IMS is predicated on the underlying principle of striving for continual improvement through the implementation of the Plan-Do-Check-Act (PDCA) quality cycle (see **Figure 4.1-2**). As a model for continual improvement, EGI applies the PDCA cycle to macro- and micro-level activities of the organization. The cycle outlines the activities required to ensure that changes are executed effectively and that continual-improvement benfits are identified.

PDCA principles are:

- **Plan:** Establish objectives and processes necessary to deliver results in accordance with expected outcomes and performance targets.
- **Do:** Implement the plan and execute the process.
- **Check:** Monitor the actual results using assessments, internal reviews, and audits to compare against the expected outcomes and to ascertain any differences.
- **Act:** Apply corrective and preventive actions on significant differences between actual and planned results. Analyze differences between actual and expected outcomes to determine root causes and how to improve the process.

Figure 4.1-2: Plan-Do-Check-Act Cycle

4.2 Asset Management Framework

The Institute of Asset Management (IAM) Conceptual Asset Management Model (see **Figure 4.2-1**:) has been used to build and implement an asset management framework at EGI to balance risk, cost, and performance through the entire asset life cycle. The model guides EGI in the development of an asset management framework aligned to *ISO 5500X* and demonstrates the connections between the subjects of asset management and the elements of the IMS. This model also provides a visual representation of how the asset management discipline connects the various elements and functions across the organization. It further defines asset management planning as the detailed activities, resources, and responsibilities for the achievement of asset management goals. This guidance has been used to develop the content and strategy of this AMP.

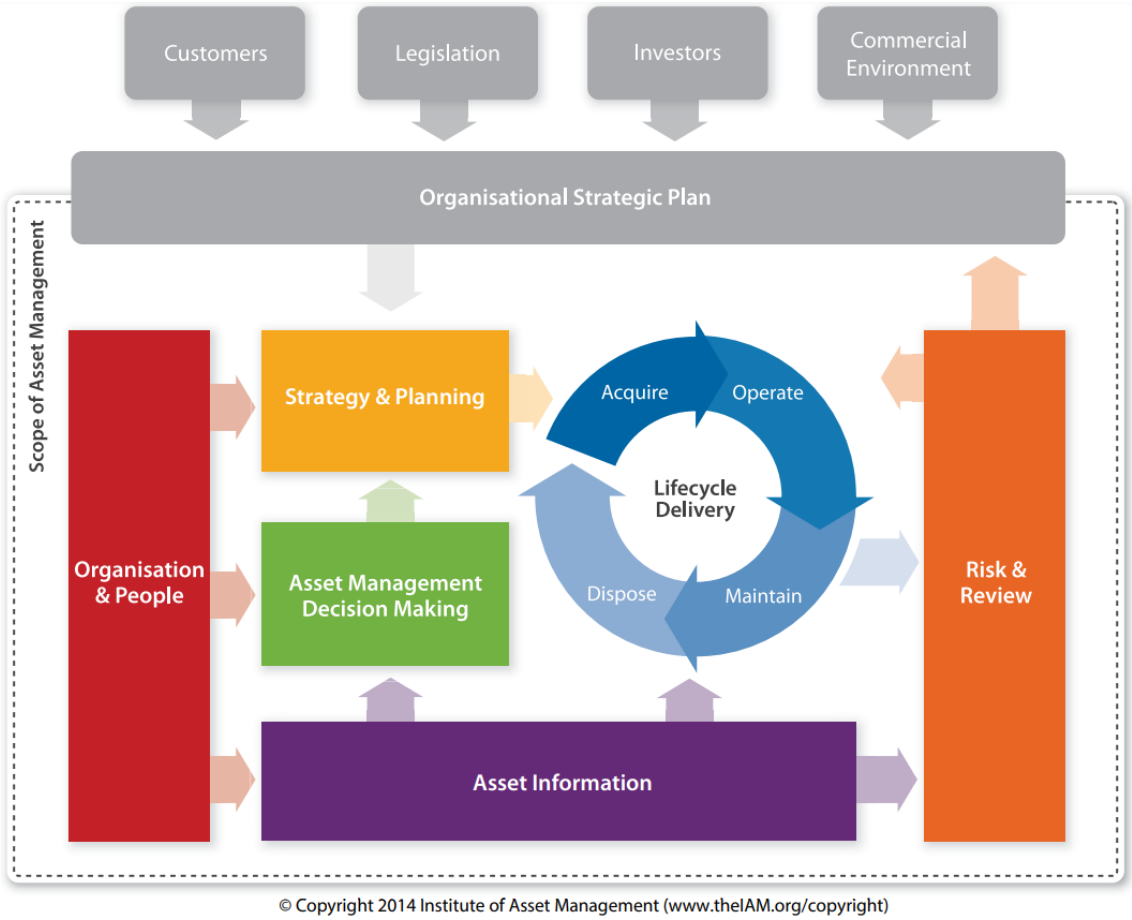


Figure 4.2-1: IAM Conceptual Asset Management Model

Asset Management – An Anatomy Version 3 interprets the *ISO 5500X* standard and provides a practical way to implement its requirements by breaking them down into 39 subjects grouped into six subject groups in alignment with the six major asset management components:

1. **Strategy and Planning:** The adoption and maintenance of a governance framework used to align AMPs and decision-making within EGI's overall strategic objectives.
2. **Organization and People:** The development and maintenance of an adequate supply of competent and motivated people, in key asset management roles across all levels, to support the organization in delivering asset management objectives.
3. **Life Cycle Delivery:** The establishment of clear ownership, accountabilities, policies, and processes to manage all physical assets throughout their entire life cycle.

4. **Risk and Review:** The identification, assessment, evaluation, treatment, and monitoring of risks, resulting in prudent resource allocation, and balancing risk, cost, and performance.

5. **Asset Management Decision-Making:** The organization's approach to making decisions on design, maintenance, operation, and disposition in a structured, defendable, and repeatable process. This framework allows for the balancing of risk, opportunity, cost, and performance in making asset investment decisions over the whole life cycle of the asset.

6. **Asset Information:** The availability of the right systems, processes, and data to support asset management. This is foundational to all other asset management capabilities.

4.3 Asset Management Policy

The Asset Management Program (AMP) is a component of EGI's Integrated Management System (IMS) which provides a systematic approach to managing safety and reliability across the organization. The AMP considers all EGI assets, inclusive of commodity-carrying assets directly related to the task of transporting natural gas and low-carbon energies from the source to the end-use customer, as well as assets that support business operations. The asset classes are: (1) Distribution Pipe, (2) Distribution Stations, (3) Utilization, (4) Growth, (5) Compression Stations, (6) Liquified Natural Gas, (7) Transmission Pipe and Underground Storage, (8) Fleet and Equipment, (9) Real Estate and Workplace Services, and (10) Technology and Information Services.

Asset Management goals include employee and public safety, system reliability, compliance, value to stakeholders, and financial performance. EGI follows a comprehensive, value-based decision-making approach, which considers sustainability, reliability, and affordability for customers. EGI employees must consider these goals when evaluating costs, risks, and performance related to asset investment decisions over the whole asset life cycle. EGI also assesses its assets and strategies under various scenarios to ensure resiliency of its business. Decisions are made through documented and transparent evaluation processes including recent additions related to the Integrated Resource Planning (IRP) Framework (EB-2020-0091).

EGI leverages an AMP based on the industry standard, Global Forum on Maintenance & Asset Management (GFMAM), to demonstrate a systematic and coordinated approach to asset management activities. Consistent practices, processes, and tools are used to manage assets, balancing cost, risk, and performance throughout the asset's life cycle while providing value to customers and stakeholders.

Policy Statements

1. EGI continuously improves and aligns its asset management approach across all asset classes within EGI, by driving innovation in the development of people, tools, processes, and solutions.

2. EGI is committed to prudent value-based decision-making that incorporates the consideration of low-carbon solutions and energy transition within the holistic evaluation of cost, risk, and performance completed for all asset-related investments.

3. EGI is committed to pursuing sustainable/low-carbon initiatives and new energy solutions, including the incorporation of these strategies within EGI's asset management planning and investment decisions.

4. EGI is committed to a continual, comprehensive condition assessment and risk review. EGI acknowledges that the understanding of the asset's life cycle is critical for decision-making and the safe and reliable delivery of energy.

5. EGI acknowledges that asset information is critical to transparent, knowledge-based decision-making. EGI ensures that its processes, systems, and controls collectively strive to deliver verifiable, traceable, complete, timely, accurate, and accessible asset information.

6. EGI is committed to meeting or exceeding compliance with all applicable laws and regulations, industry codes, standards, and internal policies.

7. EGI is committed to understanding and delivering value to its customers and stakeholders.

8. EGI uses this policy and EGI's Asset Management Program to guide asset investments, as endorsed by Senior Leadership, over the life cycle of each asset class.

4.4 Advancing Asset Management

EGI continues to evolve its asset management practices to produce a comprehensive AMP. Since the OEB Integrated Resource Planning (IRP) Decision and Order in July 2021, EGI has taken the necessary steps to advance Asset Management through the inclusion of Energy Transition adjustments, further development and integration of the IRP Evaluation process into the AMP, and the creation of the Enhanced Distribution Integrity Management Program (EDIMP) to support asset life extension.

As a result, the following changes were implemented:

- **Energy Transition**

  This AMP incorporates Energy Transition adjustments into its demand forecast (for existing customers, customer additions, average annual use) and design elements (i.e., design hour demand and design day demand). These forecasts and design elements ultimately underpin the System Reinforcement Plan (SRP) which identifies projects required to maintain system pressures on EGI's distribution system for current and future customers. The Energy Transition adjustments reflect EGI's understanding and interpretation of the potential energy transition impacts on its business and system planning processes.

  EGI acknowledges that energy transition is evolving and that investment decisions will be based on the best information at the time, including consideration of the Independent Electricity System Operator's (IESO) current forecast electricity demand and government policy. EGI first introduced energy transition assumptions and adjustments to its demand forecasts and design elements in its 2024 Rebasing filing[14]. EGI committed to developing an annual process to review and evaluate the impact of energy transition signals, and this process is further described below.

- **Integrated Resource Planning (IRP)**

  EGI is committed to implementing IRP, which includes conducting a binary screening of the AMP, as well as the technical and economic evaluation of both supply-side and demand-side alternatives where applicable. EGI has developed processes, resources, and capabilities to integrate new IRP requirements into the asset management process as well as other related processes. The IRP evaluation process is now being completed during the Solution Planning and Value Assessment stage of the AIPM process, allowing projects to be screened earlier for IRP applicability.

  The IRP Evaluation stage of the AIPM process (see **Section 5.4.3**), determines if an IRPA technical and economic evaluation is required for each system need, and if applicable, whether a cost-effective IRPA exists to meet the system need. Further details on the IRP evaluation process can be found in EGI's IRP Annual Report in EB-2024-0125, Exhibit H, Tab 1, Schedule 1.

  As part of the IRP Evaluation Process, EGI has performed IRP Binary Screening on all eligible projects, consistent with the guidance provided by the OEB in its Decision (EB-2020-0091). The IRP Binary Screening results and the associated IRPA evaluation statuses, by project, can be found in **Appendix B**.

- **Consolidation of asset data**

  As legacy utility systems are integrated, the data is being aligned to the enterprise asset management data standards and harmonized engineering definitions. Data discrepancies are identified, and data cleanup addresses data gaps and errors. Failure data and work order comments have been reviewed and standardized against the data standards and consolidated into one dataset for use in risk and reliability modeling. Additionally, a robust record correction process is in place. The Data Governance Program is assigned the ownership and stewardship of the data and ensures that there is ongoing data quality monitoring of data that is considered critical to the Asset Management and Integrity programs.

- **Section 6** of the AMP, which addresses asset inventory, condition, risk/opportunity and strategy outcomes, has been updated to reflect the current understanding of assets. Key changes are:
  - Review, comparison, and integration where feasible of asset strategies, asset classes, asset condition, inventories, programs, and processes between the two legacy companies
  - Integrity continues to enhance models and leverage improved data to support the understanding of condition and risk for gas-carrying assets. This supports improved models that are used to inform condition-based asset strategies.

[14] As noted in EB-2022-0200, Exhibit 1, Tab 10, Schedule 4.

- Mapping the capital expenditures presented in **Section 6** to the asset class strategy
- Identification of outstanding items that remain in legacy programs until they can be integrated

- **New Capital Definitions**

  Section 3 of the AMP, which identifies the 10-year capital investment plan, now shows three new categories for capital investments: (1) Discrete, (2) Customer Growth, and (3) Programmatic and four sub-categories for Programmatic: (1) Maintain, (2) Component Replace, (3) Full Replace and (4) Finance. These new categories are designed to make it easier for external stakeholders to understand EGI's investment capital mix.

- **Operationalizing Asset Management**

  As EGI's Asset Management practice continues to mature, greater focus has been placed on measuring delivered work relative to planned work, increasing proficiency in Copperleaf, and data quality for investments. Outcomes from this initiative include:

  - Dashboards and reports that monitor various metrics associated with data quality, forecasting accuracy, and execution of work to plan
  - Copperleaf training to promote consistency and quality of investments

- **Value Assessment Quality Assurance Approach**

  As the application of the Copperleaf value framework evolves, EGI has developed a continual improvement approach to validate and calibrate investment data, capture best practices, and to maximize the value of investments included in the AMP. Emphasis was placed on applying data analytics practices and sense-checking investment data to better understand how EGI's value assessment processes are working and how they can be improved. Implementing this approach led to:

  - Increased support for Asset Management optimization and calibration activities to ensure consistency and alignment of investment data
  - Greater stakeholder engagement and transparency of value across EGI's portfolio of investments
  - Identification and documentation of improvements to the Copperleaf value framework

4.4.1 Asset Life Extension and Renewal Decision-Making

4.4.1.1 Asset Life Extension

Life extension activities are undertaken to extend an asset's life beyond its typical lifespan. EGI's transmission and distribution systems are complex networks of subsystems of piping, fittings, and components with compounding internal and external factors that impact physical asset life. The AMP outlines strategies to operate the natural gas system safely and reliably using a combination of preventive maintenance (e.g., corrosion prevention and coating programs), threat assessment techniques, condition monitoring, and damage prevention programs, which reduce the risk of failure and may also increase asset life. The outcome of these data-informed asset strategies may be a recommendation to continue to maintain and/or repair the asset or pursue component replacement or full replacement as further described in **Section 3**.

Regular inspections are conducted on transmission assets through the Transmission Integrity Management Program (TIMP) (see **Section 6.2.3.3**) where asset design and technology allow for condition monitoring to take place. For Distribution Integrity Management Program (DIMP) systems, it is not practical or cost effective to directly inspect all belowground gas distribution assets. Therefore, EGI continues to further the understanding of condition and risk for these assets through failure data and field-validated condition findings that feed into reliability and risk modelling. Leak failure data is a critical input for reliability analysis that informs the probability of failure and asset health. The analysis incorporates failure factors that may affect the typical service life of an asset. Some common factors used in the analysis include cathodic protection data, geographic actors, soil conditions, and stress intensification factors on plastic piping systems. For the aboveground assets including regulator sets, stations, bridge crossings, and risers, EGI's Integrity Management programs leverage inspection data to inform on the condition of assets and develop the appropriate plans to mitigate the assets in poorest condition. Although age is closely correlated with time-dependent failures, asset age does not determine EGI's intervention strategies. The addition of failure factors and inspection data ensures the analysis drives a condition-based asset strategy. These practices continue to evolve as more data is received and models and technology advance.

In some cases, failure records, field verifications, and modelling results indicate a population of distribution assets may be beyond or approaching end of life and are expected to fail at accelerating rates. Given the critical role of EGI's distribution and transmission system in meeting customer energy needs, a run-to-failure approach is not acceptable in ensuring safe, reliable, and resilient operations. Instead, EGI employs asset strategies and programs that seek to find the optimal intervention point to

manage failure risk and frequency to safely extend asset life. An example of assets deemed to be at a higher risk of failure include AMP fittings. In these and other cases, operational maintenance activities alone are not effective to manage the risk for deterioration that cannot be reversed. More information on these and similar assets can be found in **Section 6.2.3.4.1**.

Asset life extension options may be limited or not possible depending on the asset type or investment driver. Some examples:

- Assets which are obsolete or have irreversible deterioration – An asset is obsolete if components are no longer supported by a manufacturer and/or parts are not available for repairs or renewals. Examples include heating systems for distribution stations (see **Section 6.2.4**) and compressor-related obsolescence strategies (see **Section 6.3.5.4)**.
- Bare and Unprotected Pipes (see **Section 6.2.3.6.3.1**) – The objective is to remove these mains from service because the lack of corrosion protection and other compounding factors, such as history of leaks, result in an increasingly degrading condition. Increasing cathodic protection or leak survey will not extend the life of these assets given the increasing probability of failure.
- External drivers/obligations for the investment (e.g., municipal relocations) and compliance requirements (e.g., class location) – In these cases, EGI seeks to ensure capital and construction efficiencies are pursued and scope is minimized to address the critical requirements of the investment driver.

4.4.1.2 Enhanced Distribution Integrity Management Program

The Distribution Steel Pipe asset subclass comprises mains (together with associated services and components) that fall under the DIMP and the EDIMP. Launched in 2024 as a sub-program of DIMP, the EDIMP evaluates the integrity condition of distribution steel pipelines with potentially the highest risk and criticality compared to the rest of the steel distribution network. The program focuses on these higher-risk distribution pipelines by enhancing the understanding of their asset condition, fitness for service, and risks associated with operating those assets. The 2024 Inspection Program has been developed based on pipelines previously identified for replacement in the AMP, in conjunction with a prioritization model that selected the pipeline assets of most concern from the distribution system.

The inspections under the EDIMP will include in-line inspections, Direct Current Voltage Gradient (DCVG) surveys, Close Interval surveys, Depth of Cover surveys, and Integrity Digs, etc. The EDIMP will assess the condition of individual distribution pipelines and provide risk-informed recommendations for managing the assets. This approach will build upon EGI's existing Integrity programs to evaluate and identify Asset Life Extension (ALE) alternatives. By completing these additional assessments, EGI will further ensure that the most cost-effective methods (e.g., ALE mitigation actions, IRP alternatives, partial replacement, full replacement, or a combination of these) are proposed while maintaining appropriate levels of risk and reliability for distribution assets. EGI will incorporate energy transition sensitivity analysis into the assessment of replacement versus ALE for investments identified through the EDIMP. For more information on the EDIMP, see **Section 6.2.3.4**.

4.4.1.3 Alternative Options for Repair and Replacement

Asset strategies that support intervention before assets reach a point of failure are essential in enabling EGI to reliably deliver energy to customers. Waiting to repair an asset until the asset experiences full functional failure is most often more costly than proactive intervention planned based on effective inspection or condition-monitoring routines. However, failure is not always preventable, in which case repair and replacement options for renewing failing assets are considered. Repairs may not be a feasible solution due to the severity of anomaly, compliance, or safety requirements, as discussed further in **Section 6.2.3.6.2.2**.

Where repair is not deemed feasible or appropriate, component or full replacements are considered. Component replacements (or a subsystem of the distribution pipe network or station system) are leveraged, where possible, to address critical needs. Maintenance and component replacement options are the predominant methods for addressing renewals that are risk-driven. Full replacements are leveraged largely for compliance-driven work and for specific asset strategy work (such as Bare and Unprotected Steel Pipe) where segments of pipe are failing or anticipated to fail in the near term.

4.4.1.4 Addressing Hazards in Difficult-to-Inspect TIMP Pipelines

The TIMP plays a crucial role in prolonging the system's lifespan by detecting potential issues through inspections. This work offers solutions where inspection data cannot be acquired through conventional ILI methods. In instances involving small diameter or otherwise difficult to inspect piping, reducing pipe MOP or completing a pipe replacement (if no other alternative to manage the risk is possible) may be considered to mitigate risk related to the ongoing operation of these high-pressure pipelines. Reducing the pipeline MOP can be feasible if the pipeline is able to meet existing system demands. As inspection

technology continuously evolves, EGI evaluates opportunities to leverage new technologies for a wider range of applications, including small diameter pipe and sensors capable of detecting complex threats.

4.5 Energy Transition

All levels of government (federal, provincial and municipal), as well as Indigenous and stakeholder groups, are focused on addressing climate change by reducing GHG emissions. Approaches include setting targets, establishing climate action plans, and implementing new climate policies. As energy transition planning continues in the province, it is important to recognize that Ontarians need and expect access to reliable, resilient, secure, and affordable energy. With those objectives in mind, Bill 165 (*Keeping Energy Costs Down Act, 2024*) was put forward by the Ontario Government in February 2024 and received Royal Assent in May 2024.

There is uncertainty regarding how and when Ontario's energy transition will unfold, especially in the context of natural gas use. Based on other Ontario Government actions and statements, EGI remains confident about the role EGI can continue to play in supporting Ontario's energy transition initiatives. Based on the feedback EGI received in the 2024 Rebasing Customer Engagement, the majority of customers agree that EGI should actively invest in lower-carbon solutions including energy efficiency technologies, hydrogen gas, renewable natural gas (RNG), and carbon capture, utilization, and storage (CCUS). The majority of customers also support advancing research, development, and commercialization of lower-carbon technologies to help reduce environmental impacts. Further, in the 2023 AMP Customer Engagement, the majority of customers continued to indicate that EGI should actively invest in lower-carbon solutions.

EGI remains committed to its customers and municipalities within its services areas to assist them in achieving their GHG emission reduction goals through the safe and reliable operation of its distribution, transmission, and storage assets.

As part of the *EB-2022-0200* filing, EGI engaged two external consultants, (1) Posterity Group Consulting and (2) Guidehouse Inc. to analyze the impact of climate policies and the energy transition. The Posterity Group study, *Energy Transition Scenario Analysis* (ETSA), explored theoretical future scenarios to assess the potential impact from climate policies and economic conditions on EGI's annual and peak throughput and GHG emissions. The Guidehouse Inc. study, *Pathways to Net Zero for Ontario*, showed that a diversified pathway, one that continues to leverage the existing gas infrastructure, provides consumer choice and is a more reliable, resilient, and affordable pathway for Ontario. In the study's diversified pathway, the current gas system transitions over time to deliver low-carbon fuels, including hydrogen and RNG, and natural gas where CCUS is used. A discussion of these reports can be found in EB-2022-0200 Exhibit 1, Tab 10, Schedule 5.

To address the OEB's directions related to energy transition risk, as stated in the OEB's decision and order for EB-2022-0200, EGI is committed to accounting for and demonstrating how the energy transition will continue to be incorporated into its business and system planning. EGI has taken prudent steps to anticipate potentially reduced future annual, peak hour and peak day demands by implementing a process to develop and apply Energy Transition adjustments on demand forecasts and design elements. This forecasting approach relies on the information and signals that are currently available. The application of Energy Transition adjustments supports the reduction of stranded asset risk.

EGI will annually review external energy transition signals to prudently account for energy transition impacts to EGI's business and system planning. EGI will continue to evolve its forecasting and planning processes to ensure it is incorporating the most up-to-date information available, both at the system and local level, for new construction and existing customers, as well as for updates to annual and design hour and design day demand for gas. Moving forward, EGI intends to create regional profiles, develop regional energy transition scenarios and model these different scenarios to identify risks, including stranded asset risks, as well as opportunities. These insights will support EGI in its determination of what the most appropriate alternative is to safely, reliably and most cost-effectively serve the known and forecasted energy need. This work will be included within EGI's next rebasing application, as directed by the OEB in the 2024 Rebasing Phase 1 Decision.

The Annual Energy Transition Adjustment to the Demand Forecast Process

EGI introduced Energy Transition adjustments to its demand forecasts (for existing customers, customer additions, and average annual use) and design elements (design hour and design day) to account for potential changes to natural gas demand in the 10-year forecast period. These demand forecasts and design elements are routinely included in various business and system planning functions such as the System Reinforcement Plan (SRP), AMP, and the Gas Supply Plan. The Energy Transition adjustments are based on internal EGI data (observed trends) and external factors related to policy signals (federal/
provincial/municipal), market trends (such as builder and consumer preferences), and stakeholder feedback (customer, municipal and Indigenous). Annually, EGI will review and update, as needed, the Energy Transition adjustments and account for new and/or updated internal data and/or external signals.

In 2024, EGI looked at energy transition signals, as described above, and created Energy Transition adjustments for the 2025 to 2034 forecasts for Toronto (Area 10) and Ontario-wide (excluding Toronto). EGI applied specific Energy Transition

adjustments to the forecast related to the City of Toronto because the City of Toronto represents a significant portion of EGI's existing customers, continues to show new construction (residential and commercial) growth, has put forward specific energy transition policies (e.g., TransformTO, and the goal of net zero GHG emissions by 2040), and has taken material action in relation to those policies (e.g., Toronto Green Standard). EGI will continue to monitor how Ontario municipalities implement actionable energy transition initiatives and explore how and if regional Energy Transition adjustments can be further incorporated into EGI's forecasts.

The factors considered in the 2024 demand forecasts and design elements are:

1. **Existing Customers:** EGI relied upon the following internal data and external signals to make Energy Transition adjustments to the Existing Customer Forecasts. EGI's internal data related to permanent meter disconnections from 2019 to 2023, Home Efficiency Rebate Plus Program (HER+) participation data, and EGI's 2023 Residential End-Use Survey.

   EGI relied upon the following external data and signals: City of Toronto data related to building permits involving heating systems, City of Toronto's Municipal Code Chapter 367 an Emission Reporting Bylaw, signals from the City of Toronto related to the future development of an Emissions Performance Standard, City of Toronto incentive and loan programs (i.e., Home Energy Loan Program), and Canadian Home Builders Association (CHBA) data related to its Net Zero Labeling Program for 2022 and 2023.

2. **Customer Additions:** EGI relied upon the following internal data and external signal to make Energy Transition adjustments to the Customer Additions Forecast: Toronto Green Standard (TGS) Version 4 (V4) and signals that TGS V5 and TGS V6 will be released in 2025 and 2028 respectively, EGI's market intelligence gathered from stakeholders, and EGI's internal data trends related to customer conversions.

3. **Average Annual Use:** EGI relied upon the following external factors to make Energy Transition adjustments to the Average Annual Use Forecast: Federal Carbon Charge, Ontario Building Code (OBC) 2024, and TGS V4 to V6.

4. **Design Hour:** EGI's Design Hour forecast incorporates the Energy Transition Scenario Analysis (ETSA) peak hour trends observed in the ETSA Reference Case scenario, which included impacts from future demand side management (DSM) programing, carbon pricing, natural gas commodity pricing, building performance, and appliance efficiency improvements for existing customers. EGI adjusted the baseline for the ETSA peak hour trend to 2022 for the 2025 to 2034 forecast period.

5. **Design Day:** EGI's Design Day forecast incorporates historical Use Per Customer trends for existing general service customers, which has a gradual downward trend over time that reflects observed energy efficiency gains or process or behavioural changes. In addition, the Design Day forecast includes general service customer growth, which incorporates Energy Transition adjustments and ETSA peak hour factors.

This AMP outlines the needs and resultant investments of EGI's assets to ensure that EGI can safely and reliably meet the design hour and design day demands of new and existing customers with consideration given to the energy transition signals noted above.

EGI notes that the energy transition is evolving and that investment decisions must be based on the best information available at the time. Annually, EGI will review and update, as needed, the Energy Transition adjustments and account for new and/or updated internal data and/or external signals. EGI anticipates developments in, but not limited to, the following areas:

- Increased adoption of lower-carbon fuels and technologies including RNG and CCUS
- Implementation of economically and technically feasible integrated resource planning alternatives (IRPAs)
- Increased adoption of heat pumps for fuel switching or for hybrid heating

As refinement of the Energy Transition adjustments occurs, EGI anticipates adjustments to asset life cycle considerations and strategies will be required, including but not limited to adjusting the timing and scope of investments.

Hydrogen Investments for Low Carbon Solutions

EGI's Hydrogen Strategy is described in **Section 6.1.8**, which includes the expansion of EGI's existing Low Carbon Energy Project in Markham and evaluating the extent that hydrogen can be used in the distribution system and other company assets. These proposals will support EGI in determining the potential to increase the amount of hydrogen that EGI can deliver and to inform the future state of hydrogen as a low-carbon energy source in Ontario.

Specifically, EGI is implementing a project that will evaluate the technical feasibility and maximum tolerable limits of blended hydrogen gas in existing networks, identify necessary retrofits or upgrades for varying concentrations of hydrogen, and develop a staged roadmap for transitioning EGI's network to a low-carbon future in line with technical and economic barriers and opportunities.

The following factors are the main drivers for the system-wide hydrogen blending study:

- **Reduction in GHG emissions:** The displacement of natural gas by the addition of hydrogen presents an opportunity for significant emissions reduction in Ontario with minimal capital expenditure while meeting the energy needs of the province.
- **Kick-start Ontario's hydrogen economy:** Establishing the natural gas system's hydrogen readiness level and establishing a cost recovery mechanism presents the opportunity for a reliable off-taker of hydrogen which can stimulate hydrogen production in Ontario and drive down the levelized cost of hydrogen. This allows for faster adoption by hard-to-abate sectors (transportation, and industrials, etc.).
- Alignment with the intent of the Hydrogen Strategy for Canada and Ontario's Low-Carbon Hydrogen Strategy.

4.6 Integrated Resource Planning

In 2021, the OEB released its Decision and Order in the *Enbridge Gas Inc. Integrated Resource Planning Proposal (EB-2020-0091)* and stated that EGI's AMP should include the status of consideration of Integrated Resource Planning (IRP) in regard to meeting system needs, the results of binary screening, and details on the evaluation. **Appendix B** has been included in the AMP to meet that commitment; **Section 4.4.1** of the AMP provides a high-level background and context for this appendix. The **Appendix B** tables provide the review status of each investment in the AMP that went through binary screening.

EGI has been focused on advancing IRP as directed in the OEB's IRP Decision (EB-2020-0091). At the time the IRP Decision was issued, EGI was in the process of identifying system needs to support the 2023 – 2032 Asset Management Plan. It takes EGI several weeks and sometimes months to develop and evaluate what system needs exist, and to then determine if they warrant capital investment. In parallel to this process, EGI has developed an approach to screen and evaluate IRPAs in alignment with the high-level IRP process outlined in the OEB's IRP Decision. In the development and initial implementation of this approach, EGI has directed a significant effort towards the following activities:

1. **Review of Identified Investments in the 10-Year Capital Forecast and Binary Screening:** The 2025 – 2034 Capital Plan was initially developed in May 2024. The review of projects and application of the IRP binary screening criteria was then completed for 2,981 investments within the 2025 – 2034 Capital Plan.

2. **Technical Evaluation:** A technical evaluation is the first step of the IRP two-stage evaluation process. Investments in the 2025 – 2034 Capital Plan cover a wide range of assets that are managed by numerous teams throughout EGI. The IRP team engaged investment owners, subject matter advisors (SMAs), and asset managers to together determine how IRP principles would apply to their projects. The IRP team continues to work with the same group of investment owners, SMAs, and asset managers to complete a detailed review of the projects, as outlined in the Technical Evaluation Project Review (see **Section 4.6.4)**.

3. **Economic Evaluation:** An economic evaluation is the second step of the IRP two-stage evaluation process. This step relies on the Discounted Cash Flow-plus (DCF+) test. As directed in the IRP decision, the IRP team is engaged in enhancing the DCF+ economic evaluation test that will be used to determine the optimal IRP or facility solution.

As part of advancing IRP, the OEB's IRP Decision[15] also required the selection and implementation of pilot projects. EGI has engaged with the Technical Working Group (TWG) for feedback on the Pilot Project Selection and Plan Development as well as the IRP Evaluation Process. Further information regarding both topics can be found in the EGI's IRP Annual Report filed in EB-2024-0125, Exhibit H, Tab 1, Schedule 1.

Appendix B reflects the current state of EGI's IRP Evaluation Process, as described in **Section 5.4.3** of the AMP.

4.6.1 IRP Assessment Results

The 2025 – 2034 Capital Plan contains 2,981 investments. For each investment included in **Appendix B**, the following steps are used to classify an investment at each stage as either pass or fail. An investment that fails at any stage does not proceed to the next stage because the investment is not applicable for an IRPA.

- **Identification of Constraints:** EGI implements a wide range of investments over a 10-year period that are split between gas-carrying asset investments and non-gas-carrying asset investments. IRPAs are focused on gas-carrying assets, therefore, the initial step applied in the review of the 2025 – 2034 Capital Plan for IRP purposes is to remove non-gas-carrying assets.

[15] EB-2020-0091

- **Binary Screening:** The binary screening criteria are then applied to all remaining investments. This step allows EGI to focus on investments where there is potential that an IRPA could technically and economically meet the system need. The binary screening was performed in accordance with the criteria outlined in the OEB's IRP Decision (EB-2020-0091).
- **Technical Screening:** The technical screening criteria as outlined in Appendix G of the IRP Annual Report are applied to investments passing the binary screening.
- **Technical Evaluation:** A technical evaluation is then performed on all investments that pass the technical screening. This step evaluates the technical viability of potential IRPAs to reduce peak demand to the degree required to meet the identified system need.
- **Economic Evaluation:** An economic evaluation is then performed on all investments that pass the technical evaluation. This three-phase DCF+ evaluation compares the IRP Plans to the facility alternative to determine the optimal alternative. For further details, refer to the OEB's IRP Decision.
- **IRP Plan Application:** When EGI determines that an IRPA (alone, in combination with other IRPAs, or in combination with a facility project) is the best option to address a system need, an application for approval of an IRP Plan will be submitted. **Appendix B** will indicate which investments have an associated IRP Plan and the status of the plan.

4.6.2 Identification of Constraints

Of the 2,981 projects within the 2025 – 2034 Capital Plan, there are 690 non-gas-carrying investments and 2,291 gas-carrying investments. The 690 non-gas-carrying investments were binary screened, based on falling within one of the following groupings that do not allow for IRP principles to be applied:

- Fleet and Equipment
- Real Estate and Workplace Services
- Technology and Information Services
- Extended Alliance
- Hydrogen investments
- Land/structure investments in the Compression Stations and Transmission Pipe & Underground Storage asset classes which are focused on buildings, roadways, utilities, or properties in proximity to other assets.

Figure 4.6-1 illustrates the value of the investments that were initially screened out as non-gas-carrying assets.

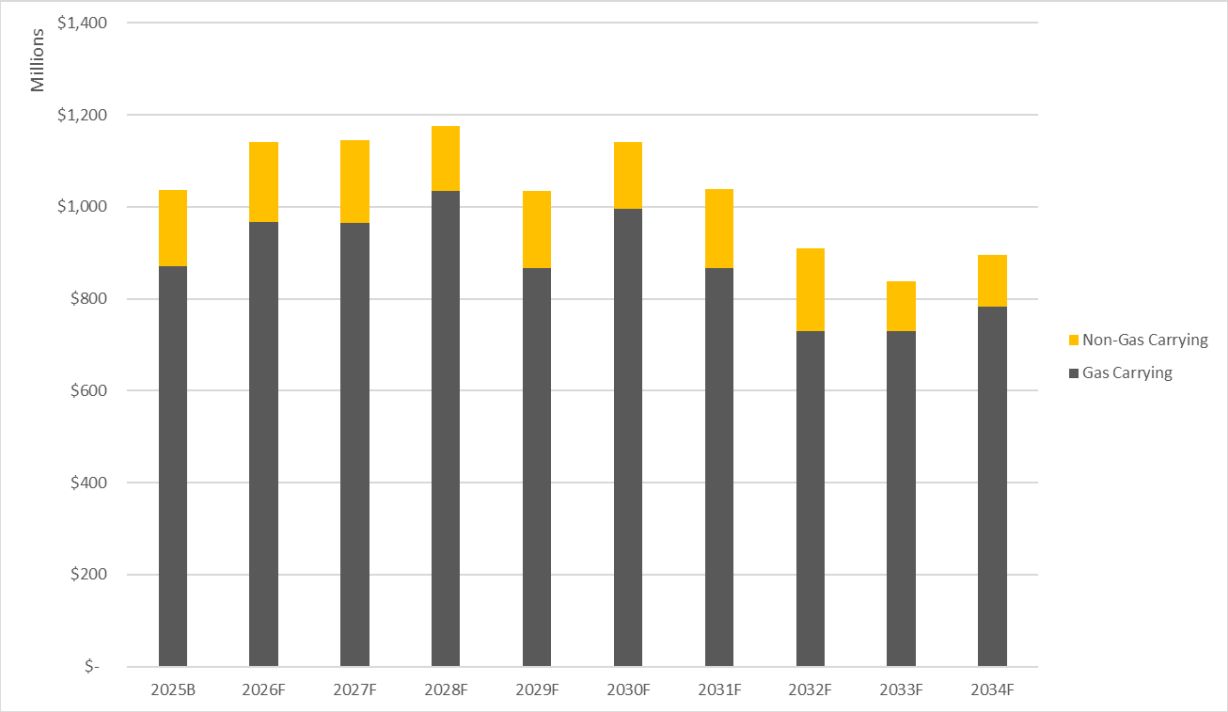


Figure 4.6-1: Pre-Screening Value of Investments

NOTE: *YYYYB = budgeted year, YYYYF = forecast year*

4.6.3 Binary Screening

Following **Section 4.6.2**, EGI applied binary screening to all remaining projects in accordance with the criteria outlined in the OEB's IRP Decision. The binary screening includes:

- **Timing:** If an identified system constraint/need must be met in under three years, an IRP Plan could not likely be implemented and its ability to resolve the identified system constraint could not be verified in time; therefore, an IRP evaluation is not required. Exceptions to this criterion could include consideration of supply-side IRPAs and bridging or market-based alternatives where such IRPAs can address a more imminent need. The timing criteria resulted in binary screen fails for projects within three years where supply-side alternatives were not viable. Investments within three years, where it was unclear if a supply side solution would be viable or not, passed binary screening to allow for further assessment in the technical evaluation.
- **Customer-Specific Builds:** If an identified system need has been underpinned by a specific customer's (or group of customers) request for a facility project and either the choice to pay a Contribution in Aid of Construction (CIAC) or to contract for long-term firm services delivered by such facilities, then an IRP evaluation is not required.
- **Community Expansion and Economic Development Projects:** If a facility project has been driven by government legislation or policy with related funding explicitly aimed at delivering natural gas into communities, then an IRP evaluation is not required. Capital expenditures associated with Community Expansion projects and Economic Development projects are not included in the 2025 – 2034 AMP and therefore will not receive an IRP evaluation.
- **Pipeline Replacement and Relocation Projects:** If a facility project is being advanced for replacement or relocation of a pipeline and the cost is less than the minimum project cost that would necessitate a Leave to Construct (LTC) approval, then an IRP evaluation is not required. The current LTC threshold was applied to the 2025 – 2034 Capital Plan and projects that fell under this threshold, in asset classes other than Growth System Reinforcement, failed the binary screening.
- **Emergent Safety Issues:** If an identified system constraint/need is determined to require a facility project for EGI to offer safe and reliable service or to meet an applicable law, an IRP evaluation is not required. An example of such a system constraint/need, and an emergent safety issue, would be if an existing pipeline sustained unanticipated damage and needed to be replaced as quickly as possible to ensure the safety of local communities and EGI broader

transmission and distribution systems. Longer-term safety-related system constraints/needs may be appropriate for an IRP Plan and should be considered on a case-by-case basis.

This screening criteria caused a binary screen fail for investments that have been created for emergency replacements. **Appendix B** also includes program items. Programs consist of work over multiple years that are forecast in one specific investment typically identified in the year of execution or when an emergency occurs. Investments within these programs may align with the emergent safety criteria, which was applied cautiously by EGI in response to concerns in the IRP filing that this could be applied too broadly to projects being assessed.

The IRP binary screening process has been fully integrated into the Asset Investment Planning and Management (AIPM) process in 2024 wherein asset managers are responsible for reviewing new investments and applying the screening criteria.

Applying the criteria to the AMP in the binary screening step resulted in 1,359 projects passing the binary screening and 932 failing. **Figure 4.6-2** provides the values associated with the binary screening results and **Figure 4.6-3** provides the values associated with the binary screening results by asset program.

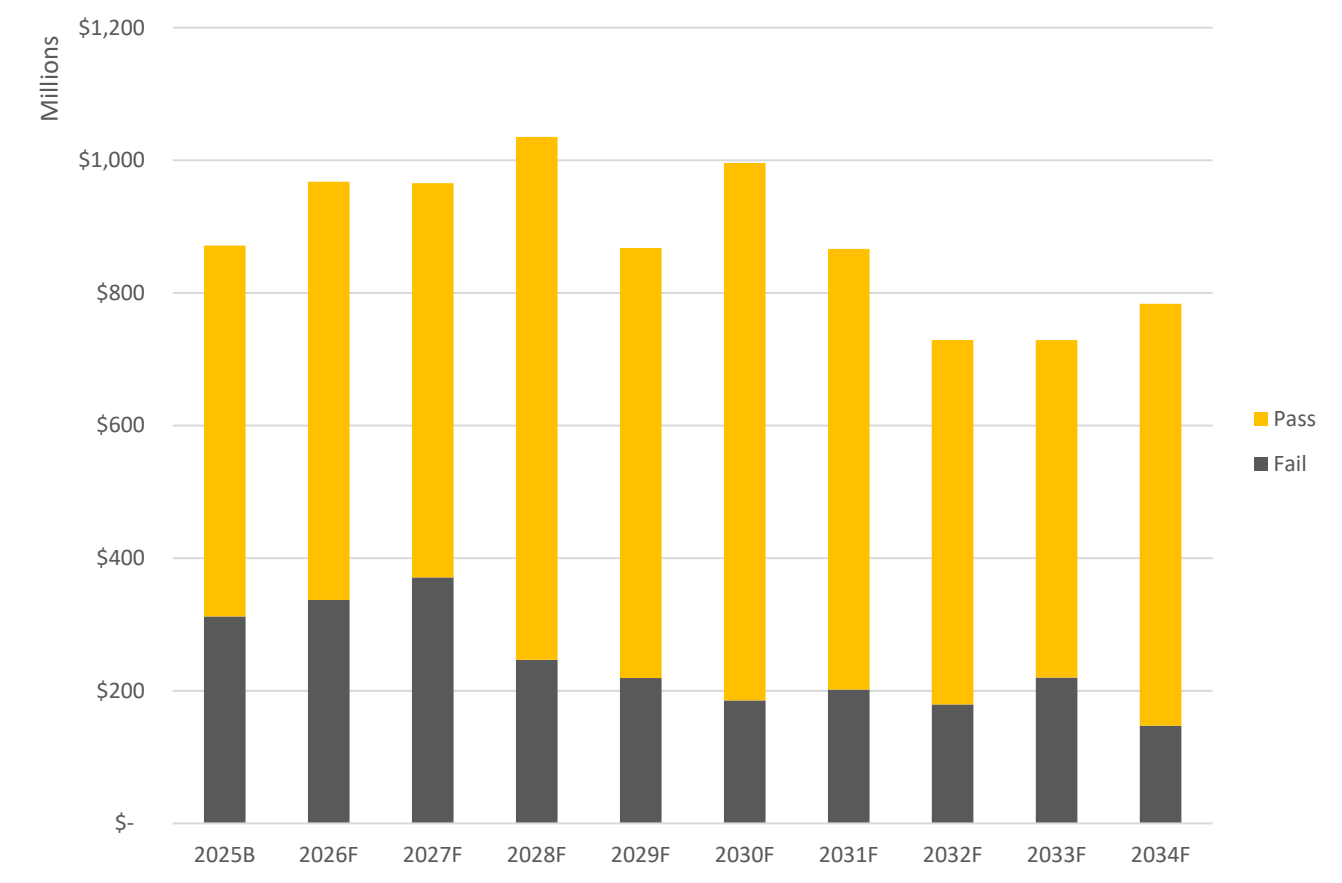


Figure 4.6-2: Binary Screening Results

NOTE: *YYYYB = budgeted year, YYYYF = forecast year*

Figure 4.6-3: provides a forecast breakdown of projects passing binary screening broken out by investment category.

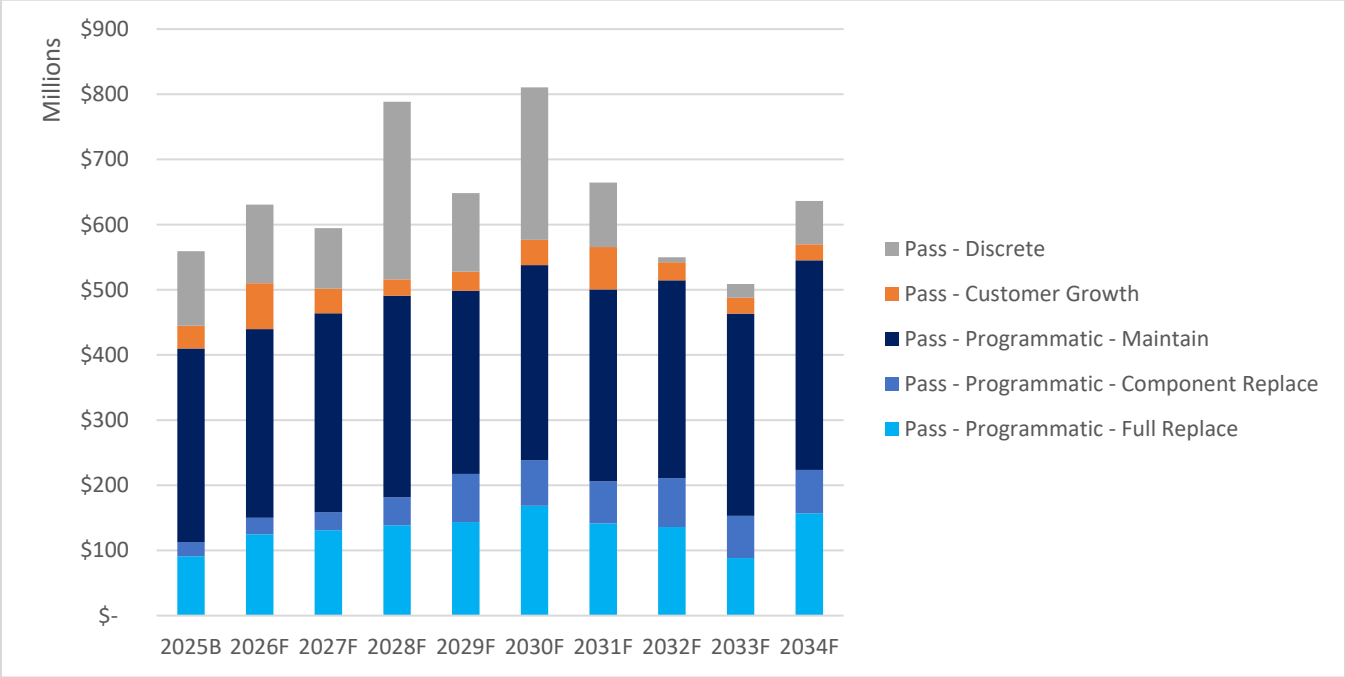


Figure 4.6-3: Binary Screening Pass by Investment Category

NOTE: *YYYYB = budgeted year, YYYYF = forecast year*

4.6.4 Technical Screening

EGI identified categories of investments that do not have a technically feasible IRPA and were subsequently removed at the technical screening stage. The categories of projects and rationale are listed below.

- **Compressor Stations:** The investments in the compression stations asset class related to the maintenance of the existing fleet of compressors include the periodic original equipment manufacturer (OEM) prescribed overhauls and replacement of components that are not performing as intended or are obsolete. These types of investments cannot be offset by IRPAs and therefore will be screened out during technical evaluation. However, any investments driven by growth would be subject to the detailed technical evaluation process.
- **Hydrogen Blending:** The investments in the hydrogen blending asset class/program are related to the use of hydrogen in the distribution system, studies on hydrogen blending, and are focused on reducing the carbon footprint of the existing transmission and distribution system. These investments cannot be offset by IRPAs and therefore will be screened out during technical screening.
- **Storage Pools & Wells:** The investments in the storage pools and wells asset class are related to maintenance- and compliance-driven upgrades to allow for ongoing deliverability from the storage pools. This includes the drilling of observation wells for compliance reasons and work that arises annually from the Integrity Management Program. These investments cannot be offset by IRPAs and therefore will be screened out during technical evaluation.
- **Distribution Stations:** The investments in this category are related to distribution station projects driven by the condition and not by growth. These distribution station condition-related projects are prioritized based on inspections that evaluate the condition of various components (e.g., regulators, valves, and piping, etc.) and systems (e.g., heating, odourant, and communications, etc.) at the stations. In some instances, the specific projects are time-constrained and low in dollar value and would fail at the binary screening stage. For larger projects, an understanding of the impact on upstream and downstream facilities is required and like-for-like replacement is usually preferable – particularly if a full station replacement is not being planned. As such, all condition-related station rebuilds and replacements will be screened out during technical evaluation. However, any station investments that involve an element of growth would be subject to the detailed technical evaluation process.

- **CNG Facilities:** These investments are related to the ongoing replacement and upgrade of CNG facilities to fuel EGI's natural gas vehicles. These needs cannot be replaced through IRPAs, and therefore will be screened out during the technical screening.
- **Project Status / Timing Related:** Investments that fall within this category are those that are already under construction, already granted leave to construct by the OEB, or are projects that have been cancelled. These investments will be screened out during technical evaluation.
- **Other:** For the investments in this category, it was determined that there would not be a technically feasible IRPA and are described in Table 1 in Appendix G of the IRP Annual Report.

4.6.5 Technical Evaluation

Projects passing the binary and technical screening are currently being reviewed in detail to verify that the forecast needs have not changed based on the incorporation of the Energy Transition adjustment to the 2024 demand forecasts, the project costs are sufficient, the project drivers have not changed, and multiple projects can be addressed as part of the same IRPA Plan. To evaluate projects for IRPAs, both technically and economically, the identified needs and facility projects must be reviewed and updated where necessary. This project review step is time and resource intensive to complete and at the time of filing is the step that EGI is actively engaged in. EGI is reviewing and assessing the following for each project:

- **Project Need:** The project need is reviewed to determine if any factors or forecasts have changed since the project was included in the 2025 – 2034 Capital Plan. Ensuring the facility project needs reflect the latest forecasts and information will allow for a more accurate comparison to IRPAs.
- **Project Cost:** Project costs are estimated when projects are identified for consideration in the 2025 – 2034 Capital Plan; however, since projects may be forecast up to 10 years in advance, the cost estimates need to be reviewed and updated as required. Greater certainty of the project costs will provide a more accurate IRPA cost comparison.
- **Project Driver:** There are instances where one project is addressing more than one identified need (e.g., class location and growth). EGI will review the project drivers to ensure that the potential IRPAs will address multiple project needs (e.g., growth and risk/compliance needs).
- **Project Groupings:** EGI will review the 2025 – 2034 Capital Plan to group projects by system where applicable as IRPAs may be more effective in addressing multiple needs in one area. Copying information from one system to another is very time intensive, and EGI is exploring if these location details can be entered with project details in a manner that allows for future sorting to minimize the time required for this work.

It is critical that this technical evaluation project review take place on a project-by-project basis to ensure that the project is properly defined and that all possible alternatives are properly considered. Once the project details have been confirmed and updated as needed, the next step in the technical evaluation will commence This means that, in tandem, some projects will be moving through a detailed project review while others are having the next step of the technical evaluation completed. This will advance the work in the timeliest manner possible.

4.6.6 IRP Next Steps

At the time of filing, the 2025 – 2034 AMP, EGI completed the identification of constraints and the binary screening for all projects. The current focus is on both continuing to complete technical evaluation project reviews and then the assessment of what IRPAs are technically feasible for the investment. **Appendix B** contains the status of the completed technical evaluations to date. For the investments that have had a technical review completed, the majority of them have failed at this stage. This is due to these investments not having technically feasible IRPAs, even though they passed the binary screening stage. Examples of these investments include those addressing meters and regulators, AMP fittings, and integrity digs.

The remaining investments now moving through the technical evaluation are those expected to most likely have a technically feasible IRPA. Specifically, the current focus is on the following areas:

- Investments with in-services dates of 2028 and prior with the highest costs
- Investments with in-services dates of 2028 and prior in the geographic areas with the highest forecast growth

Investments that pass the technical evaluation will have an IRP scope developed and will then move to an economic evaluation. Both technical and economic evaluations are part of the two-stage evaluation process noted in the OEB IRP Decision (EB-2020-0091). When an IRPA meets the threshold and is determined to be the optimal alternative, the IRP Plan will be filed with the OEB for approval. Lastly, periodic review of any IRP Plans and system needs will occur as outlined in the OEB's IRP Decision (EB-2020-0091).

In the 2024 Rebasing Phase 1 Decision (EB-2022-0200, Decision and Order, December 21, 2023, p.52.), the OEB suggested that system pruning could be a way to reduce system renewal expenditures and could be undertaken as an IRP approach. In the Phase 2 rebasing evidence (EB-2024-0111 Exhibit 1, Tab 17, Schedule 1), EGI has proposed to work with the IRP Technical Working Group (TWG) to consult on system pruning processes and what role EGI could play in a system pruning pilot. EGI will provide an update on the development of system pruning in the IRP Annual Report filed in 2025.

4.6.7 Economic Evaluations

At the time of filing the 2025 – 2034 AMP, EGI is still engaging in discussions with the IRP TWG to evolve the approved DCF+ test. The TWG is looking to evolve the test, including clearer definition of costs and benefits of facility alternatives and IRPAs and to clarify how these costs and benefits should be considered within the DCF+ test.

EGI currently plans to file the DCF+ test with its first non-pilot IRP Plan.

4.6.8 Pilot Project Design, Economic Evaluation and Implementation

The IRP Pilot Project is expected to provide learnings and a better understanding of the impact that IRPAs have on peak system demand. Among other things, this includes implementing and monitoring a mix of demand-side IRPAs and observing their performance and impacts on peak hour demands. These Pilot Project learnings are expected to be transferable and inform the assessment and implementation of future IRP opportunities, including the extent to which IRPAs can be used to cost-effectively delay, downsize, or avoid future facilities projects. The Pilot Project application was filed with the OEB on June 27, 2024.[16]

[16] EB-2022-0335

5 Strategy, Planning, and Process

5.1 Asset Management Alignment

EGI's Asset Management framework is aligned to EGI's Strategic Priorities, the EGI Asset Management Policy, and Asset Management Strategies. This alignment provides a foundation that supports the Asset Investment Planning and Management (AIPM) process.

Figure 5.1-1: Asset Management Alignment

- **Enterprise Strategic Priorities** sets the foundation for all company-wide operations and initiatives.
- **Asset Management Policy (Section 4.3)** translates the EGI Strategic Priorities into the application of asset management at EGI and outlines the high-level goals and principles used to manage assets.
- **Asset Management Strategies (Section 5.2)** supports the policy and outlines the methods employed for asset management success.
- **Operational Risk Management Process (Section 5.3)** involves a series of activities designed to help management assess, prioritize, and treat hazards and risks that could affect the achievement of key business objectives.
- **Asset Investment Planning and Management (AIPM) Process (Section 5.4)** outlines how the identified strategies will be executed.

5.2 Asset Management Strategies

The EGI Asset Management Program's day-to-day activities are driven by key asset management strategies (see **Figure 5.2-1)** aligned to the six framework components of the Institute of Asset Management (IAM) Conceptual Asset Management Model (see **Figure 4.2-1**:) and operationalized through the Asset Investment Planning and Management (AIPM) process (see **Section 5.4**):

Strategy and Planning

- Create alignment in the organization by establishing an asset management policy, strategies and objectives that link to company strategic priorities.
- Develop and use processes for the repeatable practice of asset management.
- Forecast a long-term Asset Investment Plan that supports strategic priorities.

Organization and People

- Align roles and organizational structure to support asset management.
- Define organizational roles and structure to deliver on effective decision-making in asset management.
- Clarify competencies and build capacity in the organization to deliver on asset management goals.
- Ensure adequate capacity to deliver on asset management objectives.
- Establish a leadership culture/framework to embed asset management awareness and principles throughout the organization.

Life Cycle Delivery

- Implement life cycle management for assets.
- Ensure asset decision-making is compliant with applicable standards and legislation.
- Build life cycle strategies for assets that consider the design and operational context throughout the asset life cycle.
- Use life cycle strategies for assets to drive consistent and holistic evaluation of investment opportunities.

Risk and Review

- Establish a framework to identify, manage and treat risk.
- Use processes for the identification, assessment, analysis and treatment of risks.
- Monitor asset performance and health to ensure a balance of risk, cost, and performance.

Asset Management Decision-making

- Optimize portfolio based on asset management principles.
- Improve decision-making through transparency, clear accountabilities, stakeholder engagement, and use of common asset management tool.
- Extend asset management decision-making to operations and maintenance activities to ensure that optimal asset value is attained over each asset's life.
- Improve decision-making through an understanding of the asset risk, value assessment, and timing considerations for outages.

Asset Information

- Produce and evaluate asset information and condition information.
- Establish a governance framework to ensure data is captured, managed, and used effectively.

Figure 5.2-1: Asset Management Strategies

5.2.1 Strategy and Planning

EGI uses a governance framework to align asset management plans and decision-making within EGI's overall strategic objectives and industry best practices. The strategies to achieve this are:

- Create alignment in the organization by establishing an asset management policy, strategies, and objectives aligned to strategic priorities.
- Develop and use processes for the repeatable practice of asset management.
- Forecast a long-term Asset Investment Plan that supports strategic priorities.

The alignment of EGI's Asset Management Program with organizational priorities and a well-defined asset portfolio enables the development of asset-specific programs and investments. The AMP is a coordinated activity combining these components to forecast a long-term (10-year) plan for asset investments. Forecasting long-term asset investment plans allows EGI to identify future needs for asset investments and make proactive decisions.

The capital investment summary for EGI's Asset Management Plan can be found in the Summary of Capital Expenditure (see **Section 3**).

5.2.2 Organization and People

EGI aims to develop and maintain an adequate supply of competent and motivated people, in key asset management roles across all levels, to support the organization in delivering asset management objectives. The strategies to achieve this are:

- Align roles and organizational structure to support asset management.
- Define roles and structure for the organization to deliver on effective decision-making and asset management.
- Clarify competencies and build capacity in the organization to deliver on asset management goals and objectives.
- Establish a leadership/culture framework to embed asset management awareness and principles throughout the organization.

Asset classes at EGI (see **Figure 5.2-2**:) are used to categorize and manage investment decisions. Each asset class has its own asset manager, who is responsible for understanding the operational risks and opportunities for their asset class and for managing the portfolio of work to ensure risk is managed to the lowest practicable level and optimum value is realized.

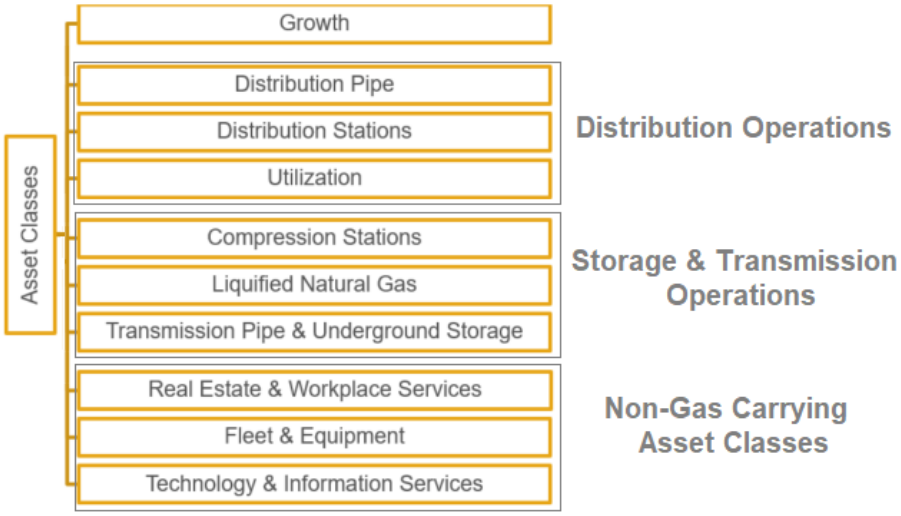


Figure 5.2-2: EGI Asset Classes

A matrix approach to asset management (see **Figure 5.2.3**) enables the coordinated activity of defining an optimized and approved portfolio of work. This streamlines inputs from a diverse group of business stakeholders, while growing asset management practices across EGI.

Asset management is embedded throughout all levels of the organization. Overall guidance is established through the Asset Management Steering Committee, the Integrated Management System (IMS), and the Safety & Reliability Governance team. Key functions in this matrix approach work together to achieve an optimized portfolio:

- **Asset Management Director** performs the following:
  - Demonstrates commitment to values and principles of Asset Management set out in the Asset Management Policy, Objectives and Strategic Asset Management Plan
  - Promotes continual improvement
  - Decides on the set of investments that will address risk across EGI through the recommendation of the capital portfolio
  - Ensures resources for the AMP are available and actively directs and supports people to contribute to effective asset management
  - Supports and influences staff to deliver the Asset Management Strategy and objectives of the organization
  - Endorses AMP documentation
- **Asset Management and Risk Governance** establishes and governs the following:
  - Asset Management Policy
  - Leadership culture to embed Asset Management principles (through organizational change management and training)
  - Asset management systems
  - Operational Risk Management Framework, Standards, Processes and Value Framework
  - Asset Investment Planning and Management processes and tools
  - Portfolio optimization
  - Preparation and approval of the AMP
- **Asset managers** perform the following:
  - Understanding of asset condition and failure drivers
  - Consolidation of emerging and existing risks, opportunities, and emerging needs
  - Preparation of investments for value assessment
  - Proposal of potential solutions to identified needs
  - Prioritization of solutions and risk treatments across the asset class
  - Development of strategic plans for the asset class which incorporates IRP
  - Stakeholder review and management
- **Functional/Process Departments** support asset management by providing:
  - Integrated Resource Planning Alternative assessments
  - Engineering assessments
  - Value assessments
  - Integrity assessments
  - Energy transition design and analysis
  - Risk owner, accountable for ensuring that a risk is managed throughout the Operational Risk Management Life Cycle (see **Section 5.3**)
  - Asset analytics
  - Records management
  - Financial support
  - Regulatory support including energy policy
  - Tacit knowledge (including identification of existing and emerging issues)
  - Planning and design
  - Safety and incident information
  - System analysis long-range planning
  - Project execution

Together, these roles provide the structured support for the Asset Investment Planning and Management process described in **Section 5.4** to ensure that capital expenditures are based on transparent and defendable asset-based decisions.

5.2.3 Life Cycle Management

EGI aims to have clear ownership, accountabilities, policies, and processes to manage all physical assets throughout their entire life cycle. The strategies to achieve this are:

- Implement life cycle management for assets.
- Ensure asset decision-making is compliant with applicable standards, legislation, and regulatory decisions.
- Build life cycle strategies for assets that consider the design and operational context throughout the asset life cycle.
- Use life cycle strategies for assets to drive consistent and holistic evaluation of investment opportunities.

With clear objectives for the use and operation of assets, life cycle costs can be examined to ensure that optimal asset value is attained over the asset's life.

EGI has defined asset life cycle stages that are applied to all asset classes (see **Figure 5.2.3**), adapted from the IAM Conceptual Asset Management Model (see **Figure 4.2-1**:):

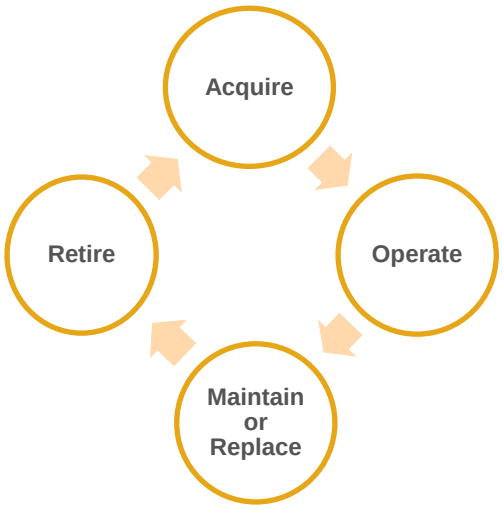


Figure 5.2-3: Asset Life Cycle Stages

- **Acquire** – The addition of new assets through acquisition or construction.
- **Operate** – The day-to-day physical operational control of the assets. These can be largely Operations and Maintenance (O&M) expenses but can also include capital costs for some inspections and reactive maintenance activities.
- **Maintain or Replace** – The activities undertaken to ensure assets are compliant and continue to perform their intended function safely and reliably throughout their expected life cycle. This may include proactive replacements to manage the risk of failure or pursue opportunities for improving operational efficiencies and customer service.
- **Retire** – Disposition of assets through sale or decommissioning and abandonment.

By using these life cycle stages, strategies are developed for each asset class to support asset investment decisions and objectives. **Table 5.2-1** describes the typical strategies and activities for each life cycle stage.

Table 5.2-1: Life Cycle Management Strategies for Assets

Life Cycle Stage	Asset Class Strategies	Asset Class Strategies Description	Activities
Acquire	Create	The creation or acquisition of new assets that deliver additional value to the business and the customer.	• Procure materials, equipment, and application software to meet applicable codes, standards, and policies. • Construct/Install/Commission assets to meet codes, standards, designs, and procedures for safe and reliable operations. • Create asset records to meet or exceed standards, policies, and procedures that are traceable, verifiable, complete, and correct. • Support energy transition. • Meet current and future demand requirements. • Ensure critical components and systems have multiple layers of failure protection. • Ensure components and systems can be made safe in a reasonable period. • Minimize environmental impact and GHG emissions. • Minimize future maintenance needs. • Suit business purpose and ensure safe business function.

Life Cycle Stage	Asset Class Strategies	Asset Class Strategies Description	Activities
			• Suitably commission assets for safe, efficient, and reliable use by employees and contractors.
Operate	Operate	To deliver safe and reliable natural gas for the public.	• Ensure the safe and reliable delivery of natural gas. • Ensure public and worker safety. • Meet compliance standards and procedures. • Meet current customer demand. • Use assets in the most cost-effective manner. • Minimize end-user-disruption. • Provide business and employees with support and service for optimal use of company assets and business solutions. • Monitor the performance and use of assets to inform future life cycle decisions. • Identify Operational Risks and evaluate risk on an ongoing basis.
Maintain or Replace	Maintain	The execution of, inspection, maintenance, and demand side management programs designed to ensure an asset can function for the required service life and/or delay changes to the asset's functional requirements. This strategy also includes reactive replacement resulting from damage and failures that cannot otherwise be resolved through repairs, and investments necessary to maintain compliance or address known safety/reliability risks that cannot otherwise be mitigated.	• Maintain integrity of gas-carrying assets to minimize loss of containment, extend asset life, and ensure compliance with codes, standards, and procedures. • Maintain gas-carrying assets and safety controls to avoid overpressure or delivery outages. • Maintain asset information to meet standards set out by EGI. • Perform reactive maintenance and Demand-Side Management.
Maintain or Replace	Improve	Asset investment programs which increase service levels and/or reduce costs to operate or maintain existing assets.	• Implement asset modifications that improve efficiency of asset operation and maintenance and/or extend life of assets, while ensuring a balance between risk, cost and performance. • Monitor the performance and use of assets to inform future life cycle decisions.
Maintain or Replace	Replace	Asset investment programs comprised of proactive replacements or renewal of an asset or components driven by regulatory compliance, end-of-life cycle, condition data, or	• Develop proactive replacement programs for assets that are nearing end of life (informed by data and tacit knowledge and tracked in the Integrated Management System). • Replace assets to meet the changing needs of the business, increase performance, realize efficiencies, and address obsolescence. • Replace assets to support employee and contractor health and safety, support energy transition, meet regulatory and

Life Cycle Stage	Asset Class Strategies	Asset Class Strategies Description	Activities
		predictive failure models.	compliance requirements, increase efficiencies, and reduce overall GHG emissions.
Retire	Dispose	Actions taken to remove an asset from company ownership when they cease to provide adequate value to the business and/or the customer.	• Perform asset rationalization. • Retire assets using a process that meets regulatory codes and standards.

5.2.4 Risk and Review

EGI aims to manage risks through the adoption of the Operational Risk Management process (see **Section 5.3**) based on ISO 31000 and the EGI Framework Standard on Risk Management. The strategies to achieve this are:

- Establish a framework to identify, analyze, evaluate, and treat risk.
- Implement processes based on the framework to manage risk.
- Monitor asset performance, health, and risk to balance risk, cost, and performance.

Asset performance, health and risk is monitored through a range of formal and informal methods including condition assessment programs, tracking of performance data through management programs (part of the Integrated Management System), the Asset Health Review and the Hazard Identification and Risk Assessment process.

Through these inputs and the Operational Risk Management process, EGI manages risks in the following categories:

- **Employee and Contractor Health and Safety:** Level of injury or illness and number of employees impacted
- **Public Health and Safety:** Level of injury or illness and number of people in general public impacted
- **Environmental:** Breadth and severity resulting in environmental damage/impact
- **Financial:** Level of financial impact
- **Operational:** Length of time and breadth of impact on utility and transportation customers and diversion of resources
- **Reputational:** Level of media coverage, impact on customers, potential penalties or impact on ability to operate due to compliance issues

5.2.5 Asset Management Decision-Making

EGI aims to have a clear framework for asset investment decision-making that balances risk, cost, and performance throughout the asset life cycle. The strategies to achieve this are:

- Optimize portfolio based on asset management principles.
- Improve decision-making through transparency, clear accountabilities, stakeholder engagement, and use of a common tool.
- Extend asset management decision-making to further include operations and maintenance activities to ensure that optimal asset value is attained over each asset's life.
- Improve decision-making through an understanding of the asset context and timing considerations for outages.

Investments fall into one of three categories based on asset management principles: mandatory, compliance, or value-driven, as described in **Table 5.2-2**. These categories support portfolio optimization and the determination of optimal investment timing through the AIPM process (see **Section 5.4)**.

Table 5.2-2: Investment Categories

Investment Category	EGI Description
Mandatory	An investment that is required to address a risk or opportunity within its required time window. Mandatory investments can be the result of: • Exceeding an established risk upper threshold • Third-party relocation • Program work with sufficient history and risk to warrant continuation • Projects that meet the economic feasibility tests in *EBO 188* and *EBO 134*
Compliance	Investments specifically imposed by a governing regulatory body. Compliance investments receive the same treatment as mandatory investments; both must be addressed within their required time frame.
Value-Driven	Investments whose timing is determined based on consideration of the value it brings to the customer and the organization. This can include EGI commitments to best practices and manufacturers' recommendations. Value and investment timing can be informed via the **Copperleaf value framework** or via the Operational Risk Management process (see **Section 5.3**).

EGI uses Copperleaf, an asset investment planning tool that provides a common economic scale, to understand and evaluate proposed capital investments. Copperleaf allows EGI to optimize its investment portfolio based on the defined capital considerations to support value-based decision-making and helps to ensure EGI fulfils its regulatory and internal requirements for systematic and transparent investment decisions.

Copperleaf supports the AIPM process (see **Section 5.4**) by:

- Documenting risk management opportunities and treatment options
- Capturing growth opportunities
- Providing context on value-driven investments through the value framework
- Performing portfolio optimizations using iterative scenarios to determine an optimal spend profile
- Allowing investment details to be updated throughout the year to optimally manage the investment portfolio
- Providing full transparency to business stakeholders on the approved work plan and understanding year-over-year changes

For value-driven investments (see

Table 5.2-2), an organization needs a mechanism to determine its investments' relative value. Several elements can contribute to the overall value of an investment, such as:

- The type and severity of the risks treated by an investment
- Financial impacts such as cost savings
- Overall cost of the investment
- Impacts to Key Performance Indicators (KPIs)
- Service measures
- Overall organizational value additions

An investment's value is quantified through Copperleaf's value framework or evaluated via the Operational Risk Management process. The investment timing and scope of work for investments that rely on the Operational Risk Management process are typically more complex; investment timing is confirmed outside of Copperleaf optimization. For value-driven investments that use the Copperleaf value framework, value measures are used to quantify an investment's value, as described in **Table 5.2-3**.

Value measures are investment attributes that are evaluated objectively based on risk or opportunity to determine how the investment delivers value to EGI and the customer. These value measures are placed on an economic scale to assist in optimization. An investment's net value is used to determine both its independent merit and its standing among other investments in a constrained optimization process.

The Copperleaf value framework is an analytical framework that complements risk assessments, allows for comparison of dissimilar investments, and enables portfolio optimization. For more details on evaluating investment risk, see **Section 5.3.3**. EGI has been implementing and continues to mature its asset management decision-making practice.

Table 5.2-3: EGI's Value Measures

Value Measure	Description
Employee and Contractor Health and Safety Risk	Measures the risk of employee and contractor safety incidents that will be mitigated through the completion of an investment.
Public Health and Safety Risk	Measures the risk of public safety incidents treated through the completion of an investment.
IT and Facilities Capacity Risk	Measures the risk that the organization would not be capable of continued service at acceptable levels following a disruptive incident.
Operational Risk	Measures the mitigation of the risk of disruptive incidents preventing EGI from operating or serving its customers.
Reputational Risk	Measures the treatment of the risk of incidents that would be perceived poorly by customers, the media, and stakeholders through the completion of an investment.
Gas Storage Reliability	Measures the financial benefits of investments that increase the reliability of gas storage assets to prevent supply interruptions.
Environmental Risk and Remediation	Measures the treatment of risk of environmental incidents through the completion of an investment.
Operational Disruption Risk (Gas)	Measures the societal cost of a disruption in the distribution of gas to customers.
Avoided GHG Emissions	Measures the monetary value of reducing CO_2 GHG emissions through the completion of an investment.
Avoided Reactive Replacement	The financial savings of replacing an asset proactively before it fails and not having to pay the higher, reactive replacement costs.
Financial Risk	Measures the treatment of potential financial risks, such as financial losses due to damage of equipment/company assets, if the investment is not completed.

Value Measure	Description
Revenue Impact	Measures the impacts to the total amount of gross income generated by EGI's primary operations. Revenue represents the total income earned before expenses are deducted.
Budget Savings OpEx	Values the OpEx Budget Savings of the investment.
Budget Savings CapEx	Budget savings is the net benefit between the anticipated cost increases to the CapEx budget as well as cost savings to current planned spending. This is not the investment cost.
Cost Avoidance OpEx	Any action that avoids having to incur OpEx costs in the future (these costs would be unbudgeted/unplanned). Cost avoidance measures are never reflected in financial statements or the annual budget. Avoided OpEx costs are only reflected in instances where a proposed action is not implemented, thus resulting in a cost increase.
Cost Avoidance CapEx	Any action that avoids having to incur CapEx costs in the future (these costs would be unbudgeted/unplanned). Cost avoidance measures are never reflected in financial statements or the annual budget. Avoided CapEx costs are only reflected in instances where a proposed action is not implemented, thus resulting in a cost increase.
Energy Efficiency	Measures the financial benefits through annual energy savings and reduced CO_2 emissions.
Employee Productivity	Measures the impact on working conditions and employee productivity.

5.2.6 Asset Information

EGI aims to have the right systems, processes, and data to support asset management. This is foundational to all other asset management capabilities. The strategies to achieve this are:

- Produce and evaluate asset information and condition information.
- Establish a governance framework to ensure data is captured, managed, and used effectively in decision-making.

Asset data provides the foundation for asset investment planning (see **Figure 5.2-4)**. Asset analytics supports people, processes, and technological advancements to enable defendable asset decisions. Asset analytics provides asset information that informs and supports asset health reviews, engineering reliability assessments, risk and opportunity assessments, and asset replacement strategies. It also outlines the processes, governance, and systems required to ensure decisions are defendable and repeatable through using data that is fit for purpose.

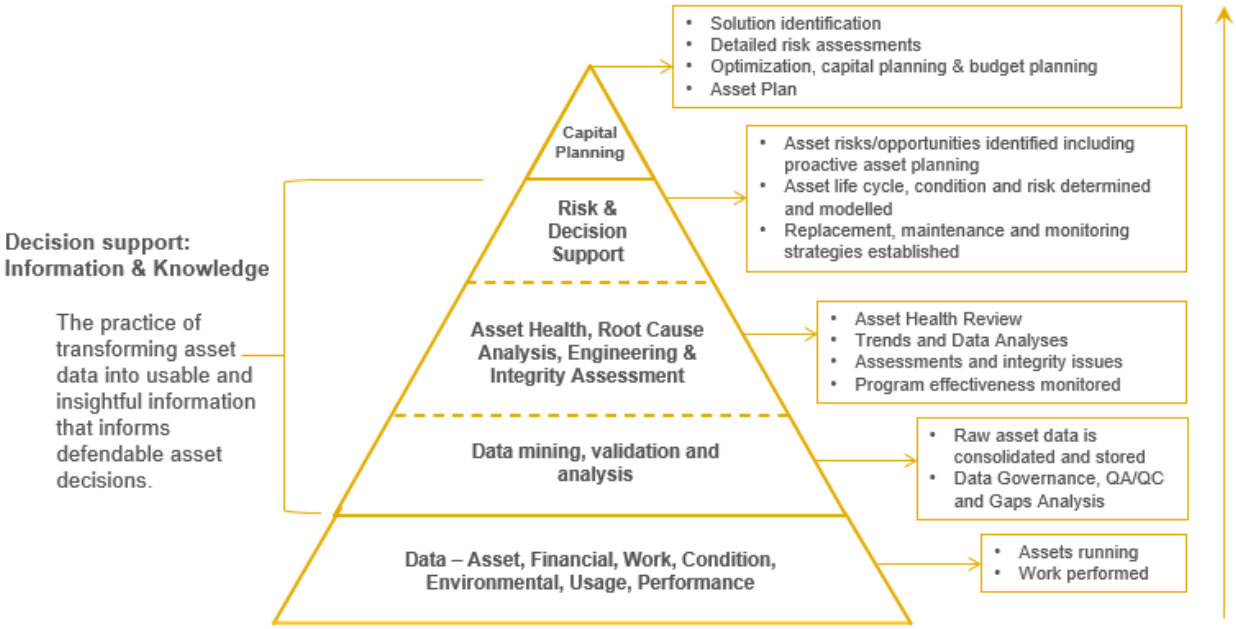


Figure 5.2-4: Asset Information and Support to Asset Investment Planning

Asset data enables the evaluation of existing assets, determines patterns, supports costing of solution options and identifies meaningful information to inform life cycle management strategies. Several reports and tools are used to inform asset investment planning. Supported by EGI and industry knowledge, asset information is leveraged for asset analytics and modelling to:

- Assess asset condition
- Support and predict risk and value assessments
- Develop cost estimates and understand financial performance
- Inform and support asset health reviews and engineering reliability assessments
- Establish asset inventory and population over time
- Ensure compliance with EGI policy and regulatory requirements
- Make operational asset decisions, e.g., emergency response
- Ensure safe and reliable operations e.g., core work, maintenance

5.3 Operational Risk Management

Operational Risk Management focuses on managing risks that impact the ability to conduct business in a safe, reliable, and socially responsible manner. The process for managing risks follows *ISO 31000* (see **Figure 5.3-1**), which involves a series of activities designed to help the organization assess, prioritize, and treat risks.

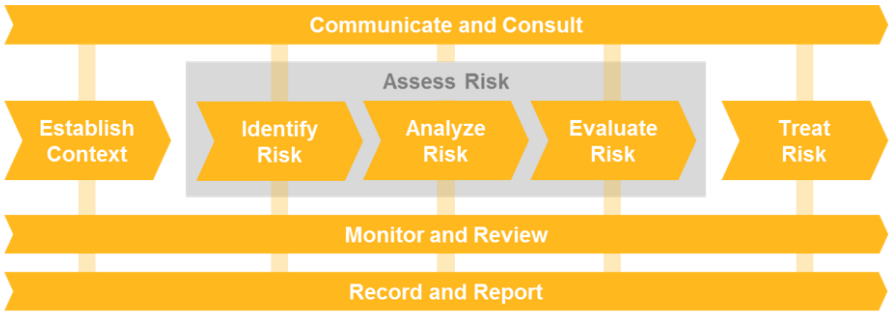


Figure 5.3-1: EGI's Operational Risk Management Process

The following sections provide more detail about the process steps and the roles involved in Operational Risk Management at EGI.

5.3.1 Identify Risk

Operational hazard and risk identification occur throughout the asset life cycle and are identified through:

- Internal sources such as databases, frontline processes, targeted reviews, assessments, and meetings
- External sources such as published industrial incidents, industry-related publications distributed by regulatory bodies and industry associations, local governments, external crime statistics, industry standards, and accepted best practices.

5.3.2 Analyze Risk

Risk factors shown in the Risk Bowtie Model (see **Figure 5.3-2**) are analyzed and assessed. The commonly used types of risk assessments at EGI are quantitative, semi-quantitative, and qualitative which are described in **Table 5.3-1**. The selection of the approach is dependent on the scope of the assessment, maturity of risk assessment technique, best available data and information at the time of the assessment, and the types of assets.

Table 5.3-1: Risk Assessment Types

Type	Description	Application
Qualitative Approach	General and/or structured brainstorming with a multidisciplinary team to identify and evaluate risks. Relies mainly on qualitative inputs such as expert judgment, experience, and technical knowledge.	Used to identify and understand risk factors.
Quantitative Approach	Detailed technical assessments that leverage numerical data and mathematical methods to quantify risks.	Applied to contexts which are well understood and where numerical data and mathematical models can be used to quantify risk factors.
Semi-Quantitative Approach	Relies on qualitative inputs, such as expert judgment, experience, and technical knowledge, as well as numerical data and mathematical methods to evaluate risk.	Applied to contexts which are relatively well understood but not all risk factors can be quantified.

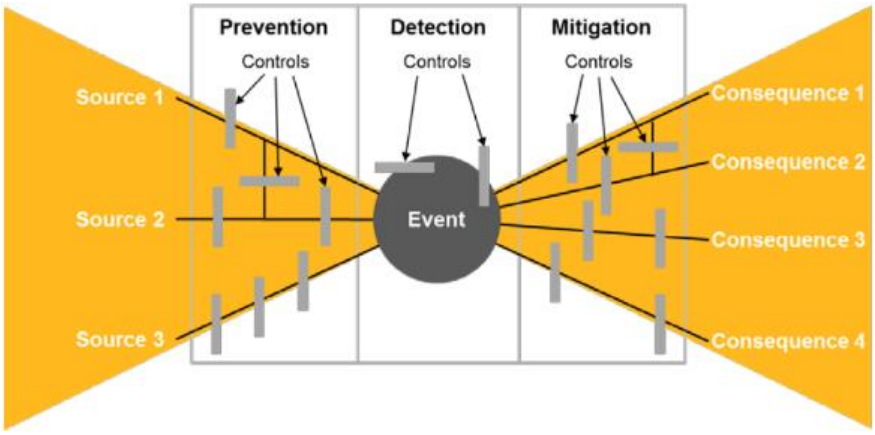


Figure 5.3-2: Risk Bowtie Model

In order to provide clear guidance on prioritizing resources on managing risks, the EGI Risk Evaluation Framework is applied (see **Figure 5.3-3**). When a risk is assessed to be in **Region 1**, risk treatment must be taken to reduce risk to all practicable extent. The timing of risk treatments to reduce risk may vary by scenario with reduction occurring as soon as possible while following applicable standard operating procedures and related business processes and requirements. Risk in **Region 2** must be treated unless it can demonstrate that the risk has already been reduced as low as technically and economically feasible. Region 2 acknowledges that there are practical limits to the ability to reduce risk. Risks in **Region 3** do not require further treatment but, like risks in other Regions must be monitored according to applicable procedures and related businesses' processes and requirements.

The framework ensures that resource allocations are prioritized to EGI's higher risks to ensure safe and reliable operations. It also ensures the ability to demonstrate that all reasonable measures have been undertaken to reduce risk.

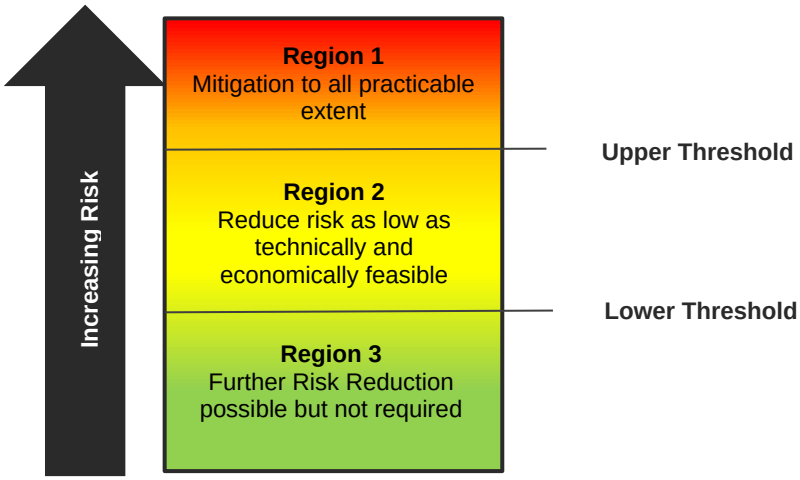


Figure 5.3-3: EGI Risk Evaluation Framework

As EGI evolves its risk management practices, two approaches have been adopted from industry best practices:
(1) EGI Operational Risk Assessment Matrix (see **Figure 5.3-4** where the Y-axis indicates likelihood, and the X-axis indicates consequence) and (2) risk thresholds (upper and lower thresholds) as illustrated in **Figure 5.3-4: EGI Operational Risk Assessment Matrix**.

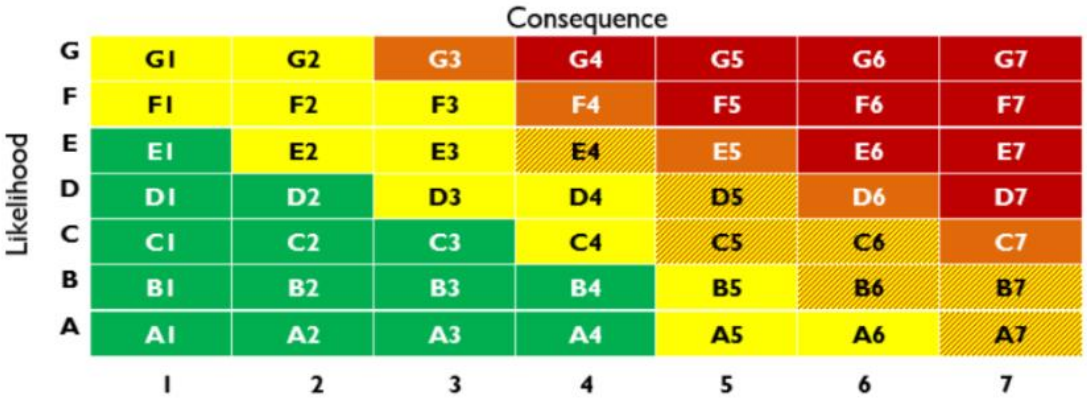


Table 1-1: Legend

Colour	Risk	Description
	Very High	Very high risk remains after existing controls have been considered. Risk reduction options, including interim measures, must be considered, and risk escalated as quickly as possible, as per Business Unit reporting requirements.
	High	High risk remains after existing controls have been considered. Re-evaluation and / or risk reduction options must be considered, and risk escalated, as per Business Unit reporting requirements.
	High / Medium	If related to health or safety, treat as High. If unrelated to health or safety, treat as Medium.
	Medium	Escalation / risk reduction may be warranted. Consider options to further reduce risk, where feasible.
	Low	No action or escalation required.

Figure 5.3-4: EGI Operational Risk Assessment Matrix

In most cases, the risk matrix is used to support comparison of risks across multiple dimensions where risks are estimated in terms of likelihood and consequence with results being plotted on the matrix. The EGI Risk Evaluation Framework (see **Figure 5.3-3** and the EGI Operational Risk Assessment Matrix (see **Figure 5.3-4**) are complementary and support risk-informed decision-making.

Sometimes, there is a need to understand safety risks due to the release of hazardous materials, such as flammable and toxic material, and their intersection with the public and employees, also known as catastrophic/rare events. In such cases, risk quantification can be applied, provided there are data and analytical techniques to allow for this. The safety risk evaluation criteria published in *Z662-23 Standard on the Oil and Gas Pipeline System, Annex B* are used for this type of assessment. This approach is also in use at major North American energy companies[17]. These criteria are represented by lower and upper thresholds (i.e., target and limit) as shown in the EGI Risk Evaluation Framework (see **Figure 5.3-3**).

While the EGI Risk Evaluation Framework can support treatment prioritization and risk reduction, ultimately, the actions EGI takes in the face of specific risks are influenced by many factors including the business environment, regulatory, planning, financial, commercial, stakeholders, and the quality and maturity of risk assessment data and capabilities. The risk assessment and decision to treat a risk are inputs to the Asset Investment Planning and Management process (see **Section 5.4**).

5.3.3 Evaluate Risk

Having analyzed the risk, the EGI Risk Evaluation Framework (see **Figure 5.3-3**) is used to provide guidance on prioritizing resources on managing risks. For more details on Risk and Review, see **Section 5.2.4**. Once decisions are made to treat risks, they are documented with treatment plans as part of the Operational Risk Management process. Depending on the nature of the risk, these risks may be reported quarterly through EGI's IMS processes.

[17] Tomic, Aleksandar, Kariyawasam, Shahani, "Critical Review of Risk Criteria for Natural Gas Pipelines," Proceeding of the 2016 11th International Pipeline Conference IPC 2016-64356, Calgary, AB, September 26-30, 2016.

The level of uncertainty of a risk evaluation needs to be considered and can influence the confidence in likelihoods and consequences of specific scenarios. Where the level of uncertainty is higher, it may be necessary to further augment quantitative assessments with qualitative considerations.

5.3.4 Treat Risk

Risk treatment is the modification of identified risks, ranging from day-to-day operational activities undertaken by operators and field personnel to inspect equipment, to a large capital project required to replace an existing asset. Operating inspections, procedures, and preventive maintenance activities are developed during the commissioning of an asset and are used to treat identified risks throughout the Operate and Maintain phases of the asset life cycle.

Figure 5.3-5 lists the risk treatment options used at EGI.

Figure 5.3-5: Risk Treatment Options

5.3.5 Monitor and Review Risk

EGI maintains a risk register to communicate and review all operational risks. Risks are reported and reviewed through a risk reporting process. Each management program owner within the IMS and each risk owner is also accountable for the ongoing management of risks within their accountabilities.

5.4 Asset Investment Planning and Management Process

Within the overall Asset Management Strategic Framework, as capital investment needs are identified, they are evaluated and executed through the Asset Investment Planning and Management (AIPM) process (see **Figure 5.4-1**). **Figure 5.4-1** represents the current state AIPM process that was used to develop the 2025 – 2034 Capital Portfolio and **Appendix B**.

Figure 5.4-1: EGI AIPM Process

5.4.1 Identify Investment Need

Capital investment needs enter the AIPM process via EGI's asset investment planning tool (Copperleaf). An investment need is either a risk or opportunity to the organization. The investment need can be entered directly into Copperleaf, or it may arise through the Operational Risk Management Process (see **Figure 5.3-1**) once an identified risk is determined to require capital treatment. The following investments are entered directly into Copperleaf:

- Growth and cost-saving opportunities
- Compliance investments
- Ongoing program spend with sufficient history and risk to warrant continuation

Once an investment need is captured in Copperleaf, the asset manager validates that the need aligns with the strategies for the asset class and that a capital investment is required. Once confirmed that a capital investment is indeed required, solution planning and value assessment (if applicable) can begin.

Depending on the required timing to address the identified investment need with a solution, an investment may be considered for portfolio optimization or may be considered emergent, where it is approved off-cycle from budgeting activities; emergent investments require capital within the current year and are reviewed case by case by the asset manager and Asset Management Governance.

5.4.2 Solution Planning and Value Assessment

Solution planning is initiated once an investment need is approved by the asset manager and can occur in parallel with the completion of a value assessment (when required). A Copperleaf investment contains a scope, cost estimate and preferred timing for all identified solutions (facility and non-facility) to address the need. Investments can be in the form of a **Project** or a **Program**, as described in **Table 5.4-1**.

Table 5.4-1: Project and Program Descriptions

Investment Type	EGI Description
Project	A one-time individual initiative with a distinct scope and timeline.
Program	An overarching initiative to address a risk/opportunity that is/will be comprised of multiple projects with varying scopes and timelines.

Cost estimating is an important activity for the solution planning process and the resultant AMP. Cost estimates include the direct capital costs, retirement costs, and rebillable credits. Furthermore, any avoided and/or additional operating and

maintenance costs are estimated where known and captured in the value assessment. All estimates are based on the current year costs (except for programs that have a defined scope). Note that scoping and estimating for earlier years of the plan will be more accurate than later years.

All solution options have a cost estimate, and the level of accuracy is established using estimate classes (see **Table 5.4-2**). The class of the estimate also informs the level of contingency applied to the project or program.

Contingency is described as the amount of funds budgeted to account for unquantified project costs at the time the estimate is completed; this cost is intended to cover potential risks during execution. Contingency is generally included in estimates with the expectation for it to be expended and allocated on a project-by-project basis based on asset class, project risk, and scope of work.

Table 5.4-2: Estimate Classes

Class	Estimate Description	Scope Maturity	Contingency Level
5	High-level cost estimate	Very Low	High
4	Estimate based on initial information	Low	Medium
3	Estimate based on cost-estimating tools and reports	Moderate – High	Low

All value-driven investments have their value assessed in Copperleaf once a scope and cost estimate have been defined. Where there is more than one option to address a risk or opportunity, each option is value-assessed. The value assessment quantifies the amount of risk reduced and any value gained by the proposed solution option based on the value measures defined in **Table 5.2-3**. The combination of value measures and investment cost is referred to as the total investment value, which is used to prioritize investments in optimization. While the value measures will differ between investments and solution options, the total investment value allows comparison of dissimilar investments.

5.4.3 IRP Evaluation Process

EGI uses an IRP Evaluation process, which includes a binary screening and an IRPA evaluation, to determine the best approach to meet identified system needs/constraints. In a project-specific application (Leave to Construct or IRP Plan), Binary Investments are evaluated using the prescribed criteria in the OEB's IRP Decision (EB-2020-0091).

1. Pipeline Replacement and Relocation Projects (dollar threshold)
2. Timing
3. Emergent Safety
4. Customer Specific Builds
5. Community Expansion and Economic Development

EGI is continuing to integrate the IRP Evaluation process into its annual planning activities. IRP evaluation occurs during the Solution Planning and Value Assessment stage of the AIPM process, allowing projects to be screened earlier and providing more time to properly assess and evaluate projects for IRP solutions.

5.4.4 Optimize Portfolio of Solutions

With solution planning, value assessment complete, and IRP evaluations completed/in-progress depending on the investment, portfolio optimization is performed in Copperleaf, where a multi-year investment plan is created based on asset management principles. Prior to optimization, proposed investments are reviewed with business stakeholders to ensure all known risks and benefits to the organization are captured. The portfolio is then optimized to determine the optimal investment timing for investments that have flexible timing, with constraints on the annual net direct capital and consideration of available resources.

A 10-year time frame is analyzed to determine the long-term capital forecast. Based on required timing, projects and programs have varying degrees of detail; work details proposed earlier in the plan are more refined than work details proposed towards the outer half of the 10-year span. For this reason, programs without specified discrete investments are proposed to address risks.

Once all investments are categorized based on **Table 5.2-2**, portfolio optimization begins. Investments identified as mandatory-, compliance-, or value-driven using the Operational Risk Management Process are automatically scheduled at the required time rather than using risk and cost to determine optimal timing. Value-driven investments using the Copperleaf value framework are free to shift within the optimization time frame unless the investment is executing or part of a fixed-timing program.

Prior to optimizing, an initial portfolio representing the timing of investments is captured. This typically results in an inconsistent spend profile over the 10 years, with a much larger proposed spend in earlier years.

Optimization scenarios are determined through considering the following:

- Approved or proposed budget
- Historical capital spends at the organization
- Risks that must be treated because they exceed a threshold in EGI Operational Risk Management Process (see **Figure 5.3-1**)
- Asset life cycle strategies
- The original proposal of work (pre-optimization) and an understanding of the associated compliance and mandatory projects/programs

Using Copperleaf, the EGI portfolio is optimized and analyzed by varying the net direct capital per year, highlighting the effects of project timing, option selection, and value. The results from these scenarios are reviewed with asset managers to find the combination of investment options and start dates that best meet business needs within specified constraints. This scenario is then reviewed and refined to deliver a final portfolio recommendation. Iterative adjustments are applied, and the recommended portfolio is approved once validated against timing and resourcing constraints.

5.4.5 Produce Capital Portfolio

The capital portfolio is captured in Microsoft Excel as well as Copperleaf. This provides business stakeholders with broad access to the approved capital plan and encourages working on a multi-year plan. The use of Copperleaf enables ongoing refinement of investments in the plan and periodic review of changes and updates to understand their impact.

5.4.6 Execute Annual Portfolio Plan

During project planning and execution, periodic forecasts track project and program costs, and reports are generated on actual incurred costs.

EGI acknowledges that the identification of risks and the execution of projects is dynamic. During the year, project scopes may change or new projects may arise, resulting in cost pressures (increases or decreases) to the current portfolio. As these pressures are identified, trade-off decisions are made based on value and available capital, a direct demonstration of EGI's Plan-Do-Check-Act cycle (see **Figure 4.1-2**).

All requests for emerging or revised investments are supported with clear purpose, need and timing to allow for evaluation. An overall review is conducted to understand various uncertainties and to ensure that as much risk and opportunity is addressed as possible within the constraints of the portfolio. The execution of the annual work plan is monitored and adjusted monthly through the forecasting process and informs the performance of EGI's Asset Management Program.

5.4.7 AIPM Performance Review

Performance measurement provides insight into asset management performance and the effectiveness of the asset management system. The process for AIPM performance review is:

1. Review the actuals against planned portfolio and adherence to asset class objectives (see **Section 6**):
    - **Delivery to Plan** is the comparison of the approved portfolio project list to actual projects completed at the end of the fiscal year. Variances are explained to ensure the Asset Management Framework is supporting the reduction of risk and realizing optimal asset value.
    - **Capital Budget Delivery to Plan** is informed monthly by the capital forecast. This ensures the governance and controls are in place to optimize the capital plan while operating within an approved budget. It also supports continuous improvement for cost estimating, where the variance between estimate and actual costs are understood and learnings are incorporated in future planning.

- **Asset Class Objectives** (see **Section 6**) have been defined for all asset classes at EGI. These objectives, aligned with asset management goals and principles, outline asset requirements to support successful business operations. Adherence to the asset class objectives and life cycle management (see **Section 5.2.3**) ensures consistent and holistic evaluation of risks and opportunities, setting the foundation for successful asset planning and value realization.

2. Identify the areas where performance did or did not meet expectations.
3. Define the root causes that contributed to the performance.
4. Develop and implement options that will improve performance.
5. Track options that will improve performance.

Asset Management Health Check details specific asset management execution elements supporting the overarching asset management strategies. As asset management is a management program within EGI's Integrated Management System (see **Section 4.1**), the management program health check will inform senior management of the effectiveness of EGI in maturing the AMP.

6 Customers and Assets

This section provides details on the following:

- EGI's customers and the customer growth projections
- Asset class objectives, risks, and opportunities
- Asset inventory and condition
- Asset class strategic plans to meet life cycle strategies

EGI also provides natural gas storage and transportation services for other utilities and energy market participants in Ontario, Québec, and the United States. EGI's storage and transmission system creates important connectivity and resiliency in the movement of natural gas from Western Canadian and U.S. supply basins to Central Canadian and U.S. markets.

Storage and transmission assets include transmission pipe of up to nominal pipe size (NPS) 48 used to transport natural gas across Ontario, compressor plants to move natural gas to and from storage reservoirs and along the transmission pipelines, and a liquefied natural gas plant used to support peak shaving in one area of the company.

EGI's distribution assets include smaller diameter pipe, stations, meters, and regulators at homes in the franchise areas. EGI's supporting assets include buildings, fleet vehicles, and technology and information services assets across Ontario that support EGI's critical business needs and activities.

EGI has a network of assets that serve to receive, store, transport, and distribute energy. **Figure 6.0-1** shows how these assets and those that support them are interconnected to provide safe and reliable natural gas to EGI's customers.

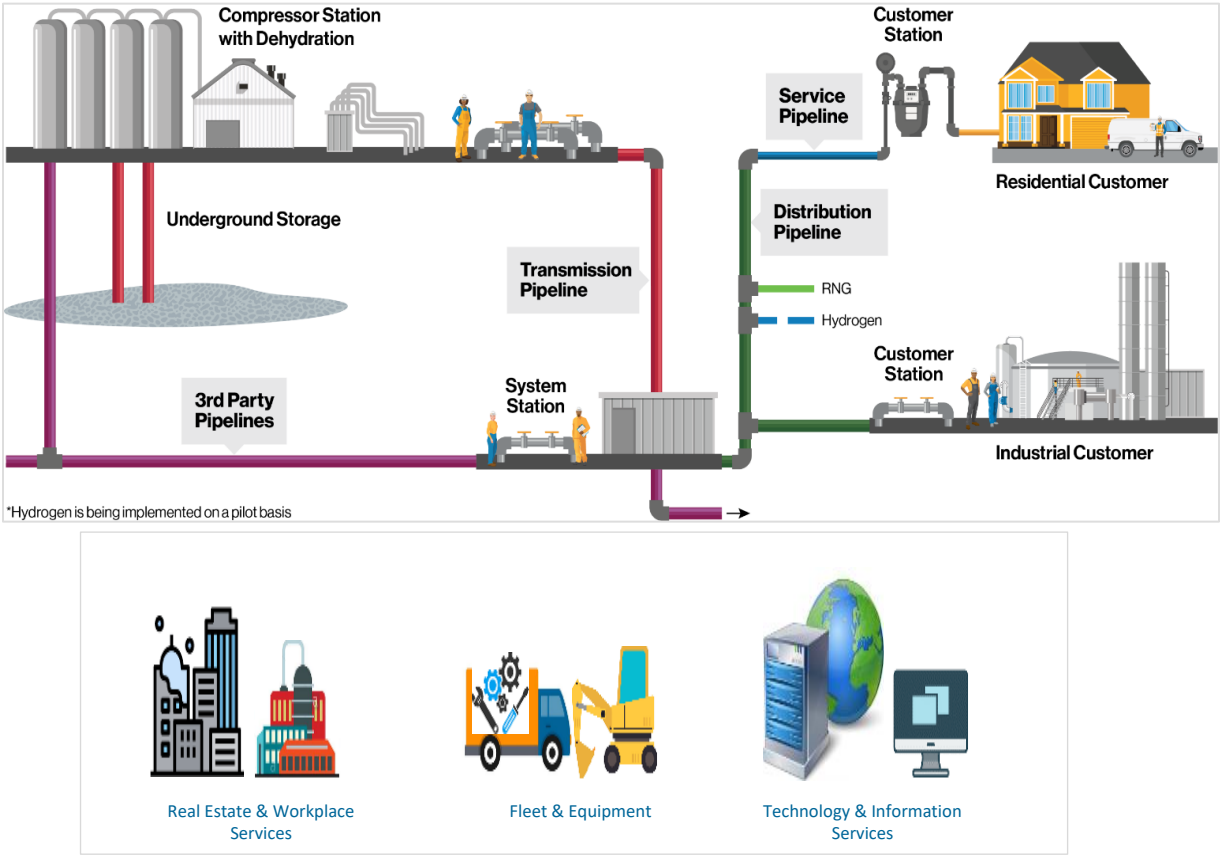


Figure 6.0-1: Components of a Natural Gas System and Supporting Assets

6.1 Growth

EGI provides safe, reliable, resilient, and affordable energy to its customers, and this customer base is forecasted to grow over the 10-year period of this Asset Management Plan (AMP), even with the incorporation of Energy Transition adjustments to the Customer Additions forecasts, as noted in **Section 4.4**. EGI services residential, apartment, commercial, industrial, and transmission customers within its franchise areas. As practical, verifiable, and prudent alternatives are available, the Growth asset class will continue to evolve to incorporate low-carbon assets and account for energy transition and Integrated Resource Planning alternatives (IRPAs).

The Growth asset class consists of assets that will serve new-build residential and commercial customers converting to natural gas from another fuel source, as well as equipment and service upgrades to accommodate existing customer load growth. Energy Transition adjustments are factored into the demand forecasts (existing customers, customer additions, and average annual use) as well as design elements (design hour and design day demands). EGI will continue to review internal data and external energy transition factors to ensure that energy transition is prudently considered. For more information on this process, see **Section 4.3**. EGI continues to connect customers with natural gas service within its franchise area, consistent with the requirements of *EBO 188,* while also considering energy transition and IRPAs when applicable. The Growth asset class is divided into five subclasses:

1. **Community Expansion** projects involve the installation of gas distribution assets to serve communities that have not previously had access to natural gas and are not feasible without funding support. These projects are driven by municipal and/or community interest and supported by an Ontario Energy Board (OEB)-approved funding mechanism of a System Expansion Surcharge (SES) from all connected customers as well as government-approved ratepayer-supported funding under *Bill 32: Access to Natural Gas Act, 2018.*

2. **Customer Connections** activity evaluates customers' natural gas consumption needs and ensures demands are assessed and processed in accordance with the guidelines prescribed in *EBO 188* and in consideration of energy transition and Design Side Management (DSM). The assets and costs within this asset subclass include materials and installations of distribution mains, services, meters, and regulating equipment.

3. **Distribution System Reinforcement** projects involve the installation of new or modification of existing gas distribution assets to maintain minimum required system pressures, maintain distribution capacity and meet growing natural gas demands, which includes consideration of energy transition. These projects are primarily driven by increased customer demand, customer growth, and system reliability considerations. The IRP Assessment Process is used to evaluate the preferred solution to meet the specific system needs (see **Appendix B**).

4. **Storage & Transmission System Reinforcement** projects involve the installation or modification of gas transmission assets to maintain minimum required system pressures, maintain distribution capacity, and meet growing natural gas demands in accordance with the *EBO 134* report and in considerations of energy transition. These projects are driven by increasing in-franchise and ex-franchise demand growth. Capital costs related to transmission system reinforcements are included in the expenditure summary for the Transmission Pipe and Underground Storage asset class (see **Section 6.3.6.4**). The IRP Assessment Process is used to evaluate the preferred solution to meet the specific system needs (see **Appendix B**).

5. **Hydrogen** projects look for ways in which EGI can reduce greenhouse gas (GHG) emissions through the introduction of hydrogen into the natural gas distribution system and other company assets. With the Q4 2021 in-service date of the Markham Hydrogen Blending Pilot Project (approximately 2% of the gas stream by volume), EGI operates the first North American hydrogen blending facility. Currently, engineering controls and standards are in place to ensure safe and reliable operations. As hydrogen blending matures and evolves, strategies for maintenance and replacement of existing infrastructure will be established. EGI will continue to work with the government regulators to help inform and develop requirements using the experience that EGI has gained as being the first in North America to operate a hydrogen blending facility.

The Growth capital expenditure requirements for materials and asset installation is based on forecasted customer growth over the 2025 to 2034 period, which includes consideration for energy transition as noted in **Section 4.5.** Reinforcement projects are screened and analyzed in accordance with the IRP Framework[18] and best available energy transition-related information. Capital expenditure requirements related to the condition of existing assets (i.e., mains, services, measurement, and regulating equipment, etc.) are addressed in the Distribution Operations and Storage & Transmission Operations asset classes.

[18] EB-2020-0091

6.1.1 Growth Objectives

The Growth asset class is a key component of the Acquire/Design/Construct stage of EGI's Asset Management Life Cycle. It supports EGI's investment in new assets related to customer growth. Growth objectives are listed in **Table 6.1-1**.

Table 6.1-1: Growth Asset Class Objectives

Objectives		Asset Health Performance Measure
System Growth	Ensure an engaged and positive customer experience.	• Customer Satisfaction with Field Experience • Appointments Met • Reconnection Response Time • Customer Additions (forecast vs actual) • Service Installs (forecast vs actual) • Rolling Project Portfolio (RPP) • Investment Portfolio
	Ensure EGI provides demand-driven new or upgraded natural gas services to residential, apartment, commercial, industrial, and transmission customers when projects do not pass IRP binary screening or where IRPAs are not feasible. Ensure that energy transition is prudently considered in asset growth planning.	
System Integrity and Reliability	Reinforce existing transmission pipeline systems and distribution networks to ensure capacity and reliability meet current and future customer demand where projects do not pass the IRP screening or where IRP alternatives are not feasible.	• Number of networks identified through the long-range planning process that are expected to drop below minimum system pressure • Network model annual verifications (modelled vs actual system pressures)

To achieve the asset class objectives listed in **Table 6.1-1**, asset investment decisions are governed by the life cycle management strategies outlined in **Table 5.2-1**.

6.1.2 Growth Hierarchy

Growth is a key component of the asset life cycle within the acquire/design/construct stage (see **Section 5.2.3**). After acquire/design/construction of the growth asset (see **Figure 6.1-1**), these assets are operated, maintained, and renewed/retired within the Distribution Operations and Storage & Transmission Operations asset classes.

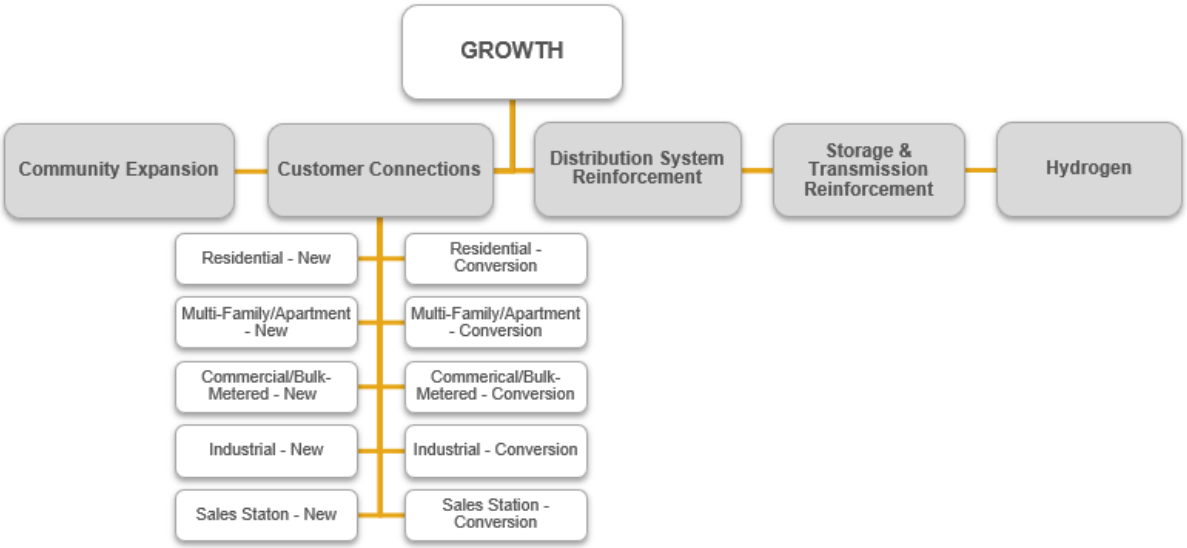


Figure 6.1-1: Growth Hierarchy

6.1.3 Growth Strategy Overview

Table 6.1-2: Growth and Hydrogen Condition and Strategy Overview

Asset Program	Growth Forecast	Risk/Opportunity	Strategies	Descriptions
Customer Connections	**Figure 6.1-2** and **Figure 6.1-3** show the Customer Connection growth forecast for EGI.	EGI is expected to provide new or upgraded natural gas services to residential and commercial/industrial customers (*EBO 188*), where the project is feasible, determined by quantifying the value of a project's revenues against its costs (profitability index [PI]).	Create	Customer additions under *EBO 188* Program ensure required infrastructure is installed to enable the addition of all forecasted customers that are feasible under *EBO 188* guidelines, while following harmonized forecasting practices. EGI continues to monitor and update the customer additions forecast through the annual long-range planning process, which considers the impact of energy transition.
System Reinforcement	Distribution System Reinforcement need and timing is determined utilizing peak hourly consumption and completing design hour modelling.	Ensure security of distribution system capacity to meet the needs of existing customers and support forecasted customer growth using *EBO 188* guidelines, and in accordance with the IRP Framework.	Improve	Distribution System Reinforcement under *EBO 188* Program ensures the installation of infrastructure required to enable the addition of all forecasted customers feasible under *EBO 188* guidelines, while following current forecasting practices, which considers the impact of energy transition. All system needs and constraints will be subject to a binary screening through the IRP assessment process to determine if further evaluation is required. IRP, as prescribed by the OEB, requires alternatives to facility assets to be thoroughly examined, reviewed, and implemented where economically and technically feasible.
	EGI annually completes a design day demand forecast, including customer connections, which is used to identify short- and long-range plans through model simulation to determine need and timing of transmission system reinforcements.	Ensure safe and reliable transmission system operations and support increasing in-franchise and ex-franchise demand growth using *EBO 134* guidelines, and in accordance with the IRP Framework.		This program ensures that required infrastructure is installed to enable the addition of all forecasted customers and distribution growth feasible under *EBO 134* guidelines, while following current forecasting practices, which considers the impact of energy transition. All system needs and constraints will be subject to a binary screening through the IRP assessment process to determine if further evaluation is required. IRP, as prescribed by the OEB, requires alternatives to facility assets to be thoroughly examined, reviewed, and implemented where economically and technically feasible.
Community Expansion	Through Phase 2 of the Natural Gas Expansion Program, EGI was awarded ~$214MM to support 27 Phase 2 Natural Gas Expansion Projects (NGEP).	Community expansion is a growth opportunity to provide natural gas services to communities not currently being serviced by EGI.	Create	EGI's Community Expansion is to continue assessing and pursuing opportunities to provide gas distribution service to under-served communities. Application opportunities for project funding are dictated by the government under *Bill 32: Access to Natural Gas Act, 2018*.
Hydrogen	EGI continues to evaluate the extent that hydrogen can be used in the distribution system and company assets to provide low-carbon solutions.	The successful operation of the pilot project requires regulations and standards for hydrogen to be harmonized by governments and regulatory agencies and for hydrogen to be cost-competitive.	Improve	The Hydrogen Blending Program continues to evaluate the extent that hydrogen can be used in the distribution system and company assets. EGI will apply learnings from its hydrogen blending pilot projects and its hydrogen blending facility in Markham to further Canadian leadership on hydrogen development and a low-carbon future. EGI continues to collaborate with governments and partners to advance innovative energy solutions to keep energy reliable, affordable and reduce environmental impact.

6.1.4 Customer Connections

The Customer Connections subclass consists of assets to serve new customers based on new housing or business starts, customers converting to natural gas from another fuel source, as well as equipment and service upgrades to accommodate load growth of existing customers. Energy transition is also considered in the Customer Additions Forecast as noted in **Section 4.5**. These customers are connected in accordance with the feasibility guidelines prescribed in the *EBO 188* report. The assets and costs associated with connecting these customers include materials and installations of distribution mains, services, and regulating equipment.

EGI expands its distribution system in accordance with the OEB's guidelines for the expansion of natural gas service and the IRP Framework. The intent of these guidelines is to facilitate the rational expansion of natural gas service while protecting existing customers from undue cross-subsidization. Factors evaluated include the number of potential new customers, their gas consumption, and the cost of extending gas mains. For details on these requirements, see **Section 6.1.4.1**.

Capital investments, such as material and labour costs, are required to support new customer connections. For details on the capital investment forecast, see **Section 6.1.4.2**.

Each year, EGI develops a customer growth forecast using a number of information sources. For details on this process and projections, see **Section 6.1.4.3**.

On May 16, 2024, the Ontario government passed the *Keeping Energy Costs Down Act* that reversed the OEB's decision[19] on customer connection revenue horizons. Pursuant to the Act, regulations[20] were made to reset the revenue horizon for natural gas connection costs to 40 years.

The capital forecast and all corresponding data contained in the AMP reflects a 40-year revenue horizon for small volume customers. EGI acknowledges that the revenue horizon is subject to change based on future regulatory proceedings and OEB determinations related to the revenue horizon for natural gas connections. EGI will update the AMP to reflect any changes to the revenue horizon as appropriate.

6.1.4.1 Customer Connections Feasibility

EGI uses a portfolio approach (Investment Portfolio and Rolling Project Portfolio [RPP]) to manage system expansion activities and ensure that required profitability standards are achieved at both the individual project and the portfolio level.

- **Investment Portfolio:** This approach evaluates feasibility on all proposed new distribution customer attachments for a particular test year and ensures required portfolio profitability index (PI) thresholds are achieved. The portfolio includes the costs and revenues associated with all new distribution customers forecast to be attached in a particular year (including new customers attaching to existing main or infill services). It also ensures there are no undue cross-subsidizations in the short term. The Investment Portfolio is designed to achieve a PI threshold greater than 1.0.
- **Rolling Project Portfolio:** This approach maintains a portfolio of system expansion projects over a rolling 12-month period. The RPP is used as a management tool for estimating the future impact of capital expenditures associated with system expansion. It excludes customers attaching to existing mains (infill services). The RPP is required to achieve a PI threshold greater than 1.0.

The OEB's view, as set out in *EBO 188*, is that by assessing the financial viability of all potential customers as a group (using a portfolio approach), more marginal customers could be served due to assessing the cost of serving them together with more financially viable customers.

Feasibility analysis of individual customer connections (i.e., a project) is carried out by using the guidelines prescribed in *EBO 188*. A feasibility analysis determines whether a project meets financial requirements and ensures there is no undue cross-subsidization over the project life cycle. This is accomplished by calculating the PI of the project based on its future revenues versus the costs.

The PI is a ratio of a project's revenues against its costs. PI = 1.0 represents the value of a project's revenues being equal to the project's costs. This means that over the life of the project, associated revenues will cover the entire project cost, ensuring the project will be economically feasible.

The OEB, through *EBO 188*, expects utilities to maintain a PI of 1.0 or greater at a portfolio level. Each distribution project must meet a PI of at least 0.8 to be included in a utility's RPP.

[19] EB-2022-0200, Decision and Order, Enbridge Gas 2024 Rebasing (Phase 1), December 21, 2023, p. 2
[20] O. Reg. 273/24: REVENUE HORIZON (NATURAL GAS)

6.1.4.1.1 FEASIBILITY PROCESS

When assessing the feasibility of a new project, EGI prepares a forecast of project costs and revenues. If the present value of project revenues is equal to or greater than the present value of project costs, the project is economically feasible and can proceed to be built. In such a case, over the life of the project, revenues will recover the entire cost of the project.

When the present value of revenues is less than the present value of costs, customers will be asked to pay a Contribution In Aid of Construction (CIAC). The CIAC is the amount by which the customer must reduce the net project capital costs through a contribution to make the project feasible (i.e., to achieve the required PI threshold).

6.1.4.1.1.1 Feasibility Formula

$$\text{Profitability Index (PI)} = \frac{\sum \text{PV}\,(\text{Revenue} - \text{O\&M} + \text{CCA Tax Shield})}{\sum \text{PV of Capital Cost}} \text{ or PI} = \frac{\text{Benefits}}{\text{Cost}}$$

The OEB recognizes that the amount charged as a CIAC is project-specific and varies depending on the costs and revenues for each project. The OEB has established feasibility guidelines and a formula for calculating the CIAC. Utilities can only charge a CIAC as prescribed in *EBO 188*. Additional details on CIAC calculations are available in *P2.1.15.1 Enbridge Gas Customer Connection Policies*.

Benefits[21]: The project revenues are based on an estimate of the monthly customer and delivery charges of the forecasted customers and are netted against ongoing incremental operating and maintenance costs of the project.

Costs: Direct capital costs for a project may include materials (e.g., pipe, couplings, and meter sets), labour, and equipment to install or construct the project, and reclamation of the surface such as road, sidewalk, and landscaping.

Indirect costs for a project may include planning and design costs, gas distribution network capacity costs, and administration costs attributable to customer growth such as inventory management.

6.1.4.2 Customer Connections Capital Expenditure Forecasting Methodology

Customer Connections capital expenditure requirements include the direct costs associated with the material and installation of mains, services, and regulator stations. Meter installation costs are included as part of the direct capital cost within the Customer Connections budget; however, the cost of the metering equipment/instrumentation is accounted for in the Utilization asset class.

Four components of capital investments are needed to support customer addition requirements:

1. Material costs related to mains, services, and meters. These costs can vary according to size and type of materials.
2. Installation costs related to mains, services, and meters. These costs can vary according to permits, fees, land rights, and construction complexity (e.g., horizontal directional drilling, sensitive environments, geo-technical considerations, and proximity to existing infrastructure).
3. Costs related to measurement and regulation equipment required to support customer growth.
4. Improvements to construction practices to support the long-term safety and reliability of assets.

The Customer Connections capital expenditure required to facilitate the connection of new gas customers includes:

- Attachments for residential subdivisions (new)
- Residential replacement, i.e., fuel conversions of existing homes (conversion)
- Commercial buildings (new and conversion)
- Multi-family/apartment (new and conversion)
- Industrial facilities (new and conversion)

[21] As filed in Enbridge Gas 2024 Rebasing Phase 1 application (EB-2022-0200)

6.1.4.2.1 METHODOLOGY

One of the key drivers of Customer Connections capital requirements is the historical spend profile in each area. Capital spend is not uniform across all areas, as some areas have inherently higher costs. Based on the historical spend in each area combined with forecast customer additions considering energy transition and inflation, the 10-year capital expenditure forecast is determined. The capital requirement includes an allowance for some localized main extensions and operational considerations.

Other capital cost considerations are:

- Type of customers requiring connection – each customer class has different infrastructure requirements.
- Type of connection (greenfield versus urban infill/growth) – greenfield expansions are less expensive.
- Joint utility trenches (JUT) in greenfield areas save costs and are safer because there is a single excavation.
- Time of year – construction costs in winter months are higher and carry winter premium costs.
- Environmental – system growth in conservation areas or green spaces have incremental costs.
- Long-term contracts with construction partners can provide cost savings.

6.1.4.3 Customer Growth Forecast

The customer growth forecast is a projection of how many new customers will be attached to the distribution system over the next 10 years and includes energy transition considerations. The forecast is created using land development data originating from builders, developers, and municipalities as well as economic factors and indicators from reliable third-party data sources. These factors include housing starts forecasts, GDP growth, employment, and mortgage rates. Energy Transition adjustment factors were incorporated into the Customer Additions Forecast as noted in **Section 4.5**. See **Figure 6.1-2**.

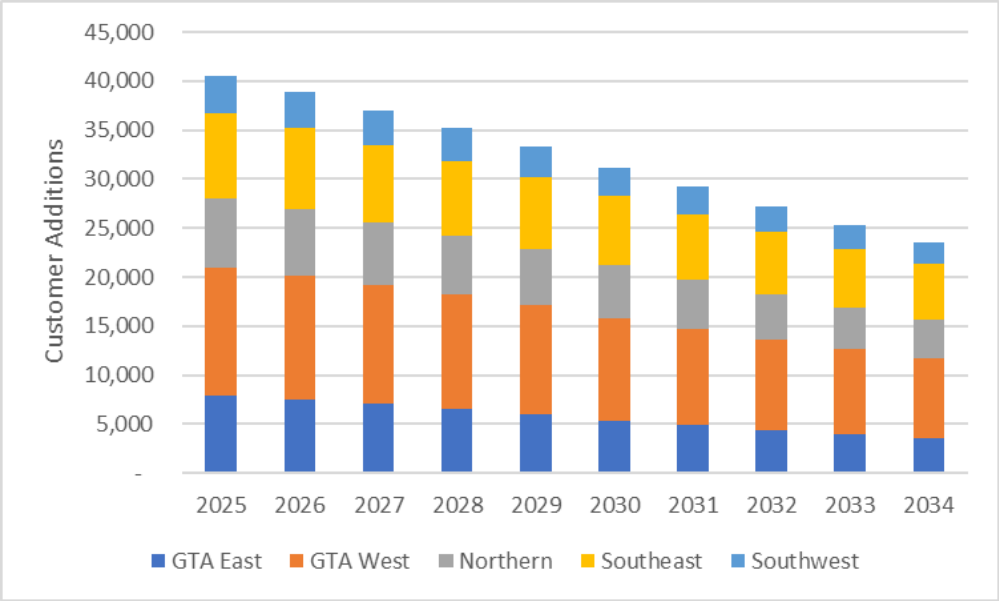


Figure 6.1-2: EGI 10-Year Customer Growth Forecast[22]

[22] Based on 2024 LRP with Energy Transition Assumptions

Based on the methodology described in **Section 6.1.4.2.1**, **Figure 6.1-3** represents the forecast number of customer additions over 10 years by sector.

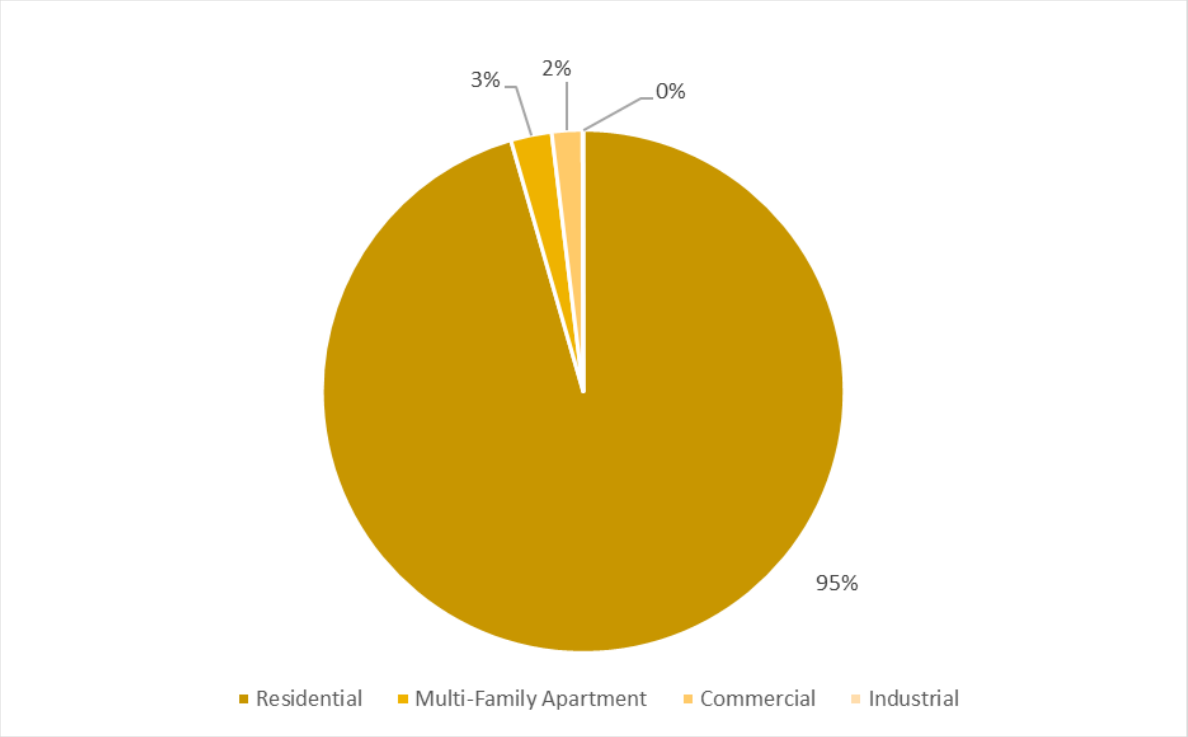


Figure 6.1-3: EGI Growth Forecast by Customer Type (includes Energy Transition Forecasting)

The customer additions by sector reflect continued residential growth over the forecast period in both the residential subdivision and residential replacement (conversion) markets, even with the incorporation of Energy Transition adjustment factors. Although there is a decline in the rate of growth when factoring in energy transition, growth is still occurring over the 10-year forecast period, which is reflective of homeowners and builders continuing to choose to connect to natural gas and that significant energy transition impacts have not yet materialized on the EGI's system growth. The marginal decline in the rate of growth is indicative of some fuel switching (from natural gas to electric).

As noted in **Section 4.5**, EGI has reviewed internal data and external Energy Transition signals and determined prudent Energy Transition adjustments to include in the 2024 demand forecasts and design elements.

6.1.5 System Reinforcement Program

6.1.5.1 Distribution System Reinforcement

Distribution System reinforcements refer to asset investments required to maintain minimum system pressures to ensure reliable service during design day conditions. These investments must meet the requirements of *EBO 188* (see **Section 6.1.4.1**) or *EBO 134* as applicable. Details on the process for identifying and planning these investments are in **Section 6.1.4.1**. In accordance with the IRP Framework (EB-2020-0091), the IRP assessment process is used to evaluate the preferred facility solution compared to IRPAs to meet the specific system needs (see **Appendix B**).

Distribution System reinforcement projects involve the installation of new infrastructure or modification of existing gas distribution assets to maintain minimum required system pressures, maintain distribution capacity, and meet changing natural gas demands. These projects are primarily driven by increased customer demand, customer growth, identification of system low-pressure points, capacity constraints, and other system reliability considerations.

This fosters long-term system reliability and the ability to serve existing and forecasted customers during peak design conditions. Failure to implement reinforcement projects in a timely manner could potentially lead to an inability to support future customer growth and the potential loss of existing customers during peak demand periods.

As part of the forecasting process, EGI establishes reinforcement needs and timing for all operating regions, ensuring the system meets anticipated peak hourly demand. Load additions to the system are modelled based on the Design Day / Design Hour Methodology[23].

6.1.5.1.1 DISTRIBUTION SYSTEM FORECASTING METHODOLOGY

EGI completes an annual simulation and verification of hydraulic models using actual pressure and flow data recorded on the system during peak conditions experienced in that year. As part of this process, the existing customer loads are recalculated using updates in actual billing data. For many large volume customers, actual hourly data is available and these loads are included within the analysis. The annual verification helps to ensure the hydraulic models are calibrated appropriately to provide a reliable and repeatable process for determining the distribution system's ability to meet general demand and the effects changes in demand will have on the system. Changes could include a variety of scenarios from growth, customer loss, operational issues, or changes in large volume contract requirements such as power plants.

For long-range system reinforcement planning, EGI uses operational input, econometric factors, and internal and external energy transition factors, as well as data from builders, developers, and municipalities. Together, this information is used to establish the future loads on the system or the demand forecast. The demand forecast combined with the calibrated hydraulic models is used to simulate the resultant need, timing, location, and scope for distribution system reinforcement. The long-range system planning is typically completed on a three-year cycle but can be adjusted based on need. While the hydraulic models are updated annually, the long-range plan is typically updated every three years since it includes additional factors, improvements, and engineering assumptions that underpin the creation of the 10-year demand forecast. This is done to provide EGI the ability to adjust and correct its forecast for changes in a variety of factors from customer usage patterns, areas of demand change, government policies, energy transition signals, and any philosophy changes. This leads to the creation of a reinforcement plan to sustain the 10-year customer growth forecast.

Projects identified through this process are updated annually for their need, timing, and scope as part of the annual update process and prior to any Leave to Construct (LTC) project development. The annual update process utilizes the latest actual customer data; and as a result, any potential difference between the previous forecast and the current actuals can be assessed. This may result in adjustments to the previously identified project need, timing, and scope. This also provides the opportunity to include any relevant updates such as actual customer usage, contract volume changes (including power generation and industrial growth, which can be difficult to predict), data improvements, or physical system changes such as pipe or stations. While this does introduce an element of variability in the plan, it helps ensure projects are being reviewed and built with the most recent data.

The 2024 System Reinforcement Plan (SRP) reflects the 2024 customer forecast which encompasses the 2024 Energy Transition adjustments (**Section 4.5**). The 2025 to 2034 capital expenditures reflect a reduced investment over the 10-year period, which accounts for continuous improvements and enhancements in the 2024 SRP model refresh process as well as demand adjustments for energy transition.

6.1.5.1.2 RISK AND OPPORTUNITY

Distribution system reinforcement projects identify areas of the distribution network where there is risk of not having the required capacity to meet the peak hour demands of EGI's customers or operating below minimum required pressures for safe and reliable operations. This provides EGI the opportunity to develop and manage projects that will provide service to new customers while ensuring continued reliable service to existing customers and efficiencies in operation. This aligns with the 2023/24 Rate Rebasing Customer Engagement (see **Appendix C**) results which indicate customers are supportive of investing to maintain current levels of safety and reliability.

Reinforcement projects, which include projects being developed for security of supply and system reinforcement, are governed by the *EBO 188* report. A key principle of *EBO 188* is that existing customers should not have their rates unduly impacted by the costs of connecting new customers. For further details on *EBO 188* guidelines for feasibility purposes, see **Section 6.1.4.1**.

A subset of distribution system reinforcement projects also includes major pipeline projects that are intended to serve large industrial customers, the costs of which are fully funded through contributions or rates negotiated with those customers, except in cases where there is a shared benefit to the overall system and general service customers. Such projects can support the broader economic benefits of additional employment provided by such facilities and in some cases support GHG reductions by providing an existing industry a lower carbon alternative to support their operation.

To meet *EBO 188* requirements, a preliminary feasibility analysis is conducted using cost estimates, customer addition forecasts, and discounted cash flow assumptions. This analysis determines the aggregate cost benefit ratio for all

[23] EB-2022-0200 Exhibit 4, Tab 2, Schedule 3

reinforcement projects that are proposed as part of the SRP. Overall, the projects proposed in this plan are in the acceptable feasibility range for inclusion in this Asset Management Plan.

In addition to *EBO 188,* all system needs and constraints will be subject to a binary screening through the IRP assessment process to determine if further evaluation is required. IRP, as prescribed by the OEB, requires alternatives to facility assets to be thoroughly examined, reviewed, and implemented where economically and technically feasible (see **Appendix B**).

6.1.5.1.3 TRANSMISSION SYSTEM REINFORCEMENT

In addition to distribution system reinforcements, transmission reinforcements are required to support system-wide distribution growth, contract customer growth, and depending on market conditions, ex-franchise transportation growth (specifically in Ontario, Québec, the Maritimes, and major U.S. natural gas-consuming areas). The identification of the need for a capital expenditure is to satisfy a growth requirement for Capital costs related to transmission system reinforcements are included in the expenditure summary for the Transmission Pipe and Underground Storage asset class (see **Section 6.3.6**).

6.1.5.1.4 TRANSMISSION SYSTEM FORECASTING METHODOLOGY

EGI's transmission systems move natural gas from receipt points to delivery locations along the pipeline to meet the volumetric demands and pressure requirements of EGI's in-franchise and ex-franchise customers. The pipeline system forms the foundation for future development and provides supply capacity to many of the EGI distribution systems.

EGI will periodically conduct new or existing capacity open seasons to gauge market demand for transportation services. In addition, EGI conducts reverse capacity open seasons to ensure that the existing assets are fully utilized before contemplating new growth expansion. Transmission systems are designed to meet capacity on a design day to ensure all firm customer demand can be reliably served on the design day. Metered data is gathered and analyzed each year to calculate demand assumptions used for system design.

To identify purpose, need, and timing of transmission system reinforcements, EGI annually completes a design day demand forecast that is used to identify short- and long-range plans through model simulation. EGI incorporates Energy Transition adjustment into the design day demand determination as noted in **Section 4.5.** In addition, EGI uses the IRP assessment process to binary screen the identified needs; and for those that pass the binary screening, a technical and economic evaluation of IRPAs is also completed (see **Appendix B**).

6.1.5.1.5 TRANSMISSION SYSTEM FORECAST

Shippers continue to want access to the Dawn Hub. With potential further reductions in North American coal consumption and increasing North American demand from power generation and industrial growth, among other sectors, the flow of natural gas on the Canadian and U.S. pipeline grid is continuing to evolve.

The Dawn Hub remains one of the most active natural gas trading hubs in North America and attracts a diversified supply mix from most major natural gas-producing regions including the Western Canadian Sedimentary Basin (WCSB) and Marcellus and Utica basins. Dawn storage continues to provide security of supply and price stability for Ontario and beyond including during times of supply constraint.

EGI determines the need, timing, location, and scope for system reinforcement to support both in-franchise and ex-franchise customers. System reinforcement typically has a long planning lead time but the assets support demand that can materialize with variable lead time.

No storage growth is forecasted for the regulated asset base. Based on the most recent demand forecast, EGI is forecasting the need for incremental capacity requirements on the Dawn Parkway System by November 1, 2028. As stated above, EGI will confirm the Dawn Parkway System demand is approaching the forecast time of need by completing an open season and a reverse open season for capacity turnback. As part of the planning process, EGI will evaluate facility and non-facility alternatives to determine the most reliable and cost-effective way to deliver firm supply to meet customer demand.

EGI anticipates further demand in the Panhandle market supported by increased growth of the greenhouse sector based on the latest expression of interest completed in 2023. EGI forecasts incremental capacity will be required on the Panhandle Transmission System by 2031 at which time non-facility alternatives will be assessed alongside facility options to meet new supply demands.

6.1.5.1.6 RISK AND OPPORTUNITY

The risks identified for transmission reinforcements are operational and financial risks. While the probability of occurrence is low for these risks, the impact, given the criticality of transmission assets to both in-franchise and ex-franchise customers, is

very high. The opportunities identified include the ability to provide gas service to meet the needs of new customers while ensuring the continued reliable service to existing customers, and the delivery of a low-cost energy source and efficiencies in operation.

Two key aspects to mitigate risk are (1) transmission system reinforcements (as required by demand) and (2) transmission system maintenance (see **Section 6.2.3.3**). If reinforcements are not completed as required, there is a risk of supply shortfalls (both in-franchise and ex-franchise) on design day. A lack of supply can lead to operational and safety risks as downstream distribution systems may experience pressures below minimum to sustain operations. There could also be a loss of supply to customers, which can result in customers choosing other suppliers as reliability is valued by customers in this market. Also, supply shortfalls can result in customer losses to other natural gas utilities who rely on services provided by EGI to serve their customers. The financial risks identified are litigation if contract or service commitments are not met and potential lost revenues.

6.1.6 Community Expansion

Community expansion projects involve the installation of gas distribution assets to serve communities that have not previously had access to natural gas and that were not previously feasible without funding support. These projects are driven by municipal and/or community interest and supported by an OEB-approved funding mechanism of a System Expansion Surcharge (SES) from all connected customers as well as government-approved customer-supported funding under *Bill 32: Access to Natural Gas Act, 2018*. Community expansion projects range in size, customer capture, and geography to extend the gas network within an existing, served municipality or into an entirely new community. The Community Expansion Program expenditures do not meet current *EBO 188* economic feasibility guidelines without a rate rider. Because the projects are contingent on funding support to make them feasible, acquisition of new projects into the program is dictated by government allocation of funding to support expansion which has been released in phases under the current *Bill 32*. The Community Expansion Program expenditures do not pass the IRP Framework's binary screening and therefore do not require technical or economic evaluations of IRPAs.

In addition to government-approved funding, an Expansion Surcharge (ES) is also applied to every customer attaching to the new network to be paid over a maximum term of 40 years. The OEB issued a decision in November 2020 approving a harmonized ES between legacy Union Gas (Union) and legacy Enbridge Gas Distribution (EGD) stipulating project parameters including a 10-year rate stability period for forecasted attachments and an ES term of up to 40 years (refer to EB-2020-0094).

Bill 32 Background

EGI has several community expansion projects completed or underway, made possible through Phase 1 of the Natural Gas Support Program which was announced in March 2019 with allocated funding of approximately $56MM. These projects included bringing natural gas to the communities of Chippewas of the Thames First Nation, North Bay-Northshore and Peninsula Roads, Saugeen First Nation, and Scugog Island, with two projects still in consultation including Cornwall Island and Hiawatha First Nation. EGI has also brought natural gas to Fenelon Falls and Moraviantown First Nation, made possible with funding provided by the Government of Ontario's previous Natural Gas Grant Program.

In December 2019, the Government of Ontario announced it is continuing to expand access to safe, reliable, and affordable natural gas to rural, northern, and Indigenous communities. The Government of Ontario requested that interested parties submit proposals on potential community expansion projects. The OEB evaluated the proposals and submitted its report to the Ministry of Northern Development and Mines (MENDM) by October 31, 2020. The MENDM reviewed the OEB's report and used it as an input to make project selections.

In June 2021, the Government of Ontario announced funding for community expansion and economic development projects under Phase 2 of the Natural Gas Expansion Program (NGEP). EGI was awarded ~$214MM to support 27 Phase 2 NGEP projects. With a total estimated capital of ~$335MM, EGI's net capital investment is ~$121MM (these metrics include two economic development projects). The approved projects for community expansion Phase 2 have a mandated requirement for execution start (i.e., shovels in the ground) by 2025 at the latest. For the approved project locations, see **Figure 6.1-4**.

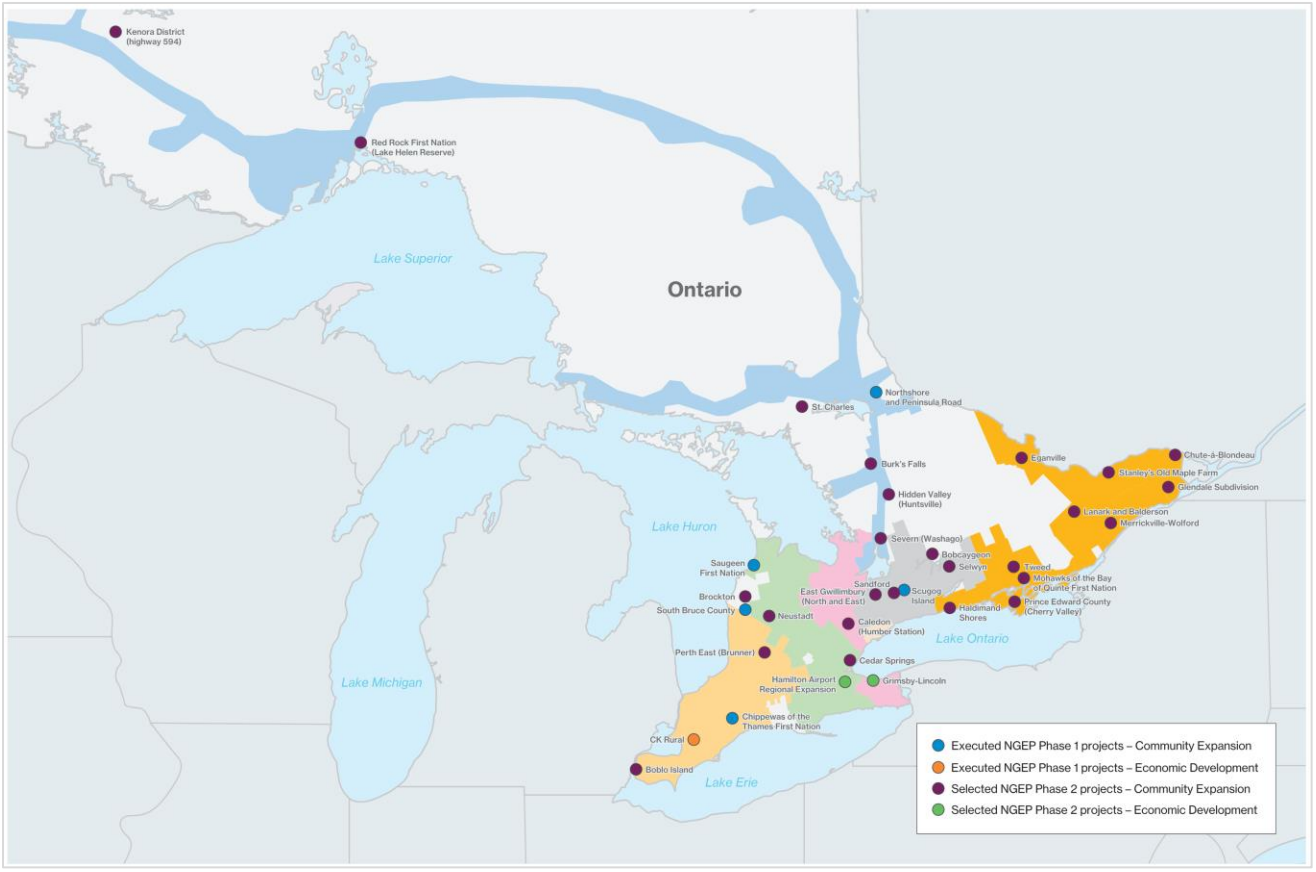


Figure 6.1-4: Approved Community Expansion Project Locations – Phases 1 and 2 Approved Projects (including Community Expansion and Economic Development)

6.1.6.1 Risk and Opportunities

Community expansion is a key business activity that helps grow and sustain EGI's core business and provides economic benefits to those served. As a result, there are several risks EGI would experience if community expansion activities are not pursued, including the potential loss of investment opportunities, potential franchise bypass, and the potential negative impact to EGI's brand and reputation.

Executing the program offers many opportunities including delivering on the commitment to the Government of Ontario and expanding EGI's asset footprint, promoting natural gas as an alternative energy source for rural, northern and Indigenous communities and providing customers in these regions access to an affordable and reliable source of energy, enhancing relationships with local communities and government, and ensuring EGI maintains a competitive approach to acquiring new business, maintaining the EGI franchise area.

The Community Expansion Program offers continued opportunity through potential future phases of the government program. Application opportunities for project funding are dictated by the government under *Bill 32: Access to Natural Gas Act, 2018* and are released in phases with a maximum funding potential. EGI will continue assessing and pursuing opportunities to provide gas distribution service to under-served communities. The process will require submissions to the OEB for approval of funding awarded by the Ministry of Energy and Electrification (ENERGY) as well as the subsequent submissions of Leave to Construct (LTC) applications to the OEB for the awarded projects, as applicable. With changing government, future phases of this program may evolve over time and/or be revoked which is a risk that could arise for the longevity of the program.

6.1.7 Hydrogen

Enbridge intends to adapt to the energy transition over time to achieve net zero scope 1 and 2 emissions by 2050 and reduce the emissions intensity of EGI's operations 35% by 2030 (2018 baseline) while continuing to provide the energy people want

and need. Through investments in hydrogen feasibility studies and pilot projects, EGI continues to mature and apply learnings to ensure operations can be safely adapted to a hydrogen-based economy while simultaneously meeting both EGI's goal of net zero emissions and realizing the commitments Canada has made to reduce greenhouse gas (GHG) emissions. Many effective energy transition initiatives will be required to meet EGI's future emission goals and hydrogen is a key initiative towards this goal.[24]

EGI is a North American leader in the hydrogen space. Its commitment is bolstered by the launch of North America's first hydrogen blending pilot project at its hydrogen facility in Markham, Ontario. This pilot project blends hydrogen into the natural gas grid serving approximately 3,600 homes. The emissions offset from this small pilot is a reduction of up to 119 tons of CO2e per year or the equivalent of removing 25 cars from the road. This project is one of the many strategic hydrogen projects that EGI has executed to facilitate Ontario's transition towards a net zero future and will inform a broader system-wide effort to reduce carbon across the full gas infrastructure in the province.

EGI has categorized the hydrogen strategy and its associated investments within the Growth asset class. In addition, proposed hydrogen facilities are expected to be long-term assets and should be treated in alignment with other gas distribution system assets.

6.1.7.1 Risk and Opportunity

There are several factors that support hydrogen as a clean energy solution. First, by converting operations to hydrogen, EGI can meet heating requirements with a carbon neutral supply. This supports both the province's and customers' GHG reduction goals. EGI's 2024 Rate Rebasing Customer Engagement results indicate that most residential and business customers are in favour of EGI's plans for hydrogen gas. In addition, blending hydrogen directly into the existing natural gas network makes use of existing assets in which significant investments and expertise have been created over the past century of safe and reliable operations. Leveraging the existing infrastructure is a practical and fiscally responsible approach to reducing GHG emissions.

Government and regulatory agencies around the world, including Canada, are working to harmonize codes and standards for hydrogen use as an energy source. There is a great opportunity for hydrogen to become one of the key factors in reducing carbon emissions and delivering a cleaner energy. Delays in government policy to harmonize codes and standards in various jurisdictions could pose a risk to rolling out a hydrogen solution.

The use of hydrogen as a fuel source compared to natural gas is not yet an economical alternative. Additional hydrogen production scale will be required before the cost of hydrogen is competitive. As EGI expands the scope of hydrogen blending, additional renewable or low-carbon hydrogen production facilities and injection sites will be needed at a cost that is competitive for customers.

6.1.8 Growth and Hydrogen Strategy Outcomes

The strategies for growth and hydrogen include:

6.1.8.1 Customer Additions under *EBO 188* (Create)

The strategy for Customer Connections is to continue to ensure that required infrastructure is installed for the addition of all forecast customers that are feasible under *EBO 188* guidelines, in accordance with the IRP Framework, while following current forecasting practices. EGI continues to monitor and update the customer additions forecast through the annual long-range planning process which continues to evaluate the scope of its low-carbon strategy and the impact of energy transition on customer growth forecasts.

6.1.8.2 Distribution System Reinforcement under *EBO 188* (Create)

The strategy for the Distribution System Reinforcements is to continue to ensure that required infrastructure is installed to enable the addition of all forecasted customers feasible under *EBO 188* guidelines, in accordance with the IRP Framework, while following current forecasting practices. The IRP assessment process is used to evaluate whether there is an economically and technically feasible IRPA that can meet the identified system needs (see **Appendix B**). Applying the 2024 Energy Transition Assumptions to the SRP resulted in a number of projects being deferred by one or more years, a small number of projects were required sooner than previously identified, and several new projects were identified and were being scoped at the time this AMP was drafted.

[24] Details on EGI's Hydrogen Strategy are outlined in EB-2022-0200 Exhibit 4, Tab 2, Schedule 6

Major distribution reinforcement projects reflected in the forecast include:

- Hamilton Industrial Reinforcement
- Mississauga Brampton Wanless Dr / Hurontario St Reinforcement
- Brantford/Waterloo Listowel Highway 23 Reinforcement
- Mississauga Reinforcement Project
- Mississauga Shelburne Blind Line Reinforcement
- Brantford/Waterloo Owen Sound County Rd 40 Reinforcement
- Mississauga Erin Charleston Sideroad Reinforcement

For additional detail on this investment, see **Appendix A** and **7.2**.

6.1.8.3 Community Expansion (Create)

The strategy for Community Expansion is to execute the required infrastructure on all projects that were awarded funding under *Bill 32: Access to Natural Gas Act, 2018*. All Phase 2 projects must begin execution before the end of 2025 which has been built into the long-range plan. **Table 6.1-3** identifies the large Community Expansion projects with Net CapEx above $5MM reflected in the forecast (Note: **North and East (East Gwillimbury)** included for completeness despite forecast being below $5MM). Capital expenditure associated with Community Expansion projects is not included in the AMP's capital expenditure (refer to Phase 2 of the Natural Gas Expansion Program (ERO 019-3191).

Table 6.1-3: Major Community Expansion Projects

EGI Community Expansion Projects	Operations Region	Rate Zone	Pipe Length (km)	Pipe Diameter	Forecast (million) (Net Base CapEx)
Bobcaygeon	GTA East	EGD	78.0	NPS 6 ST, 2, 4 and 6 PE	$47.5
Eganville	Eastern	EGD	37.0	NPS 4 ST, 2, 4, 6 and 8 PE	$9.4
Washago	Northern	Union	51.0	2, 4 and 6 PE	$9.7
Lanark and Balderson	Eastern	EGD	36.0	2, 4 and 6 PE	$6.5
North and East (East Gwillimbury)	GTA East	EGD	36.5	2 and 4 PE, NPS 2 ST	$4.6

6.1.8.4 Transmission System Reinforcement under *EBO 134* (Create)

The strategy for Transmission System Reinforcement is to continue to ensure that required infrastructure is installed to enable the addition of all forecasted customers and distribution growth feasible under *EBO 134* guidelines while following current forecasting practices, which include energy transition consideration. The IRP assessment process is used to evaluate whether there is an economically and technically feasible IRPA that can meet the identified system needs (see **Appendix B**). Due to the Copperleaf classification, the capital expenditure related to Transmission System Growth Investments is captured under the Transmission Pipe and Underground Storage Capital Expenditure Summary (see **Section 6.3.6.4**). Transmission System Reinforcements are listed as discrete projects, but often there are dependencies from one project to the next; and timing of the projects is dependent on Expressions of Interest gathered through the Non-Committal Open Seasons.

The following major transmission reinforcement projects are reflected in the forecast:

- Dawn to Parkway – Kirkwall to Hamilton Expansion
- Dawn Parkway Expansion – Dawn-Enniskillen
- Panhandle Growth - Leamington Interconnect
- Panhandle Growth
- Panhandle Regional Expansion Project - Dawn Facilities

For additional detail on these investments, see **Appendix A**.

6.1.8.5 Hydrogen Strategy (Improve)

EGI plans to apply learnings from its hydrogen blending pilot projects and its hydrogen blending facility in Markham to further Canadian leadership on hydrogen development and a low-carbon future. EGI continues to collaborate with governments and partners to advance innovative energy solutions to keep energy safe, reliable, and affordable while striving to reduce the environmental impact.

EGI continues to evaluate the extent that hydrogen can be used in the distribution system and company assets to attain maximum carbon reductions. The following projects and feasibility studies are planned or under consideration for 2025 to 2034:

- **Hydrogen Feasibility Studies:** As hydrogen technology is relatively new within the natural gas distribution industry, these studies are required to allow EGI to identify and prioritize the sections of the gas grid and equipment most suitable for hydrogen blending and to evaluate any required upgrades. The assessment will follow a systematic approach and will aim to determine the optimal ratios and methods of blending into the existing system, including:
  - **Data Collection:** Gather existing data on the gas distribution and transmission infrastructure including pipeline, facilities, and customer information.
  - **Analysis:** Evaluate the compatibility of the existing infrastructure with hydrogen, considering factors as outlined in *CSA Z662-23, section 17*.
  - **System Modelling:** Evaluate the capacity of existing infrastructure to accept hydrogen while maintaining the amount of energy delivered using hydraulic assessment.
  - **Risk Assessment:** Evaluate the risk associated with blending hydrogen into the existing system and develop mitigation measures.
  - **Economic Feasibility:** Analyze the economic viability of hydrogen integration, considering capital costs, operational expenses, potential revenue streams, and government incentives. Compare with potential emission reduced, the cost of carbon, and other applicable government carbon reduction programs and incentives.
  - **Hydrogen Market Research:** Identify commercial opportunities for hydrogen production blending and pure hydrogen usage in different sectors.
  - **Industry Engagement:** Collaborate with relevant stakeholders, including gas utilities, government agencies, in research and development limitations.
- An assessment of the hydrogen supply and demand to support aforementioned efforts
- Investigation into carbon capture, transportation, and storage
- Intertying a lower-carbon gas grid with the electricity grid
- Decarbonization of hard-to-abate sectors such as steel, cement, aviation, shipping, and heavy-duty transportation

6.1.9 Growth Capital Expenditure Summary

In the Growth asset class, proposed spending is organized programmatically by sector (residential, commercial, and industrial) for the Customer Connections asset subclass. Growth capital is further summarized as part of EGI's total 10-year capital plan in **Section 3**. For the status of the outcomes of the IRP assessment process, including the binary screen and the status evaluation of IRPAs, see **Appendix B**.

NOTE: *The Community Expansion investments are not included in the capital summaries of this AMP. Capital costs related to transmission system reinforcements are included in the expenditure summary for the Transmission Pipe and Underground Storage asset class (see **Section 6.3.6.4**).*

Table 6.1-4: Growth Capital Summary ($ Millions) – EGI

Asset Class Strategy	Program Name	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	10-Year Forecast
Create	Customer additions under *EBO 188* (TCS) Program	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.9	1.9	2.0	18.6
	Customer additions under *EBO 188* Program	283.7	253.7	227.9	206.0	184.1	168.7	155.8	142.9	129.6	118.7	1,871.1
Improve	Hydrogen Program	5.6	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6
	Distribution System Reinforcement under *EBO 188* Program	30.2	126.7	138.9	17.7	10.9	16.0	46.8	6.0	0.0	0.2	393.4
Total		321.4	383.3	368.7	225.5	196.8	186.5	204.4	150.8	131.5	120.8	**2,289.7**

6.2 Distribution Operations

EGI's distribution operations provide safe, reliable, resilient, and affordable provision of energy to approximately 3.9 million homes, businesses, and industries and serves about 75% of Ontario residents. The Distribution Operations asset classes consist of a network of natural gas assets that take gas from the higher-pressure transmission systems and distribute it to residential, commercial, and industrial customers. This is achieved through a series of pipelines of various operating pressures and regulation stations that safely manage the pressure of the gas and delivery points where the gas is measured. In some cases, distribution systems are somewhat isolated, serving one or more communities from a single feed from a transmission system.

EGI's distribution assets are categorized in the following asset classes:

- Distribution Pipe
- Distribution Stations
- Utilization

Distribution Stations are facilities and assets with the primary purpose of reducing pressure from a system operating at higher pressure to a system operating at lower pressure and to provide overpressure protection to the lower-pressure system. Distribution Stations include all natural gas entry points into the EGI distribution network, control points throughout the network, and delivery points to end-use customers. Depending on the facility, additional purposes may include gas metering, odourization, and monitoring.

Once regulated to distribution pressures, natural gas is transported through the Distribution Pipe network. Distribution Pipe includes pipe, valves, all pipe appurtenances, services, and risers installed up to Utilization assets.

Utilization assets are the components of the distribution system that regulate system pressure, ensure low pressure delivery to the customer, and measure gas consumption. These assets support the delivery of gas primarily to customers consuming volumes less than 17.0 m³/h at a typical pressure of 7" wc, Utilization assets typically begin at the service shutoff valve. **Figure 6.2-1** shows EGI's gas distribution service territory.

Figure 6.2-1: Gas Distribution Service Territory

6.2.1 Distribution Operations Objectives

The objectives of distribution operations are shown in **Table 6.2-1**.

Table 6.2-1: Distribution Operations Objectives

Objectives		Asset Class	Asset Health Performance Measure
Compliant, Safe, Reliable, and Affordable Delivery of Energy	Maintain the natural gas system to meet safety and operational effectiveness requirements of codes and standards of applicable governmental authorities.	Distribution Pipe	• Valve repairs • Percentage of leaks reported by leak survey (vs leaks reported by the public) • Leaks per 1,000 km • Pipeline Reliability as per *CSA Z662 Annex O*. • Remaining bare and unprotected steel systems (km) • Compliance Regulatory Order Completion in 30 days
		Distribution Station	• Composite Compliance – Delivery to Plan • Stations inspections • Work orders percentage complete
		Utilization	• Completion of Government Inspection Meter Exchange (MXGI) Program • Number of aboveground leaks • Number of non-program failures and explanations
	Ensure the safe, reliable, and affordable delivery of natural gas to end users.	Distribution Pipe	• Emergency initial response time (<60 minutes)
		Distribution Station	• Emergency initial response time (<60 minutes)
		Utilization	• Emergency initial response time (<60 minutes)
	Continuously evolve the understanding of condition and risk associated with pipe assets.	Distribution Pipe	• Corrosion survey • Leak survey
	Prevent third-party damage.	Distribution Pipe	• Damage frequency (damages per 1,000 locates) • Cross bore resolution
System Longevity	Prevent premature degradation of pipelines due to external corrosion.	Distribution Pipe	• Corrosion survey
Maintain Good Standing with Municipalities, Landowners, and Other Stakeholders	Relocate pipe assets in cases where planned third-party work will directly interfere with the safe and reliable operation of the distribution system, and plans cannot be adjusted to avoid such interference.	N/A	N/A
	Recover costs allowed by municipal franchises and other agreements for relocations initiated by third parties.	N/A	N/A

6.2.2 Distribution Operations Asset Class Hierarchy

The subclass breakdown for Distribution Operation is organized by system and illustrated in **Figure 6.2-2**.

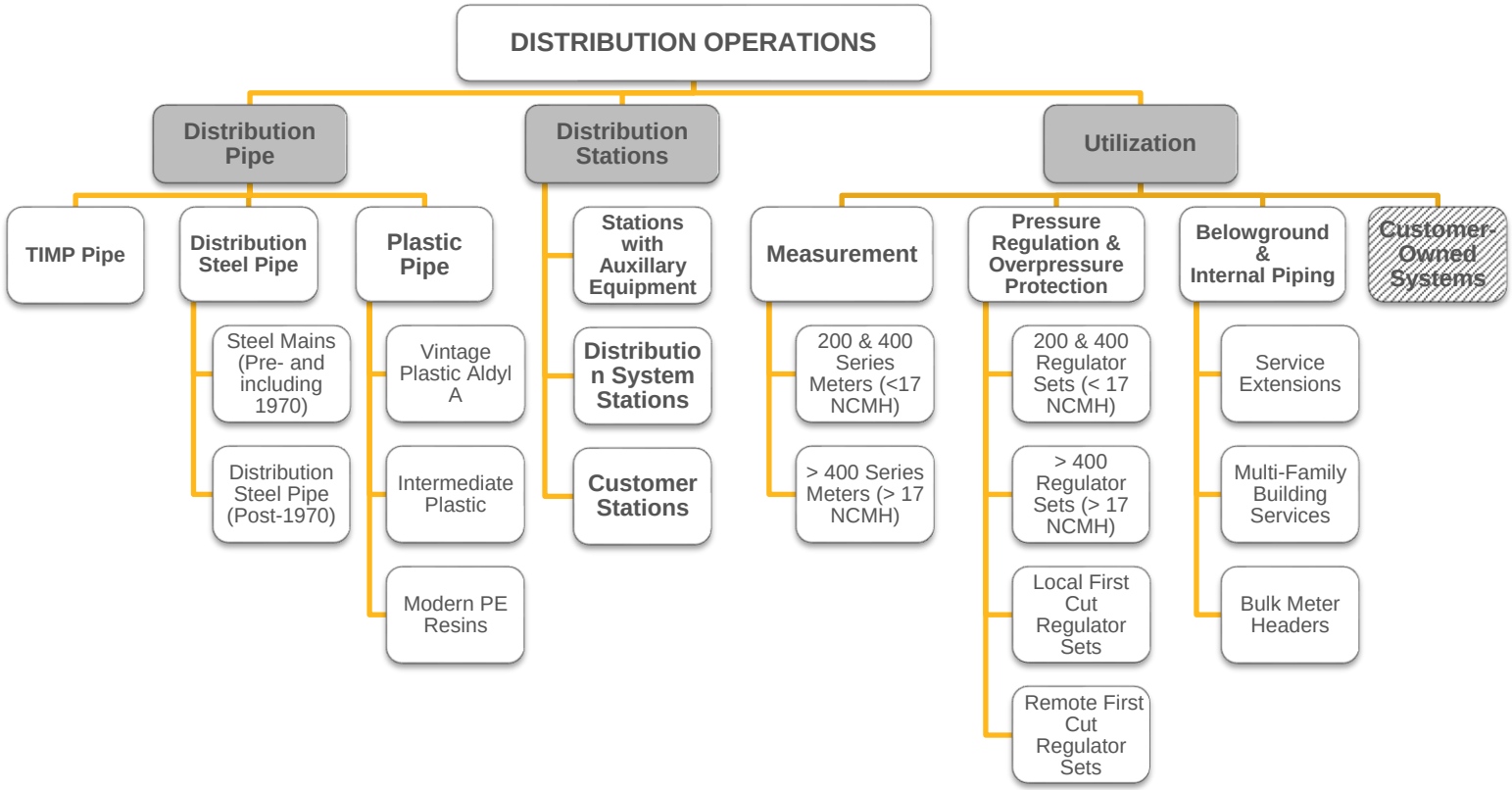


Figure 6.2-2: Distribution Operations Asset Class Hierarchy[25]

[25] Customer-owned systems are included for illustrative purposes only.

6.2.3 Distribution Pipe

EGI's Distribution Pipe asset class includes pipe, valves, all pipe appurtenances, service lines, and risers installed up to Utilization components (typically, assets belonging to the Utilization asset class (see **Section 6.2.5**) begin at the service shutoff valve). Distribution piping can be located inside or outside of a building.

6.2.3.1 Distribution Pipe Inventory

Table 6.2-2 lists the inventory details for each asset subclass, along with selected other component inventories relevant to certain programs.

Table 6.2-2: Distribution Pipe Inventory[26]

Assets	Inventory
Mains (km)	84,432
TIMP Pipe – Distribution Pipe[27]	2,056
Steel Mains – Pre- and including 1970	16,736
Bare unprotected pipe (km)[28]	41
Distribution Steel Pipe Post-1970	14,622
Plastic Mains – Modern PE	35,241
Plastic Mains – Intermediate Plastic	5,821
Plastic Mains – Not yet categorized	7,887
Plastic Mains – Vintage Plastic Aldyl A	2,028
Services (km)	68,932
Steel Services – Pre- and including 1970	5,344
Steel Services – Post-1970	5,929
Plastic Services – Modern PE	41,392
Plastic Services – Intermediate PE	6,104
Plastic Services – Not yet categorized	7,480
Plastic Services – Vintage PE	2,682
Additional Asset Inventories	
Copper Services (#)	1,114
Copper Risers (#)	240,805

[26] Inventory as of December 2023.
[27] TIMP Pipe includes assets that are part of the Transmission Pipe and Underground Storage asset class and the Distribution Pipe asset class. For inventory that is included in the Transmission Pipe and Underground Storage asset class, see **Table 6.3-4**.
[28] Bare unprotected pipe is a subset of Steel Mains (Pre- and including 1970).

6.2.3.2 Pipe Condition and Strategy Overview

Table 6.2-3: Pipe Condition and Strategy Overview

Asset Subclass	Avg. Age (Year)	Condition	Risk / Opportunity	Asset Class Strategies	Programs, Tactics, and Standards
TIMP Pipe	45	The condition of Transmission Integrity Management Program (TIMP) pipelines continues to remain within safe limits due to ongoing threat assessment, condition monitoring, and corresponding remedial activities. Activities include, but are not limited to, engineering assessments, in-line inspections (ILI), external corrosion direct assessments (ECDAs), dig programs, erosion monitoring activities, and corresponding repair or replacement/mitigation work. As condition monitoring technologies and activities become more advanced, EGI's understanding of pipeline condition improves. In some cases, these improvements may result in enhanced methodologies (such as enhanced processes or standards) to ensure the pipeline condition remains within safe limits for its required service capabilities. A second barrier in the TIMP system is Reliability Assessments completed on the entire TIMP system quarterly aligned with practices outlined in *CSA Z662-23 Annex O*. Reliability is monitored with the TIMP Risk Model. This includes assessment of reliability considering multiple threats as well as evaluation against safety targets to help identify pipeline segments that require mitigation.	**Employee and Contractor Health and Safety Risk / Public Health and Safety Risk:** Gas pipelines operating above 30% SMYS can rupture, leading to explosion. For lower stress pipelines, gas leaks would be the preeminent failure mode. **Financial Risk:** Total repair costs, commodity loss, relighting customer gas appliances, regulatory penalties and any property damages caused by loss of containment, penalties due to inability to meet contractual obligations **Operational Risk:** Extensive customer outages **Environmental Risk:** Greenhouse gas (GHG) emissions and environmental impact **Reputational Risk:** Unreliable service and customer outages	Maintain	• In-Line Inspection Program • Transmission Integrity Management Program • Retrofit • Reactive Repair of pipelines as required based on condition • Alternative condition verification methods such as hydrostatic testing • Class Location Program • Vital Main Damage Prevention Program • Corrosion Control Operating Standard including Cathodic Protection Survey • Leak Management Operating Standard including Survey Program conducted with defined frequency depending on material, age, cathodic protection, and presence of wall-to-wall hard surface area • Valve Maintenance Operating Standard including inspection • Easement Control Operating Standard including easement encroachment and easement clearing • External Corrosion Direct Assessment (ECDA) • TIMP Risk Model (*CSA Z662-23 Annex O* basis)
				Improve	• TIMP Condition Monitoring Operating Standard • Hydrotechnical Hazard Mitigation
				Replace	• Replacement of pipelines or pipeline segments as required based on condition, risk assessment findings, and hazard susceptibility • Independent Asset Integrity Review (IAIR) Program
Distribution Steel Pipe	64	Vintage steel mains (pre- and including 1970) have varying degrees of corrosion associated with material, coatings, design requirements, construction practices and maintenance practices based on standards at the time. The condition methodology of distribution steel and plastic mains is common across its asset subclasses. Identifiable condition of these assets is determined through maintenance programs, condition assessment programs, tacit knowledge (subject matter advisor [SMA] / worker input) and reliability modelling which is built on a combination of applied engineering principles, actual failure data, and statistical analysis.	**Employee and Contractor Health and Safety Risk / Public Health and Safety Risk:** Gas leaks and migration through underground infrastructure into buildings can result in gas accumulation and explosions. **Financial Risk:** Total repair costs, commodity loss, relighting customer gas appliances, regulatory penalties, and any property damages caused by a gas leak **Operational Risk:** Extensive service interruptions **Environmental Risk:** GHG emissions and environmental impact **Reputational Risk:** Unreliable service and customer outages	Maintain	• Leak Management Operating Standard including Survey Program conducted with defined frequency depending on material, age, cathodic protection, and presence of wall-to-wall hard surface area • Emergency Program • Relocation Program (externally driven) • Corrosion Control Operating Standard including Cathodic Protection Survey • Aerial Crossing Inspection Program • Valve Maintenance Operating Standard including inspection • Bridge Crossing Survey Program • Watercourse Crossing Survey Program • Vital Main Damage Prevention Program (for vital main subset) • Distribution Integrity Management Program (DIMP) Asset Health Review operating process • Condition assessment programs including integrity assessments and Quality Material Equipment Reports (QMER) to identify and assess failure mechanisms of assets • Corrosion Prevention Program • Enhanced Distribution Integrity Management Program (EDIMP) • Reactive repair of pipelines following the Distribution Steel Pipeline Repair Standard
	35	Distribution steel mains pipe (post-1970) are generally in good condition, associated with adequate cathodic protection and good coating performance.			

Asset Subclass	Avg. Age (Year)	Condition	Risk / Opportunity	Asset Class Strategies	Programs, Tactics, and Standards
				Replace	• Bare and Unprotected Steel Pipe Replacement Program • Proactive Vintage Steel Pipe Replacement Program • General Main Replacement Program • Major discrete replacement project work • Corrosion Prevention Program • Continuous improvement of reliability models and asset understanding • Reactive Service Replacement Program • Copper Services Replacement
Plastic Pipe	20	Modern Polyethylene (PE) assets are considered in good condition. The materials and manufacturing processes support the longevity of this asset.	**Employee and Contractor Health and Safety Risk / Public Health and Safety Risk:** Gas leaks and migration through underground infrastructure into buildings can result in gas accumulation and explosions. **Financial Risk:** Total repair costs, commodity loss, relighting customer gas appliances, regulatory penalties, and any property damages caused by a gas leak **Operational Risk:** Extensive service interruptions **Environmental Risk:** GHG emissions and environmental impact **Reputational Risk:** Unreliable service and customer outages	Maintain	• Leak Management Operating Standard including Survey Program conducted with defined frequencies • Emergency Program • Relocation Program (externally driven) • Valve Maintenance Operating Standard including inspection • Watercourse Crossing Survey Program • Intermediate Plastic Mains • Condition assessment programs including integrity assessments and Quality Material Equipment Reports (QMER) to identify and assess failure mechanisms of assets

	38	Intermediate Plastic Mains assets are considered in good condition. The materials and manufacturing processes support the longevity of this asset.		Replace	• Proactive Service Replacement Program
					  • AMP-Fitting Replacement
					• Reactive Service Replacement Program
					• General Main Replacement Program
					  • Vintage Plastic Aldyl A Replacement
					• Continuous improvement of reliability models and asset understanding

	41	Vintage Plastic Aldyl A assets are assets considered to be in a generally stable condition and will be monitored through EGI processes. Preliminary analysis performed on Aldyl A punch tees indicate an emerging concern due to cracks on punch tee caps, and internal components, showing an increasing leak rate. DIMP is currently developing a reliability model for this subset of failures to assess the impact on the broader Aldyl A piping system.			

NOTE: *System needs and constraints will be subject to a binary screening through the Integrated Resource Planning (IRP) assessment process to determine if further evaluation is required. IRP, as prescribed by the OEB, requires alternatives to facility assets to be thoroughly examined, reviewed, and implemented where economically and technically feasible.*

6.2.3.3 Transmission Integrity Management Program (TIMP) Pipe

EGI has implemented an Integrity Management Program (IMP) pursuant to Technical Standards & Safety Authority (TSSA) and Canada Energy Regulator (CER) regulatory requirements.

The Transmission Integrity Management Program (TIMP) pipe asset subclass is a subset of steel mains that are part of the TIMP In-Line Inspection (ILI) Program or are subject to other periodic condition monitoring techniques such as external corrosion direct assessment (ECDA). These pipelines either operate at greater than 30% SMYS or have been identified for inclusion in TIMP because of their operational criticality.

Pipelines with maximum operating pressures (MOPs) resulting in hoop stress levels of 30% SMYS or higher meet the technical definition of **transmission** as prescribed by the *TSSA Oil and Gas Pipeline Systems Code Adoption Document Amendment (Ref. No.: FS-220-16)*. Integrity management of TIMP pipelines represents one of the critical aspects in fulfilling the safe and reliable operation of EGI assets as these pipelines are critical infrastructure for energy markets in Ontario and beyond.

Despite increasing age, TIMP pipelines are generally in good condition with low failure susceptibility to monitored hazards. However, the condition of certain pipelines, and in some cases the condition of their surroundings, is requiring an increased level of investment through targeted remediation to maintain the pipeline condition and safety. Such pipelines include those that have specific properties or are exposed to operating or environmental conditions which make them more susceptible to certain hazards which increase the risk of failure. The population of TIMP pipelines represented by decades of installation is shown in **Figure 6.2-3**, illustrating a wide distribution of age for this group of assets. To ensure continued safe and reliable operation and in response to failures experienced by other pipeline operators, EGI has introduced enhanced hazard susceptibility assessments to ensure TIMP pipe assets remain fit for service. To achieve the appropriate levels of safety and reliability[29], EGI will expand the ILI Program to include more pipelines, introduce additional condition monitoring methods, and retrofit select pipelines where advances in ILI technology enable newly identified or emerging hazards to be detected. Where condition monitoring methods are operationally inviable or more costly than renewal, some assets may be renewed in lieu of inspection.

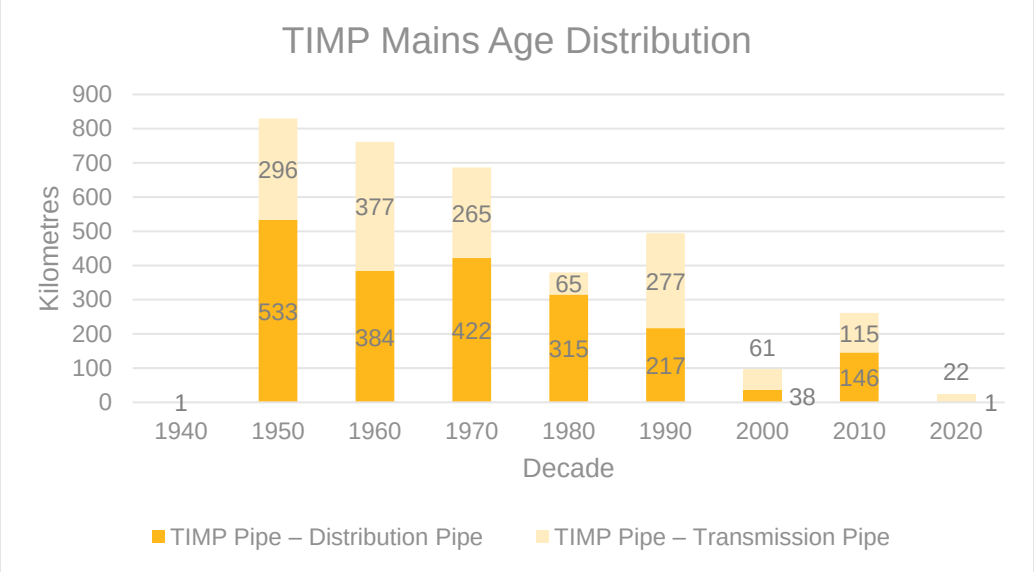


Figure 6.2-3: TIMP Pipelines Age Distribution[30]

[29] *CSA Z662 - Annex O Reliability Targets*

[30] For inventory of TIMP pipe included in the Distribution Pipe asset classes, see **Table 6.2-2**. For inventory of TIMP pipe included in the Transmission Underground Storage asset class inventory, see **Table 6.3-4**.

6.2.3.3.1 CONDITION METHODOLOGY

Using engineering analysis and a risk-based approach, the TIMP manages pipeline inspection frequencies and harmonizes inspection schedules to meet compliance requirements and industry standards.

The TIMP is a systematic approach for continually assessing and remediating the integrity of pipeline systems through prevention, detection, and mitigation techniques. Condition data is compiled, assessed, validated, and analyzed comprehensively and iteratively. During data assessment, field and data quality checks are performed for completeness and accuracy before being uploaded to PiMslider (i.e., Pipeline Risk and Integrity Management platform) for detailed analysis. After that, data validation is completed following the requirements of API 1163 In-Line Inspection Qualification and leveraging historical dig data or data from digs issued from the most recent run on a run-by-run basis. This process concludes with the full understanding of the hazard mechanisms and risks which are quantified through data analytics that establish the likelihood and consequence of various types of failures. This facilitates pipeline integrity management activities and optimizes the use of resources to control risk. Hazards assessed include:

- External corrosion
- Internal corrosion
- Internal erosion
- Manufacturing-related defects
- Welding/fabrication-related defects
- Equipment failure
- Third-party/mechanical damage
- Stress-corrosion cracking
- Outside forces
- Weather-related hazards
- Operational factors
- Cold-weld-weakening bond line defects

As hazards are identified on pipelines, appropriate methods of preventing and detecting hazards are used to determine the condition of the asset.

The TIMP employs a reliability-based process and uses risk analysis as a tool for developing and prioritizing maintenance on anomalous pipeline features, such as corrosion, cracks, mechanical damage, and manufacturing defects. Most of these features are identified using in-line inspections (ILI), direct assessments, and/or other condition-monitoring methods proven effective in the pipeline industry. Features meeting prescribed criteria are subject to further evaluation via direct examinations of pipeline sections through excavation (i.e., digs) and inspection using nondestructive examination (NDE) methods. Pipeline defects found during integrity excavations are remediated before backfilling the exposed pipe. Remediations can range from simple pipe wall and coating repairs to complex replacements of pipe segments, dependent on the nature of each feature and its location.

The TIMP reduces the probability of failure through the inspection and assessment process by spotting and remediating detectable pipeline hazards. There are, however, some hazards that are undetectable by modern integrity inspection techniques, including some long seam anomalies. Progression of such defects cannot be practically monitored using current ILI and ECDA. Therefore, alternative condition verification methods, such as hydrostatic testing, are considered and compared to an option to replace such pipelines based on inherent risk and cost benefits associated with each option.

TIMP pipelines are also subject to depth of cover (DOC) surveys and class location surveys as part of the TIMP Mains Strategies (see **Section 6.2.3.6.1**). Any changes in class location or DOC are assessed to determine if mitigations are required.

6.2.3.3.2 CONDITION FINDINGS

Many of the TIMP pipelines have been subject to two or more inspections since the inception of the Integrity Management Program. As such, the condition of these inspected assets is generally well understood in consideration of the resolution provided through the inspection technology used at the time of the last inspection. Integrity activities on these pipelines typically result from the investigation of time-dependent events (such as corrosion) and time-independent events (such as third-party damage).

In the TIMP, EGI uses ILI data analysis and risk assessment of pipeline features along with corrosion growth modelling to project known detectable corrosion features of the TIMP pipelines from the last ILI date to future years. This enables excavations for some features to be scheduled prior to corrosion features reaching critical size, accounting for a factor of safety.

The number of digs depends on inspection findings and is an important part of preventing failures on the TIMP pipeline system. As legacy practices are aligned and modern ILI is introduced for more pipelines, it is anticipated that the number of digs may have a higher volatility in the short term before settling into a more stable pattern. This is reflected in the increase in dig volume for 2022. For reference, the number of digs over the preceding seven-year period is shown in **Figure 6.2-4**.

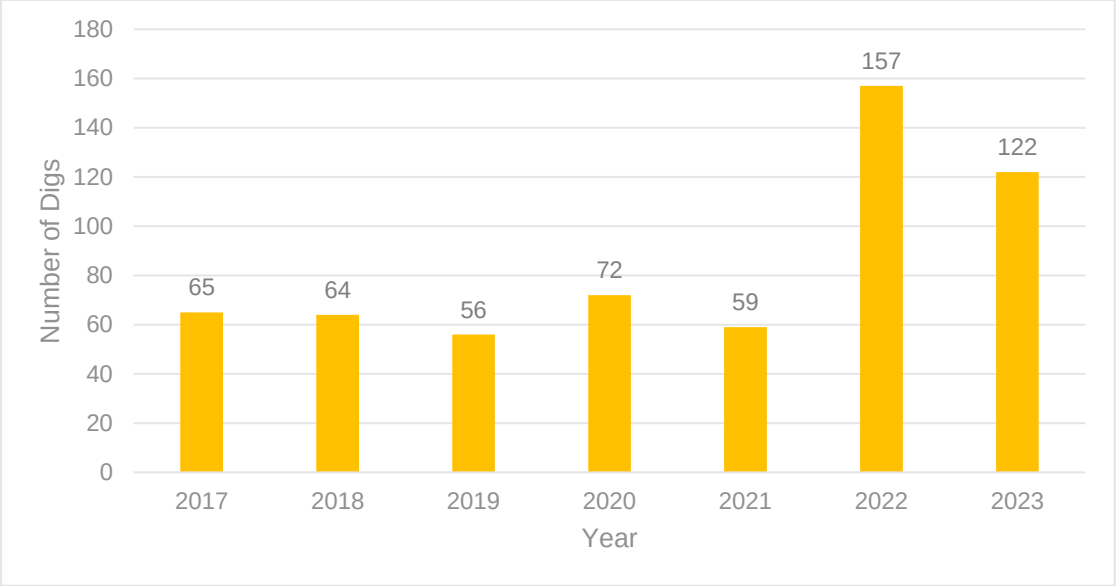


Figure 6.2-4: Historical Digs

In addition to the identification of hazards through ILI, EGI has also successfully identified and remediated pipeline sections with low depth of cover and exposed watercourse crossings through previously listed maintenance strategies. EGI will continue to monitor changing conditions around its pipelines and ensure such hazards are sufficiently managed.

6.2.3.3.3 RISK AND OPPORTUNITY

TIMP pipelines are critical infrastructure forming the backbone of the EGI system. These pipelines convey gas into downstream networks for distribution, supply large industrial customers (including natural gas-fired power plants) and transport natural gas to major North American markets. Some of these pipelines are in urban areas and pass through high consequence areas (HCAs). Any gas release in HCAs could require a substantial emergency response and a temporary shutdown of the pipeline; pipeline failures can pose a risk to public safety as well as gas-supply reliability risk.

The risks associated with these pipelines are mitigated through the TIMP by identifying and remediating (as required) pipeline defects prior to failure. These inspections allow EGI to determine whether a pipeline is fit for service and provide quantitative data that can be used for forecasting maintenance activities, informing models, and long-term planning for asset replacement as condition dictates. Understanding pipeline condition allows EGI to make informed decisions on service life extensions. By mitigating immediate and scheduled pipeline features, the TIMP reduces the probability of pipeline failures, reducing the overall public risk and helping to ensure a reliable gas supply to customers.

6.2.3.4 Distribution Steel Pipe

The Distribution Steel Pipe asset subclass includes mains (along with associated services and components) covered by the Distribution Integrity Management Program (DIMP) and the Enhanced Distribution Integrity Management Program (EDIMP). EDIMP is a new Integrity program, a sub-program of DIMP, initiated in 2023 to assess the integrity conditions of distribution steel pipelines that are categorized at a relatively higher risk and criticality when compared to the rest of the steel distribution network. Not all steel distribution pipelines will be part of EDIMP. The steel distribution pipelines not meeting the EDIMP

criteria population will remain and be managed under DIMP. The proposed scope for EDIMP population is shown in **Table 6.2-4**: EDIMP Pipe Criteria.

Table 6.2-4: EDIMP Pipe Criteria[31]

Criteria		Justification
1	20% to 30% SMYS	• US criteria for transmission pipelines and potential rupture failure
2	Vital Mains	• As defined by GDS "pipelines that are critical to the safe and reliable operation of the natural gas system." • Damages to vital mains could result in significant negative impact to public and worker safety or significant customer outages.
3	≥ HP or equivalent, **and** ≥ NPS 6, **and** emphasis on vintage steel	• Potential for higher consequence and risk • General threshold for distribution pipelines and ILI tool capacity

EDIMP follows the same approach as other integrity programs (i.e., anticipate, manage, and mitigate all integrity hazards to prevent a critical level Loss of Primary and to comply with all applicable regulatory requirements, regarding integrity management programs) for the assets in the scope of EDIMP. The EDIMP inspections include, but are not limited to, ILIs (with robotic crawler or tethered technology as the traditional ILIs with free swimming tools are not feasible for inspecting distribution pipelines), direct current voltage gradient (DCVG) surveys, close interval surveys, DOC surveys, and integrity digs, etc.

EDIMP will support the following, but is not limited to:

- Increased certainty for reliability and risk assessments for the assets in scope
- More informed asset management strategies for distribution pipelines

The entire population of DIMP and EDIMP is approximately 31,400 km of steel pipe. This population is further subdivided into two asset subclasses, Steel Mains (Pre- and including 1970) and Distribution Steel Pipe (Post-1970), due to differences in design, manufacturing, construction, and maintenance practices. It is also worthwhile to note that between the early 1950s and early 1970s, steel mains were the only material used in the gas distribution system. These mains operate at different pressure classes and range in size. Note that Distribution Steel Pipe does not include pipe covered under the TIMP. **Figure 6.2-5** illustrates the calendar age of the steel main population for EGI.

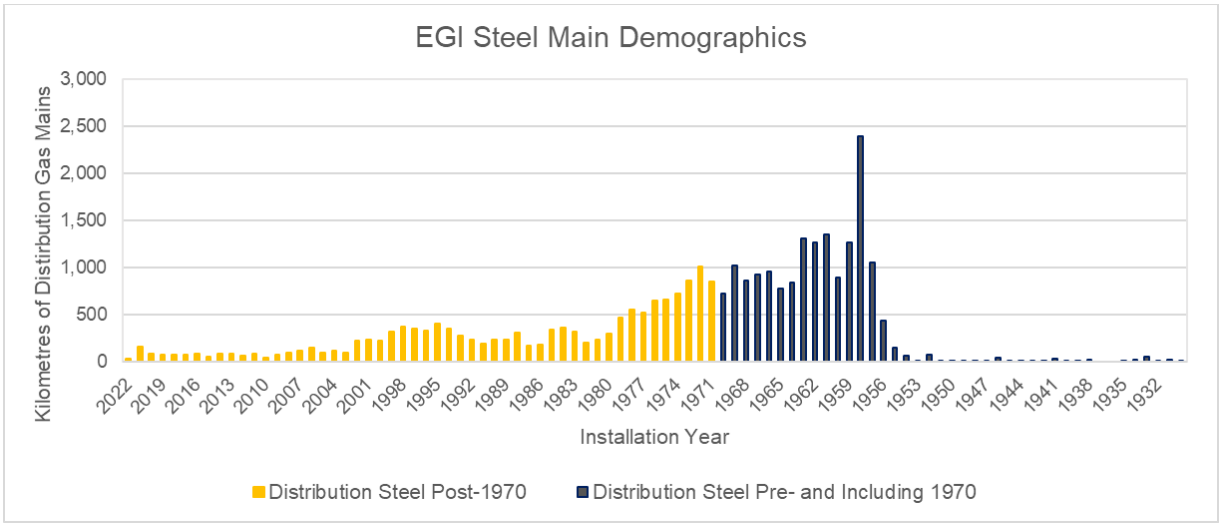


Figure 6.2-5: Age Distribution - Steel Pipe

[31] EDIMP is in the development phase and the criteria may be adjusted based on new findings. A distribution pipeline can be included in EDIMP if any of the three criteria are met.

In **Figure 6.2-5**, the population spike in 1958 was due to rapid expansion and acquisitions made by Union (e.g., one major purchase was the Dominion Natural Gas Company). Unfortunately, records are not available to adequately classify the installation dates of the acquired assets.

6.2.3.4.1 STEEL MAINS (PRE- AND INCLUDING 1970)

The Steel Mains (Pre- and including 1970) asset subclass consists of mains (along with associated services and components) installed in 1970 or earlier and covered by the DIMP or EDIMP. This asset subclass represents more than 50% of the steel pipe population. Of the vintage steel main, approximately 3,600 km is eligible for inspection through the EDIMP. Additionally, there are about 41 km of bare and unprotected steel pipe within this population. These mains were installed using materials, coatings, design requirements, and construction practices based on standards at the time. Similarly, protection programs such as utility locate, and cathodic protection (CP) procedures were different from current practices.

Distribution steel mains provide gas to some of the oldest and most populated parts of the EGI franchise area, including the downtown cores of Toronto, Hamilton, London, and Ottawa. Over time, urban encroachment and infrastructure activities supporting municipal growth have impacted the conditions and consequences associated with potential asset failures. In urban areas, challenges exist in ensuring adequate CP due to interference from subway, streetcar, and light-rail transit systems which can impede the ability to extend the life of these assets. This is particularly challenging as these same pipelines are often installed in environments where the risk of leak migration and accumulation in enclosed spaces is greatest due to a high prevalence of building-to-building concrete.

6.2.3.4.1.1 Condition Methodology

The condition methodology of distribution steel mains is common across its asset subclasses and determined through:

- **Maintenance programs:** These programs (such as Cathodic Protection, Valve Inspection and Maintenance, and Leak Survey) monitor asset condition and in some cases assist in maintaining the service life of the assets.
  - **Cathodic Protection Program** helps to prevent corrosion where EGI's pipe coatings may have been compromised. The program monitors the CP levels against standards based on a regular survey interval. The survey results and data are used to supplement and maintain anode beds and rectifier supply. Additionally, the CP survey data is used in EGI's reliability and predictive failure and risk models.
  - **Valve Inspection and Maintenance Programs** assist in keeping valves operational and reducing the potential for leaks. At regular intervals, valves are inspected for accessibility and functionality and then repaired, if findings deem it necessary. Valves are an essential part of EGI's emergency response protocols, allowing the system flows to be shut down quickly when required.
  - **Leak Survey Program** is a system-wide survey program that detects active leaks that need repair. The program surveys EGI's pipelines on a regular interval. The leak data is used in EGI's Reliability and Predictive Failure and Risk Models.
- **Condition assessment programs:** These programs (such as integrity assessments, Quality Material Equipment Reports [QMER], and integrity inspections) identify and assess the failure mechanisms of EGI's assets. In some cases, condition assessments can identify time-dependent degradation and provide the opportunity for repairs to extend service life. Examples include programs such as coating remediation for bridge crossings, component level replacements for valves, and targeted integrity inspections.
- **Tacit knowledge (subject matter advisors [SMAs] / worker input):** Field knowledge is used to identify potential condition issues through regular meetings with SMAs. Historical experience working on pipeline assets is often used to augment recorded inspection data to understand specific areas of concern based on direct inspections through prior project or maintenance activities.
- **Reliability modeling:** One of the major hazards to steel mains is corrosion. A reliability model accounting for pipe attributes has been developed through the Asset Health Review (AHR) operating process under DIMP to forecast the number of corrosion leaks based on statistical analysis of corrosion leak history (including factors that accelerate degradation like CP history and field-applied coating locations). The model provides for more holistic consideration of the factors that influence failures when prioritizing pipelines for proactive intervention, instead of relying solely on the age of each asset. Reliability modelling helps project future failure frequency for time-dependent failure modes which assists in proactive planning of the most cost-effective approach to mitigate asset risk.

6.2.3.4.1.2 Condition Findings

6.2.3.4.1.2.1 Steel Mains

Based on the condition assessment methodologies outlined in the previous section, **Table 6.2-5** outlines the condition findings generally associated with assets in the Steel Mains (Pre- and including 1970) asset subclass.

Table 6.2-5: Condition Findings for Steel Mains (Pre- and including 1970)

Issue	Description	Mitigations
Corrosion	Over time, coating degradation and poor cathodic protection (CP) can cause corrosion, resulting in wall loss. Some components that are particularly susceptible to corrosion are bare and unprotected steel mains, isolated steel mains and headers, and mains with vintage coatings (e.g., coal tar coatings can disbond and cause shielding). Below-grade threaded connections are also susceptible to corrosion. Bare and unprotected failures (see **Figure 6.2-6**) are corrosion driven and directly tied to lack of coating and cathodic protection.	• **Cathodic Protection and Survey:** Involves regular survey and maintenance of CP systems as described in **Section 6.2.3.6.2.1**. This mitigation reduces the potential for corrosion to progress in locations of coating failures; however, it is less effective on pipeline installed in roadways crowded with other infrastructure and is not effective on bare pipelines as described in **Section 6.2.3.6.3.1**. • **EDIMP Inspections:** See **Section 6.2.3.6.3.3**. • **Reactive Repairs and Replacements:** For information on repairs, see **Section 6.2.3.6.2.2**. • **Proactive Replacements:** Where the risk associated with a failure exceeds the upper threshold or may exceed the threshold at a future date, proactive replacement is the preferred mitigation due to the inability to identify specific locations where corrosion failures may occur.
Bridge Crossing: Corrosion	Continuous exposure to road salt and seasonal ground movement on bridge-crossing assets can result in accelerated corrosion and external loading/stresses (see **Figure 6.2-8**).	• **Proactive Inspection:** Involves planned inspections and remediations to corrosion at bridge crossings. • **Reactive Repairs and Replacements:** For information on repairs, see **Section 6.2.3.6.2.2**.
Pipe Casing: Corrosion	Casings may cause a short with the carrier pipe if the spacers or internal integrity of the casing degrades over time. Many casings in the EGI network lack test points, preventing monitoring for shorts.	• **Cathodic Protection and Survey:** See above. • **Reactive Repairs:** Where shorts are discovered before corrosion begins, repair spacers within casing to isolate casing from carrier pipe. • **Reactive Replacement:** If the casing is unrepairable and/or if corrosion exceeds allowable tolerances, replacement of the casing or carrier pipe may be required.
Compression Couplings: Corrosion	Compression couplings (mechanical fittings not welded onto the main) on steel mains can be susceptible to external corrosion and lead to an increased risk of leaks.	• **Cathodic Protection and Survey:** See above. Such surveys are insufficient to address corrosion specific to compression couplings but help identify where additional cathodic protection may benefit the pipeline segment as a whole. Limitations of cathodic protection to mitigate corrosion are described above. • **Reactive Repairs and Replacement:** Corrosion at compression couplings is normally discovered when leaks occur and can be repaired by use of a pressure-containment

Issue	Description	Mitigations
		repair sleeve (pumpkin) that encapsulates the compression coupling and is welded to the carrier pipe. • If the surrounding carrier pipe is not suitable for welding due to poor condition from corrosion, or metallurgy of older vintage pipelines, a cut-out replacement may be required. For more information on repairs, see **Section 6.2.3.6.2.2**.
Compression Couplings: Pull-Out	Compression couplings that are not properly restrained can cause a loss of containment due to exposed points of thrust. Compression couplings rely partially on the weight of the soil to hold them in place. When the soil is disturbed, the mechanical seal can be broken; and in the worst-case scenario, the pipe can pull out of the fitting, resulting in gas escaping through the open pipe end. Some vintage gas mains, such as the Kipling Oshawa Loop (KOL) main, do not have sufficient records identifying the existence and location of these fittings. EGI has mitigation practices in place to address existing known compression couplings.	• **Safe Dig Practices:** EGI has measures in place to limit the potential for soil restraint to be removed when there is excavation near compression couplings. However, there are cases when other forces, such as frost heave and vibrations due to construction, can breach mechanical seals without a complete pull-out and cause a leak. • **Proactive Restraint upon Exposure:** Compression couplings can be restrained by use of a pressure-containment repair sleeve (i.e., pumpkin) that encapsulates the compression coupling, rod and lug, or safe embedment distance and is welded to the carrier pipe. • **Reactive Replacement:** If the surrounding carrier pipe is not suitable for welding due to poor condition from corrosion, a cut-out replacement may be required. For more information on repairs, see **Section 6.2.3.6.2.2**. • **Proactive Replacements:** Where the risk associated with a failure exceeds the upper threshold or may exceed the threshold at a future date, proactive replacement is the preferred mitigation due to the inability to identify specific locations where failures may occur.
Seam Welds	Manufacturing defects associated with seam welds and fittings are weak points in the distribution system and can result in a loss of containment due to prolonged exposure to stress and corrosion (see **Figure 6.2-9** and **Figure 6.2-10**). Low-frequency electric resistance welded (ERW) pipe (used up to the early 1970s) can also pose a hazard through the potential of cold welds weakening bond lines leading to brittle-like failures. Defects in low-frequency ERW pipe welds have ruptured at operating pressures below 30% SMYS.	There are no proactive inspections that can be undertaken to identify specific areas prone to this issue. Hazards associated with seam welds for ERW pipe are non-detectable with crawling ILI technologies. • **Reactive Repairs:** For more information on repairs, see **Section 6.2.3.6.2.2**. • **Proactive Replacements:** Where the risk associated with a failure exceeds the upper threshold or may exceed the threshold at a future date, proactive replacement is the preferred mitigation due to the inability to identify specific locations where failures may occur.
Geohazard	Geohazards are earth conditions that pose hazards to the public or their activities. The cause of the hazard may be natural or spurred on by human activities. Integrity issues relating to geohazard risks at EGI include spanning/loss of support,	• **Proactive Inspections:** Identification and ongoing monitoring of exposed pipelines and assessment of current and future failure risk • **Flow Monitoring/Diversion:** May be used where pipelines are exposed in ditches and

Issue	Description	Mitigations
	deformation, overloading, and stretching/compression. These risks are accentuated by melting of ice sheets, landscape erosion by running water, landform by highly compressible organic soils, shoreline coastal erosion, and landslides, etc.	waterways where waterflow does not present a failure risk or can be managed • **Pipeline Supports:** May be used to ensure exposed pipelines are not subject to excessive stress and environmental permits allow • **Erosion Control (e.g., matting, bank stabilization):** May be used where environmental permits allow • **Increasing DOC:** May be used where site drainage and environmental permits allow • **Proactive Replacements:** Where the risk associated with a failure exceeds the upper threshold or may exceed the threshold at a future date, proactive replacement is the preferred mitigation due to the inability to identify specific locations where failures may occur.
Depth of Cover	Reduction in the original DOC due to urban development or initial poor DOC due to construction practices at the time of installation can increase the potential for damages due to excavation activities and increased external loading. A minimum DOC is needed to ensure the maximum weight of vehicles traversing across pipelines is not exceeded. If the DOC is not appropriate, excessive pipe stress and failures can result (see **Figure 6.2-7**).	• **Engineering Assessment:** The responsible engineer recommends risk mitigation following a comprehensive assessment, which is classified as either temporary or permanent. • **Temporary Protection:** May include the implementation of snow fence and line markers, as well as the issuance of notifications to landowners • **Permanent Protection:** Consists of adding extra cover, lowering the line, conducting engineering assessments, installing high-visibility slabs, and erecting permanent fencing • **Proactive Replacements:** Where the risk associated with a failure would exceed the upper threshold following other permanent protection measures listed above
Aerial Crossings	Aerial crossings are segments of unsupported steel pipe that span water crossings and ditches. These are from legacy construction practices; and over time, the condition of these aerial crossings has degraded. Since they are aboveground pipe segments, the CP barrier is not effective, so corrosion initiation sites are able to progress unchecked (see **Figure 6.2-14**). The coatings have degraded over time as well; erosion in many locations has increased unsupported spans (see **Figure 6.2-13**). There may also be mechanical couplings present that can experience pull-outs with ground movement (see **Figure 6.2-12**). Third-party damages continue to be problematic for these exposed pipe segments.	For Aerial Crossing mitigations, see **Geohazards, Bridge Crossings**, and **Compression Couplings: Pull-Out**, and **Corrosion** above.
Third-Party Damage:	Any appurtenances which protrude from the surface of the main are susceptible to damage during excavation activities, as their	• **Damage Prevention Program** • **Reactive Repairs and Replacements:** For information on repairs, see **Section 6.2.3.6.2.2**.

Issue	Description	Mitigations
Appurtenances on Pipe	DOC may be significantly less than that of the main. Steel drips (see **Figure 6.2-11**) with a protruding drip rod that extend vertically towards the surface and shallow blow-off valve assemblies are examples.	
Latent Third-Party Damage	Unreported, latent damages to pipe coatings can become active corrosion sites and can reduce the effectiveness of the Corrosion Protection system, resulting in accelerated corrosion and potential loss of containment.	For Latent Third-Party Damage, see **Table 6.2-5** above.

Figure 6.2-6: Bare and unprotected steel failures

Figure 6.2-7: Shallow and embedded gas main due to road grade change

Figure 6.2-8: Severe corrosion on bridge-crossing pipe

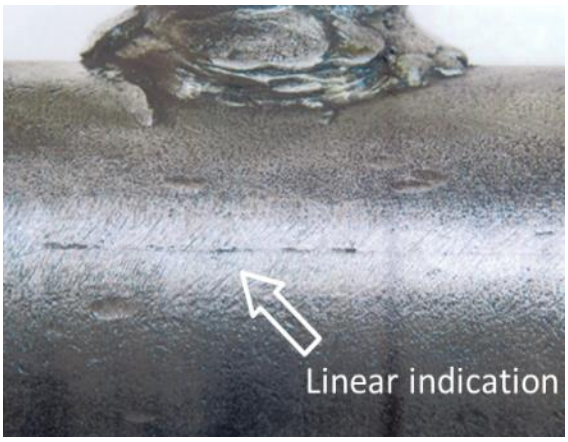


Figure 6.2-9: Vintage NPS 2 steel main with linear indication along weld seam

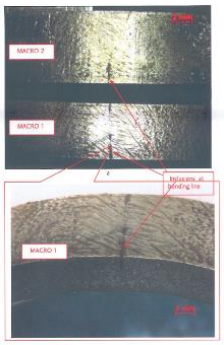


Figure 6.2-10: Inclusion at pipe weld seam on vintage NPS 2 gas main

Figure 6.2-11: Damaged drip rod on vintage NPS 2 gas main

Figure 6.2-12: Aerial crossing with exposed mechanical fitting

Figure 6.2-13: Coating degradation and corrosion pitting

Figure 6.2-14: Erosion increasing the unsupported length of an aerial crossing

Failure history for the Steel Mains (Pre- and including 1970) population is shown in **Figure 6.2-15**.

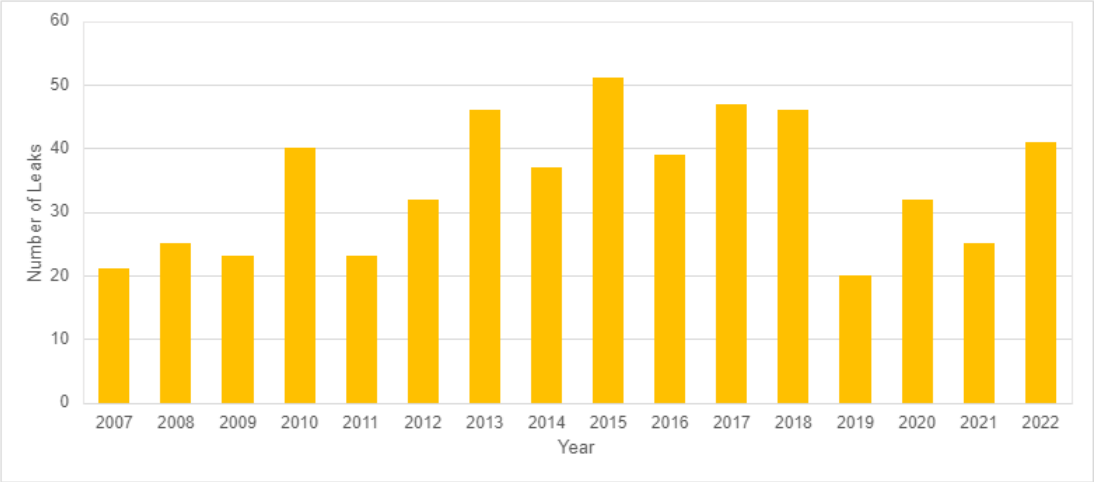


Figure 6.2-15: Corrosion Leak History: Steel Mains (Pre- and including 1970)

The failure history for EGI over the 2007 to 2022 time frame is shown in **Figure 6.2-15**. Irregularities are most likely due to the mix of assets being leak-surveyed in a given year and the survey cycle. The survey is optimized for geography for efficient execution, rather than leveling the number of leaks found. Additionally, failure data is continuously being reviewed for quality and accuracy, and errors like double counting a failure are corrected.

Reliability modelling within DIMP is used to project the annual number of leaks on steel mains (pre- and including 1970) over the next 20 years (see **Figure 6.2-16**). Projections assume no change to maintenance practices (namely, that most steel main leaks are mitigated via repair within a relatively short period of time and a small number of leaks are eliminated when the pipe is replaced).

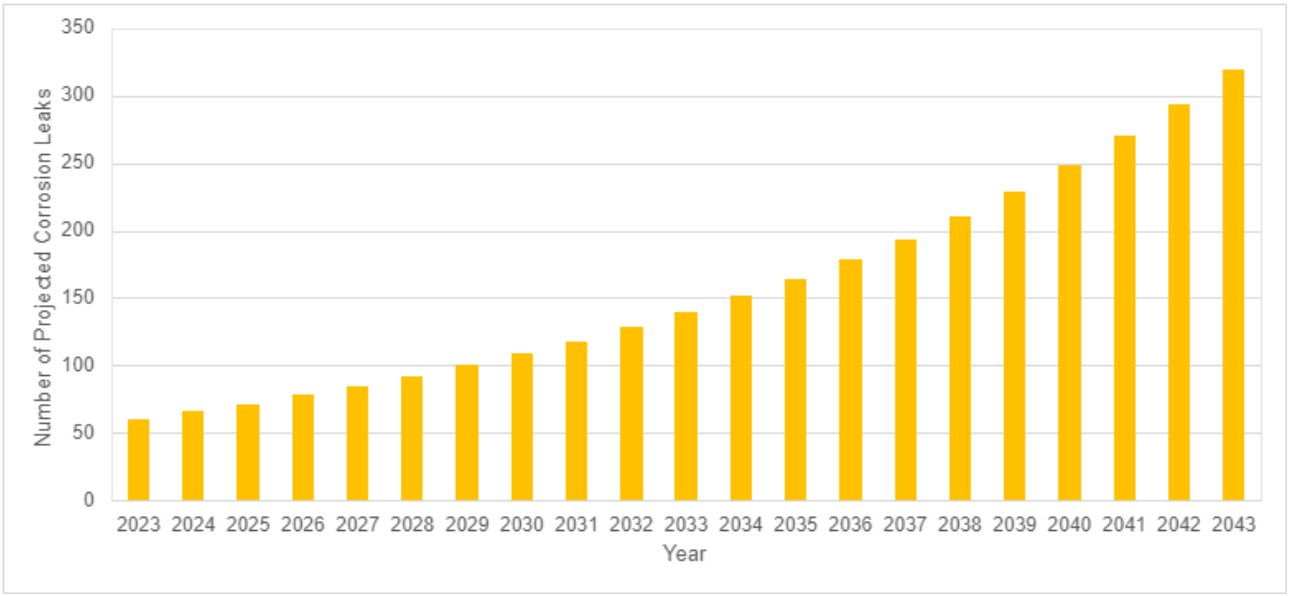


Figure 6.2-16: Corrosion Leak Projections for Steel Mains (Pre- and including 1970)

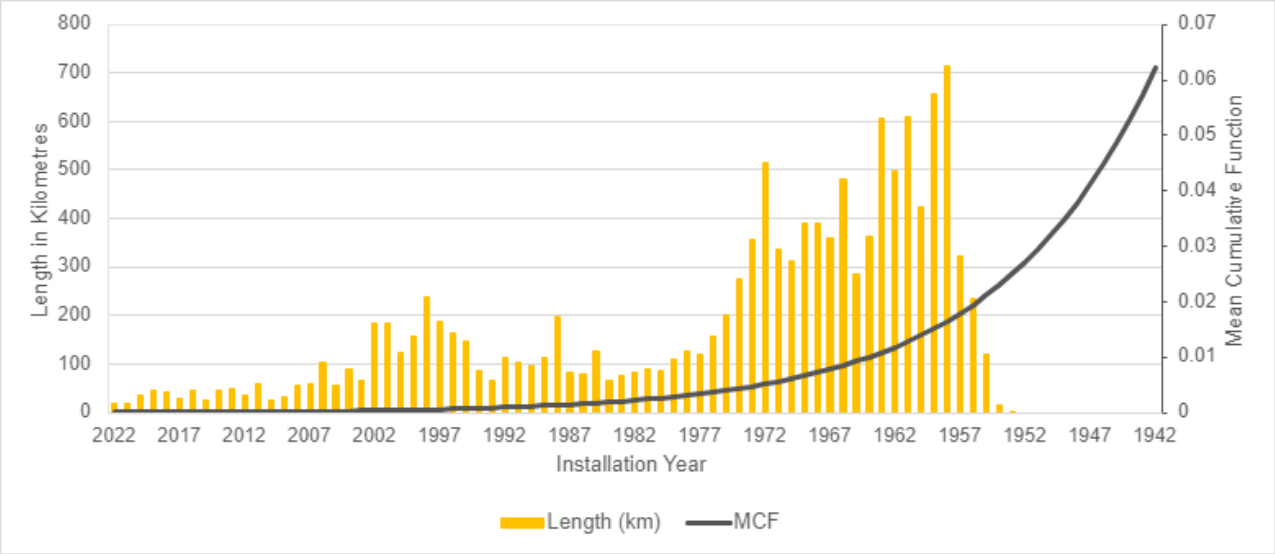


Figure 6.2-17: Steel Mains Population vs Mean Cumulative Function for Corrosion Leaks

The steel main reliability model forecasts that the number of annual leaks will increase steadily over the next 20 years. **Figure 6.2-17** shows the predicted cumulative number of corrosion-based leak failures of pipe for a given age. By 2043, the number of leaks will have increased by approximately five times the current leak rate.

The steel main reliability model has been updated since EGI created its 2023 – 2032 AMP[32], and the model has shown a reduction to the rate at which leakage is increasing for vintage steel mains by approximately 50%. This change to the leakage growth rate was a result of reviewing failure data and reconciling errors like duplicate leak records. As a result of these updates, EGI has a higher degree of confidence in the model projections. While the projected increase to leakage occurrence is not as severe as was projected by previous revisions to the model, there is still a need for a proactive approach to mitigate risk associated with these leaks.

The significant increase in corrosion leaks is forecast to take place between 2037 and 2057 as a portion of the mains population approaches 100 years of age. **Figure 6.2-17** shows a sharp increase in failures that could be due to multiple coating defects along the pipe body and/or poor cathodic protection history. Coating defects can result from manufacturing defects, field-applied coating anomalies, coating degradation from environmental factors, or latent third-party damage.

Pipe coatings used on steel mains (pre- and including 1970), like coal tar and field-applied coatings, such as mastic wrap, can get brittle over time and are susceptible to cracking and disbondment, allowing for corrosion to occur. As an example of a corrosion failure, **Figure 6.2-18** to **Figure 6.2-21** show a leak repair on a 12-inch vintage steel main located in downtown Toronto. This steel main was installed in the 1960s, showing the use of mechanical fittings (i.e., compression couplings) to join gas mains together using a fabricated fitting (i.e., steel cross).

EGI continues to monitor the asset health of steel mains and updates its reliability models with best available information to determine the appropriate mitigating action. Failure data from repair work orders and field observations made during steel main repairs and other maintenance activities show that vintage steel mains have demonstrated a more rapid decline in health compared to steel mains installed after the 1970s. This is attributed to material specifications, construction, past damage prevention practices, and latent damage (such as coating damage) from third-party construction activities near the mains.

[32] EB-2022-0200 Exhibit 2.6.2

Figure 6.2-18: Leak investigation on vintage NPS 12 gas main

Figure 6.2-19: Detail of fabricated fitting after removal

Figure 6.2-20: Multiple leaks due to severe corrosion on vintage NPS 12 gas main

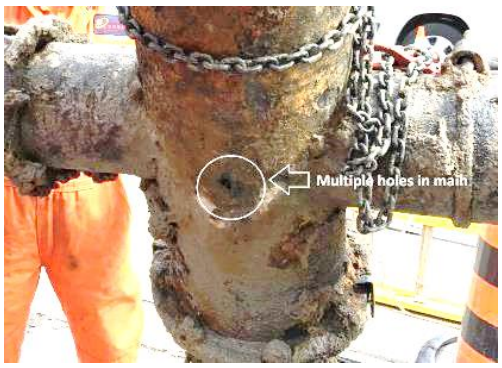


Figure 6.2-21: Multiple leaks on vintage NPS 12 gas main

Figure 6.2-22 shows that about 70% of recorded steel main corrosion leaks since 2007 are from pipe installed before 1970. **Figure 6.2-22** also displays the failures normalized by pipe length confirming that corrosion leaks per kilometre are disproportionately higher than those on post-1970 pipe.

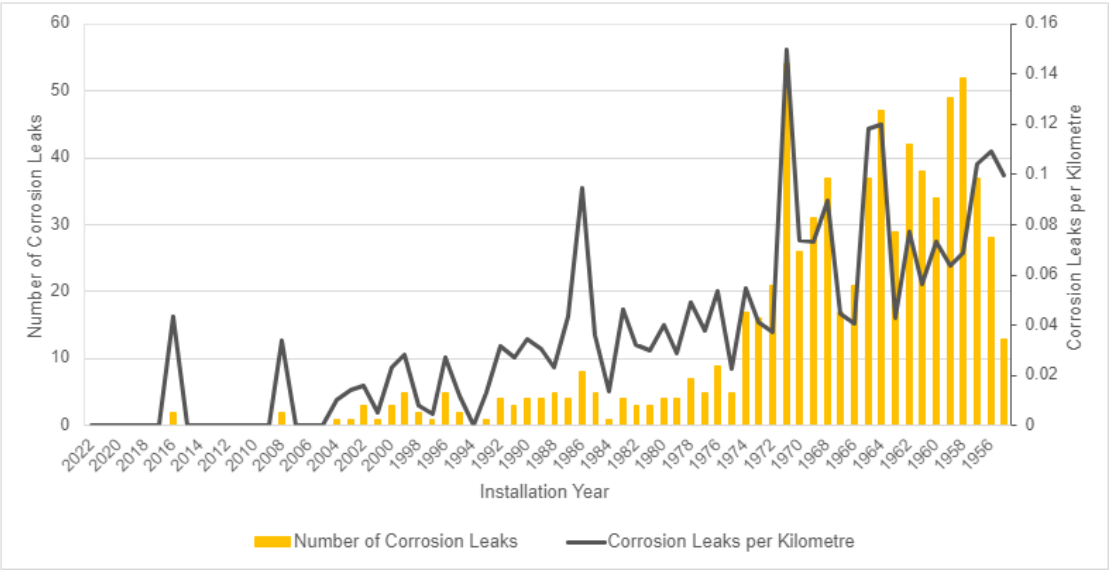


Figure 6.2-22: Steel Main Corrosion Leaks on Pipe Installed from 1955 to 2022

6.2.3.4.1.2.2 Copper Services

Copper services was a legacy construction practice between 1960 to 1979. Typical issues associated with these assets include leaks, circumferential cracks, and choked flow due to buildup of corrosion by-product, resulting in the interruption of gas service. Degradation mechanisms for copper services include galvanic corrosion in the vicinity of the copper service connection to the main, external corrosion at aboveground and belowground transitions, and internal corrosion (also known as erosion corrosion) which causes thinning of the service wall over time.

Annual failure rates for copper services are steadily increasing. The highest-risk copper services have been removed from the system and any remaining copper services now require replacement to prevent future failures.

6.2.3.4.1.3 Risk and Opportunity

Distribution pipe provides natural gas services to EGI's customers and runs down the streets of most residential, commercial, and industrial neighbourhoods near buildings and dwellings.

Steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. Underground corrosion leaks can migrate to nearby structures and create gaseous environments. Leaks on steel mains in densely populated areas pose a greater risk than in suburban settings, as the ground surface is often paved across the entire width of the street, leaving no openings for escaping natural gas to vent to the atmosphere. In these cases, the path of least resistance can be underground infrastructure. Gas can migrate through these channels into buildings, creating a gaseous and potentially explosive environment for customers and the public. Corrosion leaks through pinholes are the common mode of failure for steel mains.

6.2.3.4.1.3.1 DIMP Risk Model

Understanding the condition and risk of the distribution pipe system has long been an industry struggle due to the vast number of assets (over 31,400 km of steel mains of which over 16,777 km are vintage steel mains) and the complexities associated with the distribution network geographically. According to *CSA Z662 Clause 10.3.1*:

> The pipeline system integrity management program required by Clause 3.3 shall include procedures to monitor for conditions that can lead to failures, to eliminate or mitigate such conditions, and to manage integrity data. Such integrity management programs shall include a description of operating company commitment and responsibilities, quantifiable objectives, and methods for:
>
> a) assessing risks
> b) identifying risk reduction approaches and corrective actions
> c) implementing the integrity management program; and
> d) monitoring results.

To provide insight into the distribution pipe system risk, EGI has developed a DIMP Risk Model that adopts an analytical platform (PiMSlider) from TIMP to combine the AHR operating process reliability models (specifically the corrosion failure model for steel mains) with a geospatially assessed consequence of failure to produce risk for each distribution main. The analytical process dynamically segments pipelines based on changes to factors (such as changes in population density, Ontario building footprints, and Municipal Property Assessment Corporation [MPAC] property assessment data) that impact the consequence of a failure (in this case, the failure is a below-grade corrosion leak). The analytics follow an event tree format to assess the likelihood of several consequence streams, then aggregate all contributions into a risk value for the main. These analytics are performed systemically for all mains. The risk results can then be outputted as data tables and graphically represented on a GIS format map view (see **Figure 6.2-23**).

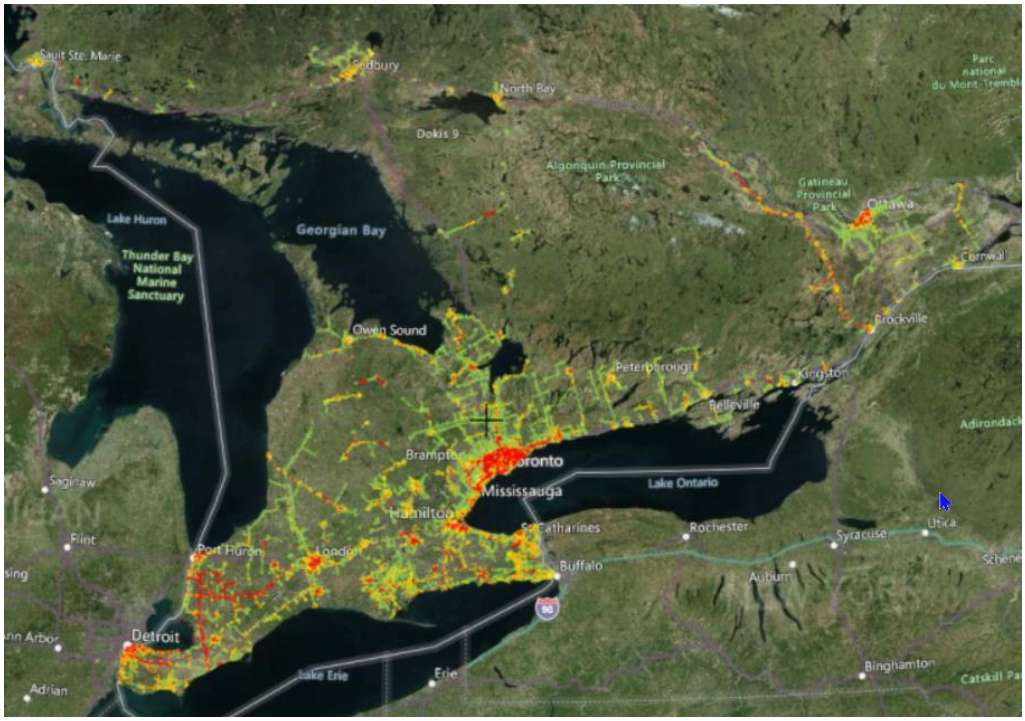


Figure 6.2-23: DIMP Risk Model output showing distribution steel pipe relative ranked risk

Figure 6.2-23 shows the results from the DIMP Risk Model for the EGI steel distribution pipe system, where predicted risk is a result of combining the likelihood of a corrosion failure with the consequence of that failure. The map shows a **heat map** colouring scheme (i.e., red, orange, yellow, and green) where assets are assigned a relative risk ranking based on the risk of a specific main as compared to the population. Red-coloured mains represent assets with the highest predicted risk for the population. Green-coloured mains represent assets with the lowest predicted risk for the population. The colour-coded outputs help the user identify steel mains that pose the highest-predicted relative risk for the population. The platform allows the user to create systemic risk views for current or future years, based on the reliability curves from the Asset Health Review Reliability Models. **Figure 6.2-23** shows the predicted relative risk of steel mains in 40 years for the EGI Distribution network.

As previously discussed and demonstrated, the pre- and including 1970 vintage steel population is expected to experience increased corrosion-based failures, creating increased risk to public safety, possible reductions in reliability and service for EGI's customers, and increased GHG emissions. As the number of leaks grows over time, there is a risk to EGI's ability to respond to emergency calls and manage operational costs.

6.2.3.4.2 DISTRIBUTION STEEL PIPE POST-1970

The Distribution Steel Pipe Post-1970 asset subclass consists of mains (along with associated services and components) installed after 1970 and covered by the DIMP or EDIMP. In this portfolio, the steel pipeline system consists of approximately 14,622 km of steel mains for EGI (see **Table 6.2-3**). As compared to mains installed pre-1970, this subclass of pipe was generally constructed with improved materials and construction practices and is performing well. These mains operate at different pressure classes, ranging from low pressure to extra-high pressure.

Although post-1970 steel mains are exposed to many of the same hazards as steel mains from 1970 and earlier, their materials, coatings, and construction practices have enabled the primary corrosion barriers of pipe coating and cathodic protection to be more effective, resulting in fewer corrosion-based leaks as shown in **Figure 6.2-22**.

6.2.3.4.2.1 Condition Methodology

See **Section 6.2.3.4.1.1**.

6.2.3.4.2.2 Condition Findings

These mains are exposed to some of the same issues as steel mains from 1970 and earlier (see **Table 6.2-5**). However, some issues (such as unrestrained compression couplings) do not apply due to different design and construction practices, and other issues (such as corrosion) are better mitigated because of better construction practices, maintenance practices, and materials. Corrosion-based leak history for the post-1970 distribution steel pipe population for EGI is shown in **Figure 6.2-24**.

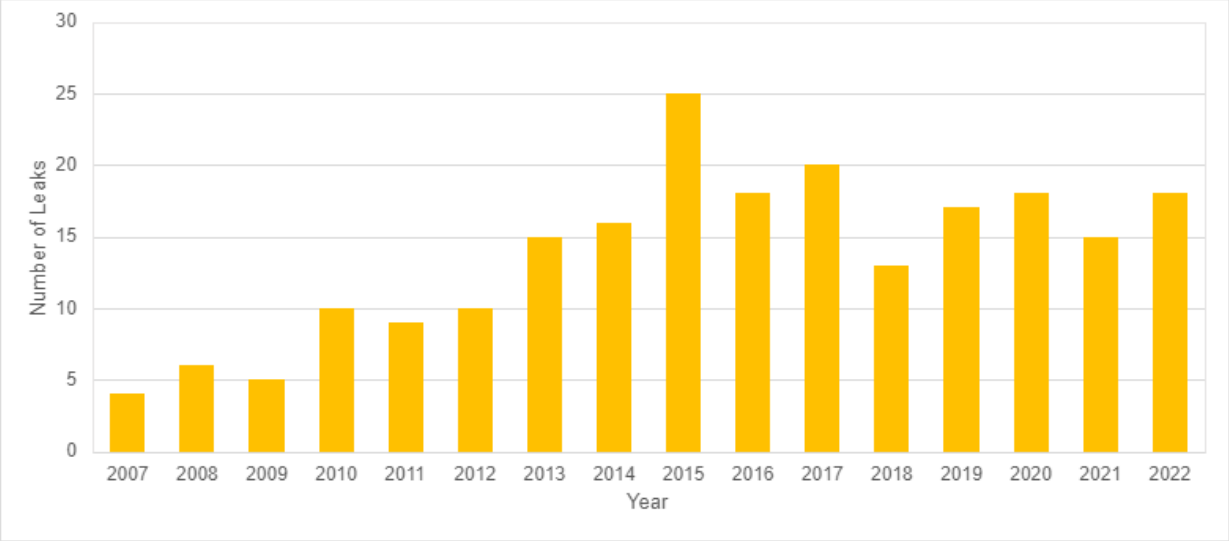


Figure 6.2-24: Historical Steel Main Corrosion Leaks (Post-1970)

6.2.3.4.2.3 Risk and Opportunity

As demonstrated by the projected leak trends in **Figure 6.2-25**, the post-1970 steel mains population is performing well with leak rates that do not pose a significant risk and is expected to continue to perform well in future years. Mains are in good condition with adequate cathodic protection and good coating performance; however, some hazards (third-party latent damages and environmental conditions) may accelerate degradation and result in leaks. These carry the same risks noted for pre- and including 1970 steel mains (see **Section 6.2.3.4.1**), including supply interruption to customers and GHGs associated with an uncontrolled gas release. As well, gas can migrate into buildings, creating a gaseous and potentially explosive environment for customers and the public.

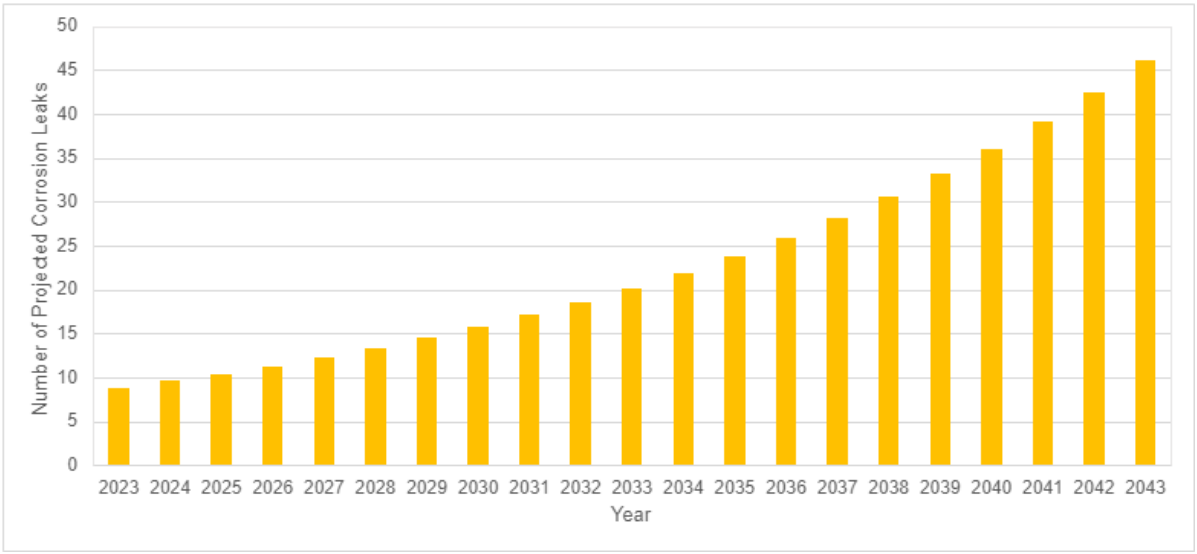


Figure 6.2-25: Post-1970 Steel Mains Corrosion Leak Projections (2023 to 2043)

6.2.3.5 Distribution Plastic Pipe

Plastic mains were first introduced into EGI's distribution network in the late 1960s on a field trial basis. Plastic mains became more widely used in the early 1970s and have since been installed across the EGI franchise area, replacing steel mains in low and intermediate pressure class systems. Plastic mains assets are divided into three subclasses: (1) Vintage Plastic Aldyl A, (2) Intermediate Plastic Mains and (3) Modern Polyethylene (PE) Resins. Plastic pipe distribution for EGI is shown in **Figure 6.2-26**.

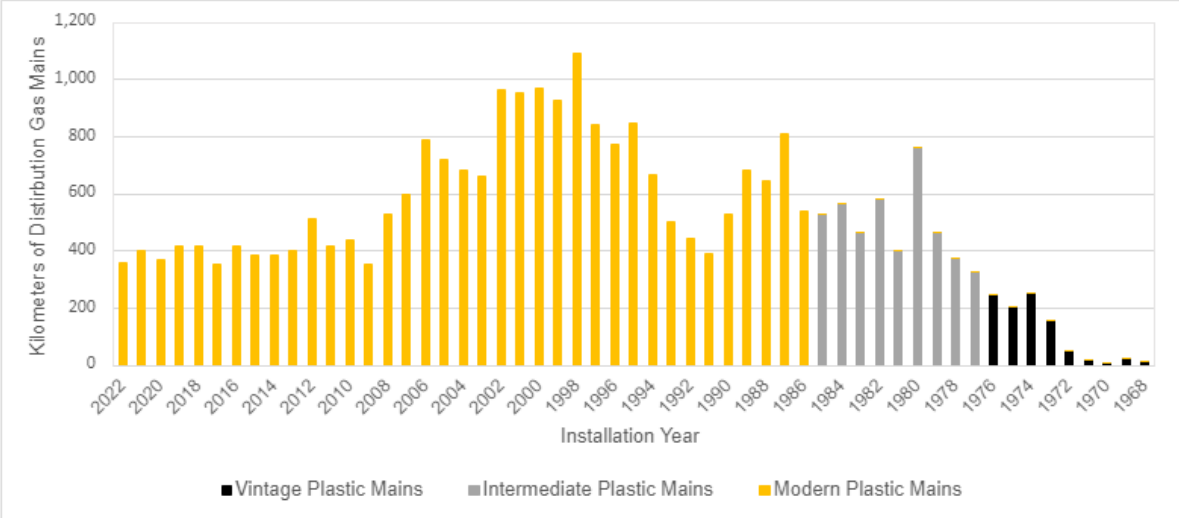


Figure 6.2-26: Age Distribution – Plastic Pipe

Copper risers are also discussed in this section as they are primarily associated with Vintage Plastic Aldyl A and Intermediate Plastic Mains systems. Copper risers on these systems include an AMP fitting (i.e., a mechanical transition fitting between the plastic service and the copper riser). These assets were a legacy construction practice between 1969 and 1984. **Figure 6.2-27** illustrates the calendar age of the copper riser population as of 2023.

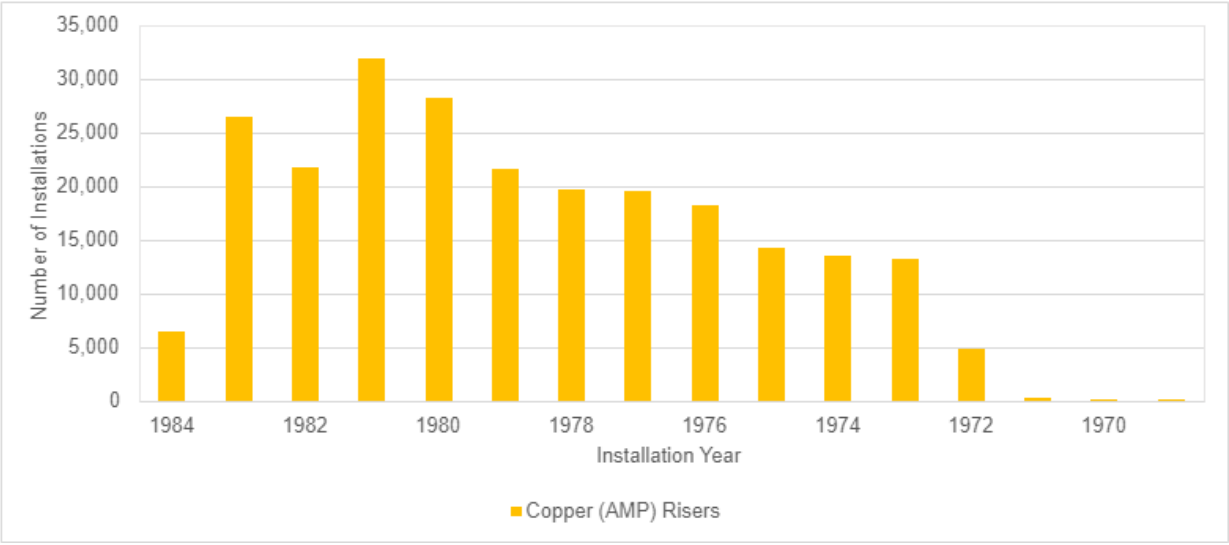


Figure 6.2-27: Age Distribution – Copper Risers

6.2.3.5.1 CONDITION METHODOLOGY

The condition methodology of distribution plastic mains is common across its asset subclasses. Asset subclasses are discussed in detail in Condition Findings only.

The condition of these assets is determined through:

- **Maintenance programs:** These programs (such as leak surveys) monitor asset conditions and restore assets to their functional state. Failure data from leak surveys is used to manage leaks in the short term and to build reliability models for pipe and copper services in the long term.
- **Condition assessment programs:** These programs (such as integrity assessments and Quality Material Equipment Reports [QMER], and integrity inspections) identify and assess the failure mechanisms of EGI's assets. EGI has also concluded an extensive study on vintage plastic Aldyl A pipe with the Gas Technology Institute (GTI) to develop data-driven predictions on the remaining useful life expectancy of plastic pipe. A recent field sampling and laboratory testing project to evaluate the remaining service life of intermediate plastic resins indicates this cohort of installed plastic exhibits acceptable residual performance relative to the performance of Aldyl A pipe, providing condition-based evidence to extend the service life for this type of plastic beyond estimated through previous reliability assessments. Studies are now being extended to Intermediate Plastic Mains material to further enhance EGI's knowledge of this material. Sampling programs and laboratory testing for TR-418 are underway with results analysis expected by Q4 of 2024.
- **Tacit knowledge (subject matter advisors [SMAs] / worker input):** Field knowledge is used to identify potential condition issues through regular meetings with SMAs.
- **Reliability modelling:** A reliability model has been developed for vintage plastic Aldyl A pipe and copper risers through the Asset Health Review (AHR) operating process under the DIMP. This has used a structured methodology to convert historical failure data into a statistical model that forecasts the probability of failure. Leak projections are refined with input obtained through direct assessment, internal and external industry studies, and SMA input.

6.2.3.5.2 CONDITION FINDINGS

The methodologies described in **Section 6.2.3.5.1** drive condition findings for the following subclasses: Vintage Plastic Aldyl A, Vintage Plastic Intermediate Plastic Mains, Copper Risers, and Modern PE Resins.

6.2.3.5.2.1 Vintage Plastic Aldyl A

Vintage plastic Aldyl A mains are the earliest plastic mains used within the distribution system. The installation period of Aldyl A plastics started in the late 1960s on a field trial basis and was concluded by the end of 1984.

It is well known and studied in the North American gas industry that Aldyl A plastic mains can have brittle properties that cause cracking (see **Figure 6.2-28**). The oxidation of the inner wall surface during manufacturing (also known as low ductile inner wall [LDIW]) and the large spherulites found in its microstructure cause pipe to be susceptible to cracking and premature failure in the presence of stress intensifiers such as a large number of connections, squeeze-off locations, and the presence of rock impingement points from rocky soil.

Many gas utilities have already started and in some cases completed the replacement of Aldyl A pipe because of concerns about its brittle properties. EGI commissioned a study through GTI to evaluate the performance of varying vintages of Aldyl A pipe used by EGI to identify failure modes over time and to determine the mean time for failure. Results of the initial sample testing showed that the LDIW property was observed and that the expected asset life of Aldyl A plastic mains is highly affected by ambient temperature and total stress intensifiers on the pipe.

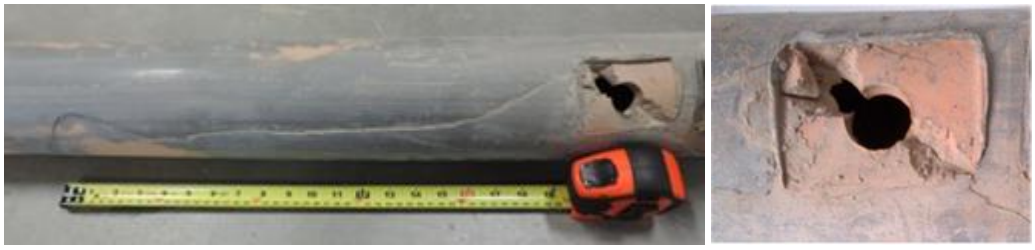


Figure 6.2-28: Rapid Crack Propagation on Aldyl A Pipe from Saddle Tee Fusion (Mississauga, ON)

Results of various laboratory testing conducted on EGI samples by GTI as well as samples from other utilities yielded parameters required to estimate the time to failure of vintage plastic Aldyl A pipes using a mechanical model known as Rate Process Method (RPM). Due to the large bounds of the RPM model and lack of sufficient EGI failure data, a Bayesian approach was used to integrate existing mechanical and statistical models and make EGI's reliability estimates more accurate.

The reliability model for vintage Aldyl A plastic mains shows an increase in the expected failures over the next 20 years. Leak projections based on historic failure rates for the asset subclass are shown in **Figure 6.2-29**.

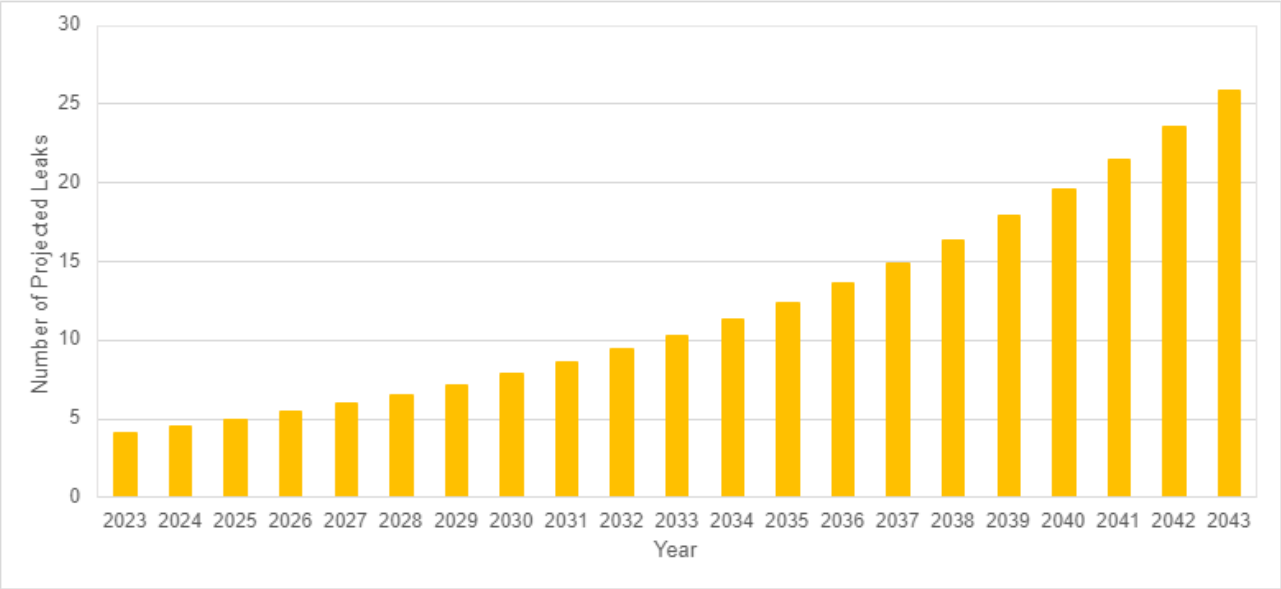


Figure 6.2-29: 20-Year Projection – Vintage Plastic Aldyl A Mains Failures (2023 to 2043)

The current population of vintage plastic Aldyl A mains is in generally good condition as is represented by the reliability models and shown in the Mean Cumulative Function (MCF) curve for EGI in **Figure 6.2-30**. This graph indicates that EGI can expect relatively low failure rates for another 30 years before the rate is projected to dramatically increase. This is in contrast to the steel pipe MCF graph (see **Figure 6.2-16**) that shows significant increases to failure rates in the next 20 years for pre- and including 1970 vintage steel.

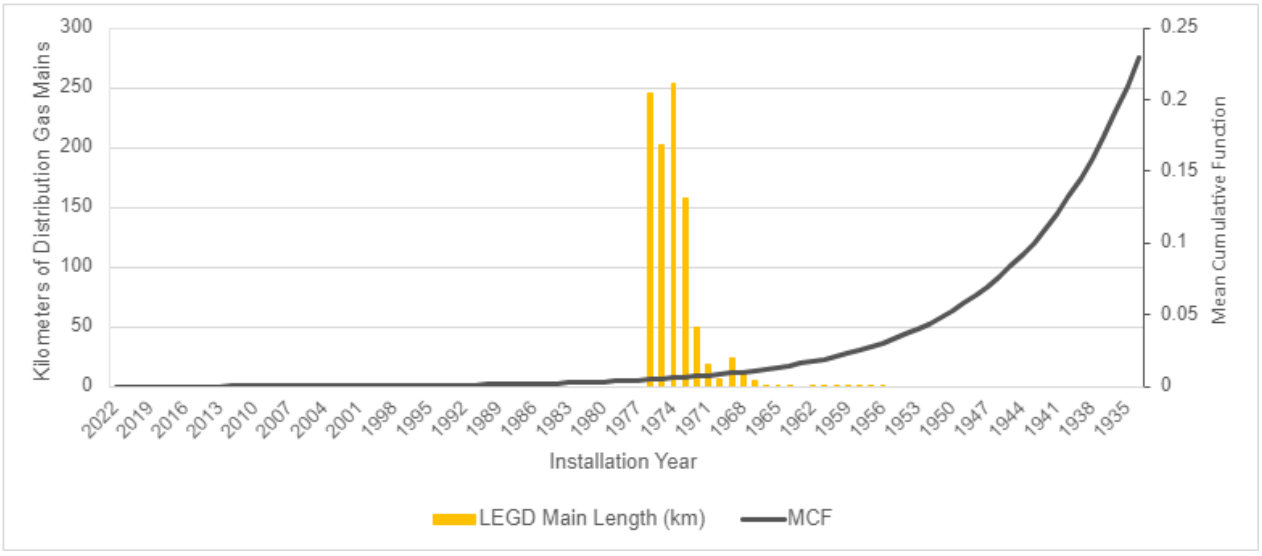


Figure 6.2-30: Installation History vs MCF – Vintage Plastic Mains

6.2.3.5.2.2 Intermediate Plastic Mains

After using vintage plastic Aldyl A pipe, EGI transitioned to installing other resin-based plastic pipes designated as intermediate plastic mains, such as Aldyl HD and TR-418. This occurred by the end of 1976; and by 1977, an overlap period of vintage plastic Aldyl A installations as intermediate plastic mains pipe was introduced.

Intermediate plastic pipe was phased out by 1985; however, there remains a population of plastic pipe not readily classified (designated as “To Be Categorized Plastic”) and may include some vintage plastic Aldyl A and intermediate plastic material. The installation year for this population extends until 1998. Excluding pipe designated as To Be Categorized Plastic, the current asset age of intermediate plastic mains pipe ranges from 25 to 47 years (see **Table 6.2-2**).

A field sampling and laboratory testing project to evaluate the remaining service life of intermediate plastic resins indicates this cohort of installed plastic exhibits acceptable residual performance as shown in **Figure 6.2-31** and **Figure** 6.2-32. The long-term hydrostatic testing of all the tested pipe samples indicated acceptable performance relative to the performance of Aldyl A pipe in both ductile and slow crack failure modes, providing condition-based evidence to extend the service life for this type of plastic. The condition of intermediate plastic will continue to be monitored through leak data and QMERs.

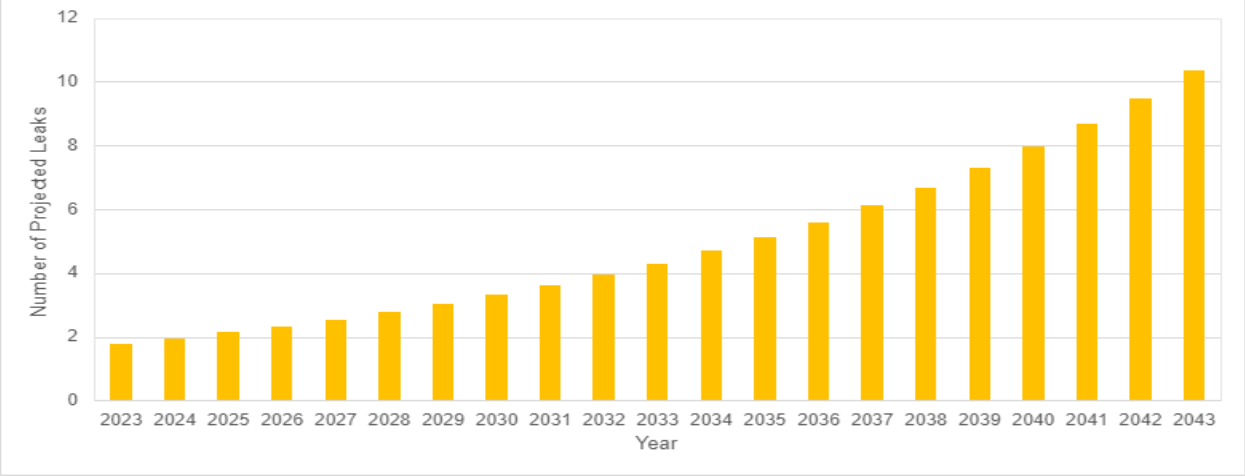


Figure 6.2-31: 20-Year Projection – Intermediate Plastic Mains Failures (2023 to 2043)

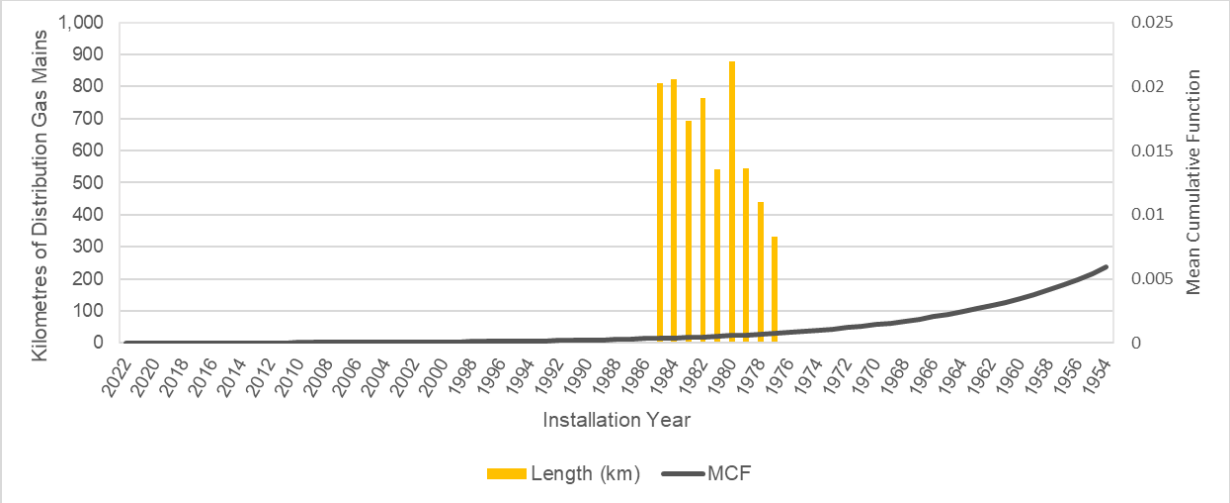


Figure 6.2-32: Installation History vs MCF – Plastic Pipe Intermediate Plastic

6.2.3.5.2.3 Copper Risers

The copper riser’s AMP fitting (a fitting first developed by AMP Incorporated, not to be confused with the acronym “AMP” used for the Asset Management Plan) causes a disturbance in the flow of gas, creating a low-pressure zone after the fitting when the gas flow becomes turbulent. This turbulence causes an erosion corrosion failure to occur, which manifests itself into a pinhole or a circumferential crack. All sampled copper risers have shown some degree of corrosion after the AMP fitting. Based on the sampled risers and reliability modelling, it is expected that all copper risers will corrode, causing a leak at some

point in their lifetime. Subsequent sampling has confirmed these findings. The reliability modelling for copper risers has been refined to improve failure forecasts.

The predominant failure mechanism is associated with turbulent flow and is not affected by external conditions or the environment. Analysis determined the conditions (pressure and flow) that would lead to this and supported the Sampling program which showed wall loss on all copper risers. The AMP fitting assembly, typical AMP fitting installation, and localized corrosion failure are illustrated in **Figure 6.2-33**, **Figure 6.2-34**, and **Figure 6.2-35**.

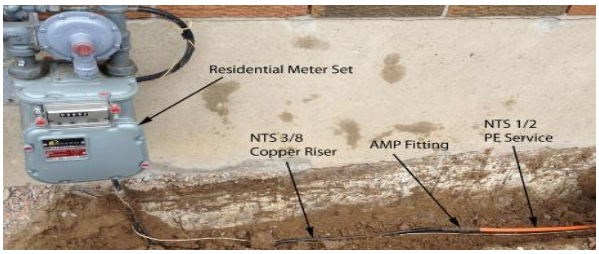


Figure 6.2-33: AMP Fitting Assembly

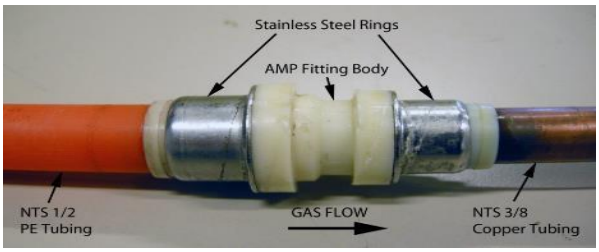


Figure 6.2-34: Typical AMP Fitting Installation

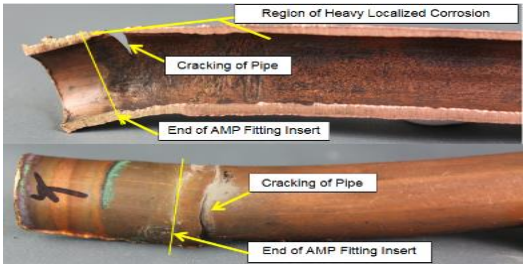


Figure 6.2-35: Localized Corrosion Failure at AMP Fitting Outlet

The condition of copper risers is expected to significantly degrade over time with a yearly increase in the number of leaks over the next 10 years as shown in a cumulative distribution function in **Figure 6.2-36**. Actual failure data has trended very closely to the statistically projected number of leaks as shown in **Figure 6.2-37**.

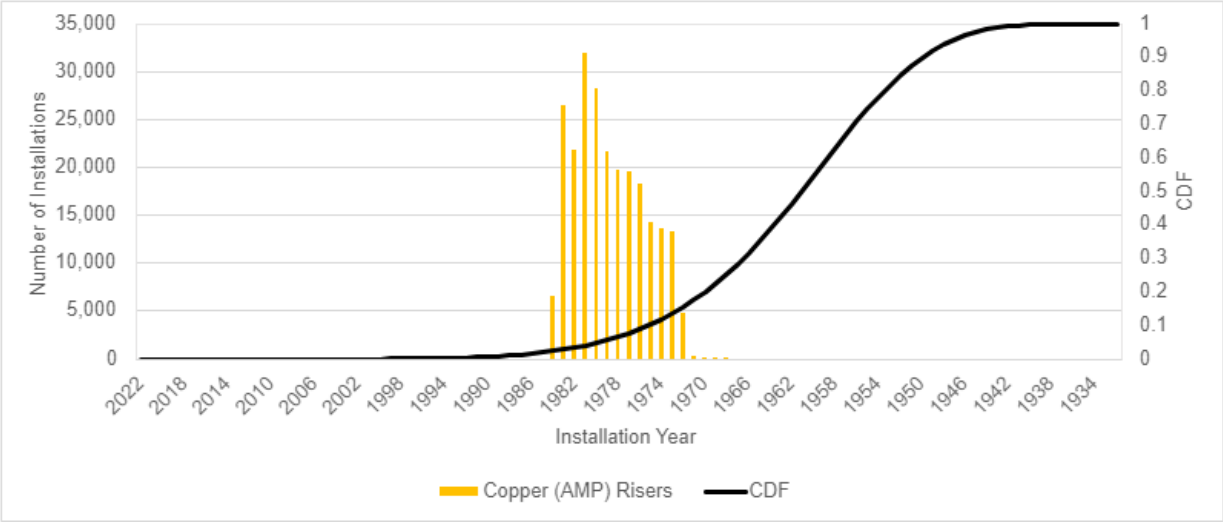


Figure 6.2-36: Population of Copper (AMP) Risers vs CDF

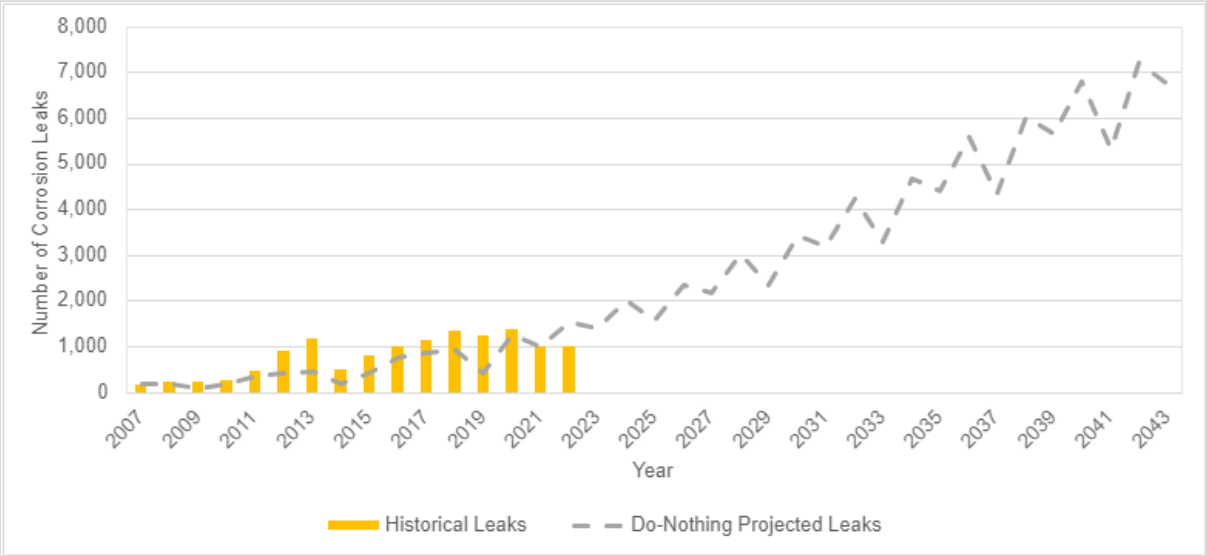


Figure 6.2-37: Copper Riser Discovered Leaks – Leak Survey Adjusted

6.2.3.5.2.4 Modern PE Resins

By the mid-1980s, EGI had started to use a different resin type, classified as modern polyethylene (PE) resins. The newer generation of plastic resin and the improvement of installation practices resulted in a plastic mains asset that outperformed earlier assets of its kind. These newer resins have experienced fewer failures. EGI continues to gather data to better understand failure modes and meantime to failure.

The industry has proven that these resins do not exhibit slow crack growth (SCG) issues. These are relatively young assets and have experienced few material failures and as such, statistical analysis to project future failures has been difficult. The entire population of this asset subclass is expected to remain in good condition for at least the next 40 years. A failure projection model is not included for this asset subclass.

6.2.3.5.3 RISK AND OPPORTUNITY

As demonstrated by the projected leak trends, the three categories of PE mains population are performing well with leak rates that do not pose a significant risk and are expected to continue to perform well in future years. Mains are in good condition; however, some hazards (third-party latent damages and environmental conditions) may accelerate degradation and result in leaks. These carry the same risks noted for steel mains (see **Section 6.2.3.4.1**), including supply interruption to customers and GHG emissions associated with an uncontrolled gas release. As well, gas can migrate into buildings, creating a gaseous and potentially explosive environment for customers and the public.

6.2.3.5.3.1 PE Services

For decades, PE has been the most commonly used pipe material for service connections. PE services are used to connect customers to both steel and PE mains. Like PE mains, PE services are generally subject to the same issues as outlined for PE main in the previous sections, depending on the type of resin used for manufacturing of the service pipe. In addition, however, PE services that are connected to PE Mains are subject to other risks associated with the service tees used to connect the main piping to the service piping. Recent leak data at EGI has indicated a growing concern over the instances of leaks resulting from subcomponents of the service tees which have resulted in cracking and subsequent leaks.

EGI's DIMP team is developing statistical Reliability Models using EGI failure data to understand historical failure rates and to make predictions for future failure rates. Corrosion based failures on steel service pipe and cracked PE caps (see **Figure 6.2-38**) on service tees are significant contributors to the failures. Additional development is required on the reliability modelling before mitigation strategies are considered.

Figure 6.2-38: Examples of Cracked Caps

6.2.3.5.4 RISK AND OPPORTUNITY

The DIMP generates statistical reliability models using EGI failure data to understand historical failure rates and to make predictions for future failure rates. Corrosion-based failures on steel service pipe and cracked PE caps on service tees are significant contributors to the failures. Additional development is required on the reliability modelling before mitigation strategies are considered.

6.2.3.6 Distribution Pipe Asset Class Strategies and Program Outcomes

6.2.3.6.1 TIMP MAINS PROGRAM AND STRATEGIES

The TIMP pipelines strategy will continue to employ and increase the use of ILIs including retrofits on TIMP pipeline that are candidates for ILIs to enhance the amount and quality of condition data and digs to evaluate pipeline features. The IMP mandates the use of ILIs for TIMP pipeline condition assessments where feasible, designed as a regulatory requirement to comply with all applicable codes and standards. ILIs provide the most complete data on pipeline condition and are considered best in class for integrity management. The program manages the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. EGI inspects pipelines on a risk-based frequency that considers pipeline operating characteristics and conditions and whether location has an impact on the potential consequence of a failure.

In addition to ILIs, the strategies include other programs to assess threats that cannot be detected through ILIs or must be employed where ILIs are not technically feasible. DOC surveys and class location surveys are also included as part of the TIMP pipelines strategy and any changes in class location or DOC are assessed to determine if mitigations are required.

Safety is the primary driver for the TIMP which uses a strategic and long-term risk mitigation approach to ensure these pipeline assets remain fit for service. Inspection and assessment data allows EGI to assess system health and helps ensure pipeline safety.

The TIMP contributes to system longevity and is used to extend the useful life of assets by identifying condition issues before the occurrence of an incident. The inspections and remedial activities performed through the TIMP reduce the probability of pipeline failures and prevent large-scale customer interruptions or unplanned gas releases. The information acquired through inspection is paramount to managing the balance between pipeline repairs and full replacement of TIMP pipelines. Where inspection data cannot be obtained by known ILI techniques, as in the case of NPS 4 pipe and below, full replacement of pipelines or downgrade of pipe MOP where system reliability is not impacted may be used to mitigate a high level of uncertainties associated with the continuous operation of these high-pressure pipelines.

As EGI further develops and extends its IMP, condition issues are identified and assessed to establish appropriate remediation and timing. Examples that are currently emerging include DOC, exposure of pipelines in and near watercourses, as well as pipelines that are located on bridge crossings.

Pipeline Program management is evaluated on a continual basis using Plan-Do-Check-Act methodology. When analysis indicates that ongoing repair costs are likely to exceed capital requirements to replace the asset, the mitigation strategy is evaluated to ensure that risk is managed to the lowest practicable level.

6.2.3.6.1.1 Pressure Testing (Maintain)

In evaluating and managing transmission pipeline risks, the TIMP considers other alternative condition verification methodology, such as pressure testing. Integrity pressure testing is an alternative condition monitoring verification method that involves pressurizing a pipeline with a liquid test medium, typically water, for a period of time to stress levels above what the established MOP would impart by a predetermined safety factor. The intent of the test is to demonstrate the structural integrity of the pipeline and confirm whether critical flaws exist and whether the pipeline has leaks. If critical flaws exist, the test is designed to accelerate the growth of the features to failure and become exposed during the test. To execute an integrity pressure test, the pipeline needs to be shut down and purged of natural gas and then provisions need to be in place to ensure the security of gas supply to the downstream network.

Following a successful integrity pressure test, the test medium needs to be sufficiently removed from the pipeline to preserve the integrity of downstream piping and components. If cleaning and drying is not performed properly, this can result in test medium left in the pipeline that can cause internal corrosion in the downstream piping as well as mechanical damage to gas regulators and metering equipment.

Integrity pressure testing is an alternative condition verification method leveraged only when a pipeline does not have more direct condition monitoring methods available, such as when ILI technology does not commercially exist in a certain pipe diameter to monitor for certain hazards. Integrity pressure testing does not quantify the population of features to monitor over time and tends to be a less preferred approach due to the operational complexity and risk of introducing a liquid medium into the network. Furthermore, pressure testing lines that are a single feed into a major customer network require significant provisions to meet system load demands.

6.2.3.6.1.2 External Corrosion Direct Assessment (Maintain)

External Corrosion Direct Assessment (ECDA) uses aboveground survey techniques to identify locations that may be experiencing external corrosion. The process uses information from the pipeline's physical characteristics, operating history, data from multiple field surveys, and targeted direct examinations of the pipeline to provide a more comprehensive integrity evaluation of external corrosion.

ECDA has limitations due to data collection without direct pipeline access. Soil conditions, hard cover areas, coating types, and other external factors, such as stray currents impacting indirect survey results, limiting its effectiveness. This method is limited to detecting areas with potential for external corrosion and does not address other hazards.

6.2.3.6.1.3 Integrity Retrofit Program (Improve)

The Integrity Retrofit Program includes capital costs for the installation of facilities to allow for the running of free-floating ILI tools and replacement of components within the pipelines through which the tools are incapable of navigating. There is 91% of EGI transmission assets currently configured for inspection with inline technologies.

6.2.3.6.1.4 Inspection Program Integrity Digs (Maintain)

Integrity digs resulting from inspection programs are identified and executed to assess and evaluate identified pipeline anomalies to determine required remedial actions to maintain fitness for service of the asset. Integrity dig response times are tiered based on anomaly characteristics and response times can be immediate or scheduled in the future based on the severity of the feature. Once exposed, anomalies are further assessed leveraging nondestructive examination (NDE) techniques to confirm the dimensions and remediation is determined. Remediations can range from recoating the pipe, removing a defect by grinding, installing a composite or pressure-containing sleeve or pipe replacement, and is assessed on a dig-by-dig basis.

6.2.3.6.1.5 Integrity Initiatives (Maintain)

These initiatives support other integrity investments that are not part of the main IMPs, including investments addressing nontraditional retrofits for crawler inspections, geohazard mitigation, integrity assessments/studies, DOC mitigation, and nontraditional risk mitigation, such as MOP downgrade and pipe replacement.

6.2.3.6.1.6 Depth of Cover Program (Maintain)

In compliance with the TSSA Oil and Gas Pipeline Systems Code Adoption document, EGI has a DOC Survey Program for all TIMP pipelines. These surveys may identify locations where remediation is required. Remediation may include adding cover, installing physical barriers to protect the pipeline where cover does not provide adequate protection from damage, and replacing pipelines at a greater DOC. The option selected will depend on technical viability, solution longevity, and cost-effectiveness. The current cycle of DOC surveys was completed in 2023 and a prioritized list of remedial work has been

created. Costs for pipelines requiring replacement are reflected in the capital forecast presented in **Appendix B**, while costs for other remedial activities are covered under EGI's Operations & Maintenance (O&M) accounts. All surveys have been completed and the population of sites requiring remediation work have been programmed for execution through a multi-year initiative. A baseline spend is projected to be required following the completion of the current plan due to anticipated cover changes associated with external factors, such as land use (agriculture) or weather events reducing pipeline cover (flooding, scour, and erosion).

6.2.3.6.1.7 Class Location Program (Replace)

Annual class location surveys are required as per *Canadian Standards Association Z662 – Oil and Gas Pipeline Systems* for pipelines greater than 30% SMYS, unless previously designed, tested, operated, and maintained for a Class 4 location. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development which occurs near EGI's pipelines typically triggers class location changes. An annual budget is required for EGI's pipeline system to meet current standard requirements. Remediation includes pressure testing, installation of valves, remediating DOC issues, and pipeline replacement. This work ensures EGI is compliant and fosters the safety of the public and EGI's pipeline system.

6.2.3.6.2 COMMON DISTRIBUTION PIPE PROGRAMS AND STRATEGIES

The strategies grouped together here apply to several different asset subclasses.

6.2.3.6.2.1 Corrosion Prevention Program (Maintain)

This program consists of annual anode installations and rectifier installations. In addition to active steel mains, the Corrosion Prevention Program covers corrosion control on steel casings, replacement of rectifier systems, and coating and renewal work on bridge crossings.

- **Anodes and rectifiers:** This program ensures steel mains have adequate cathodic protection, using pipe-to-soil survey results to determine which steel main networks require additional or replacement anodes, additional or replacement rectifiers, and groundbeds.
- **Bridge crossings:** Refers to mains installed aboveground and affixed to a bridge structure. Mains on bridges are exposed to atmospheric elements and road salt during winter months, which could accelerate corrosion on the main, casing, and pipe hangers. Annual bridge crossing surveys are conducted to identify faults and issues. Issues found trigger engineering assessments which recommend risk mitigation measures, such as repairs through recoating, replacement of components such as pipe hangers, or the replacement of the entire bridge crossing if necessary. Such replacements are considered General Mains Replacement as described in **Section 6.2.3.5.2.3**.

6.2.3.6.2.2 Reactive Pipeline Repairs (Maintain)

Despite previously described condition assessment activities undertaken to understand asset condition and proactive measures taken to prevent occurrence of damage and pipeline failures, such events do occur as illustrated in the data provided in **Table 6.2-3**. The decision to repair pipeline sections versus replacing them following these events will depend on a number of technical considerations. These include but are not limited to:

- The degree of damage or anomaly and whether it meets acceptance criteria for repair
- Availability of temporary or permanent repair schemes suitable for a pipeline's properties and service conditions
- Ability to safely and economically access the area of damage/anomaly to undertake a repair
- Other physical conditions in the zone of damage/anomaly that may limit the ability to complete a repair (e.g., adjacent infrastructure)
- Condition of the pipe at and around the location of damage/anomaly which may limit the ability to weld to the pipe or form a mechanical seal between a repair fitting and pipe wall
- Geometry of the damage/anomaly and the existence of fittings and other appurtenances to the pipe at the damage location that may preclude the ability to install a repair fitting
- Known attributes or condition of a pipeline segment which increase expectations of future failures and the associated cost-effectiveness and risk of continued reactive repairs compared to proactive replacement of the segment
- Requirements for removal of pipe or fittings that no longer meet compliance requirements (e.g., non-standard or defective fittings)
- Determination if abandonment may be an achievable solution while maintaining reliability of the downstream system

EGI may employ a Reactive Pipeline Repair approach on Distribution Pipe subclasses for which proactive inspection programs are technically and economically viable and allow for the discovery of damage and repair before a loss of containment is expected to occur. Additionally, EGI may employ a Reactive Pipeline Repair approach in response to damage for those Distribution Pipe subclasses for which an inspection program is not technically or economically viable, the current and future predicted risk for the damaged pipeline segment is below the upper threshold, and the predicted future failure frequency for the damaged pipeline segment can be managed more cost-effectively than proactively replacing the pipeline segment.

6.2.3.6.2.3 Emergency Program (Maintain)

This program addresses unforeseen pipeline emergencies that are small in nature. Examples of these types of jobs include cutting out a leaking section of main/fitting and removing blow-offs that require immediate attention. EGI only pursues replacements when repairs are not viable. Repair is always the first option considered. EGI only diverts from repair processes when engineering policies and condition of assets require a replacement.

Throughout the year, unforeseen short main replacement projects must be expedited on short notice, such as replacing a short section of main or fittings that are leaking, removing blow-off assemblies, or repairing mechanical fittings that require immediate attention.

6.2.3.6.2.4 General Replacement Program (Replace)

This program addresses planned main replacement work that is not an emergency repair. EGI only pursues replacements when repairs are not viable. Repair is always the first option considered. EGI only diverts from repair processes when engineering policies and condition of assets require a replacement.

The capital expenditures included in this category cover a variety of planned projects. The projects covered under this expenditure include distribution pipeline replacements due to historical leakage and integrity concerns (like MOP Verification Program spend), pipeline casing replacements, and bridge and water crossing replacements and repairs. These projects are often identified through planned inspections and pipeline surveys. They would then be assessed and planned based on risk and resource availability.

6.2.3.6.2.5 Reactive Service Replacement Program (Replace)

A distribution service refers to the pipe between the distribution main and the customer's meter set. Over the years, different materials have been used for this asset, including steel, copper, and varying resins of plastic, each with unique characteristics that contribute to their performance over time. Services can be repaired or replaced depending on asset condition and the nature of the issue exhibited. Repairing damaged services is the first option considered; however, for reasons described in **Section 6.2.3.6.2.2**, replacements are often required in response to damaged services.

6.2.3.6.2.6 Relocation Program (Maintain)

A relocation project is required when a municipality, road authority, outside agency, other utility, or other third-party constructs or reconstructs a road, bridge, railway, canal, or building, and the work is deemed in conflict with an existing gas plant.

This program aims to relocate gas-carrying assets in conflict with third-party proposed work, ensuring conflicts are resolved within the framework of various third-party agreements (in most cases by relocating the existing gas infrastructure) to ensure the continued safe and reliable delivery of natural gas to customers. Relocation renews the asset by replacing it with new pipe.

6.2.3.6.3 STEEL MAINS (PRE- AND INCLUDING 1970) PROGRAMS AND STRATEGIES

The approach for the Steel Mains (Pre- and including 1970) asset subclass consists of program work that includes condition monitoring, a reactive repair program, and proactive and reactive replacement programs.

The maintenance strategies are described in **Section 6.2.3.2** and the resultant replacement/renewal strategies for the Steel Mains (Pre- and including 1970) asset subclass are as follows:

6.2.3.6.3.1 Bare and Unprotected Program (Replace)

This program manages the replacement of all bare and unprotected steel mains. These mains are more susceptible to corrosion leaks than other distribution pipe because they have no coating to provide electrical insulation from surrounding soil, and they have not been cathodically protected since installation. Leak rates for the bare and unprotected steel mains are increasing in frequency, and recent excavations of leaking pipe show that the pipe is in very poor condition. In some cases, the pipe exposed has several leaks over a small length of pipe. A recent pipeline exposure (see **Figure 6.2-39**) revealed 28 leaks identified over approximately 2 m of pipe. About 60% of these mains are in urban areas, of which approximately 5% are in

highly developed areas; the remainder are in rural areas. Removing these mains from service will reduce the potential for leaks due to corrosion. There is still approximately 41 km of bare and unprotected steel mains to be replaced.

Figure 6.2-39: Leaking bare and unprotected pipe (soap bubbles indicate leak points)

6.2.3.6.3.2 Proactive Vintage Steel Replacement Program (Replace)

In **Figure 6.2-22**, the population of vintage steel has a failure rate almost three times the failure rate of modern steel pipe and is expected to increase exponentially over the next 20 years. The rate of renewal will not be able to match the rate of failing pipe if EGI were to take a reactive stance to this issue. EGI has chosen to take a proactive mitigation approach to the aging steel population which is consistent with the approach many natural gas distribution utilities are taking in North America[33].

The Proactive Vintage Steel Replacement Program at EGI seeks to follow industry best practices[34], as noted above, to create a comprehensive plan and program to identify and proactively replace pipe that is at elevated risk of failure through an ongoing risk-based fitness for service assessment.

With the lens of the new DIMP Risk Model, most of the vintage steel mains population are predicted to remain in the low-risk region (see **Figure 6.2-40)** well into future years. Leveraging the DIMP Risk Model outputs for steel mains and comparing the predicted future risk against the Enbridge Risk Matrix (see **Figure 5.3-4**), assets that move into the yellow medium risk zone are targeted for replacement within the program (see **Figure 6.2-40**).

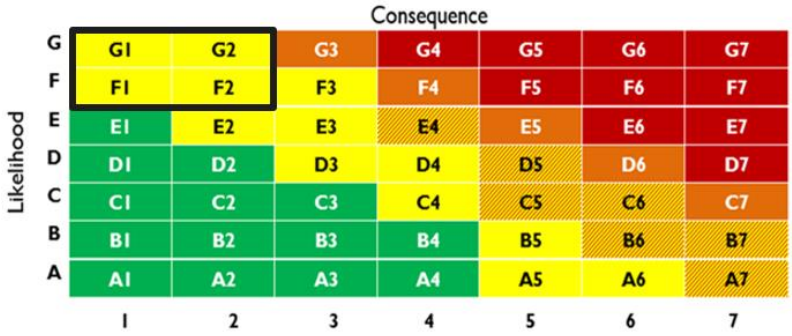


Figure 6.2-40: Vintage Steel Mains Selection Process

This selection process identifies approximately 5,100 km of the 16,777 km of vintage steel mains for renewal based on their predicted future risk. The Proactive Vintage Steel Replacement Program proposes renewing these targeted mains over a 20-year term. This would equate to renewing about 253 km/year after ramping up to full pace. It is expected that the program ramp-up will take five years to reach full volumes. The predicted failure rates for the targeted mains (5,100 km) are shown in **Figure 6.2-41**. A do-nothing scenario shows a significant increase in leak rates should a more reactive stance be taken. By

[33] Washington UTC – Commission Policy on Accelerated Replacement of Pipeline Facilities with Elevated Risk (December 31, 2012)

[34] The American Gas Foundation – Gas Distribution Infrastructure: Pipeline Replacement and Upgrades (July, 2012)

being proactive, EGI can reduce the number of below-grade leaks experienced within the distribution network as well as eliminate the risk that those below-grade leaks may pose. The below-grade leak projection is based on the updated Reliability Model from DIMP that is continuously improved based on most current failure data. The updated model has reduced the predicted future failures due to reconciling the failure data for errors like duplicate failure records for one leak. Pipe replacements are prioritized based on analytics from the risk model, tacit knowledge, and cost efficiencies.

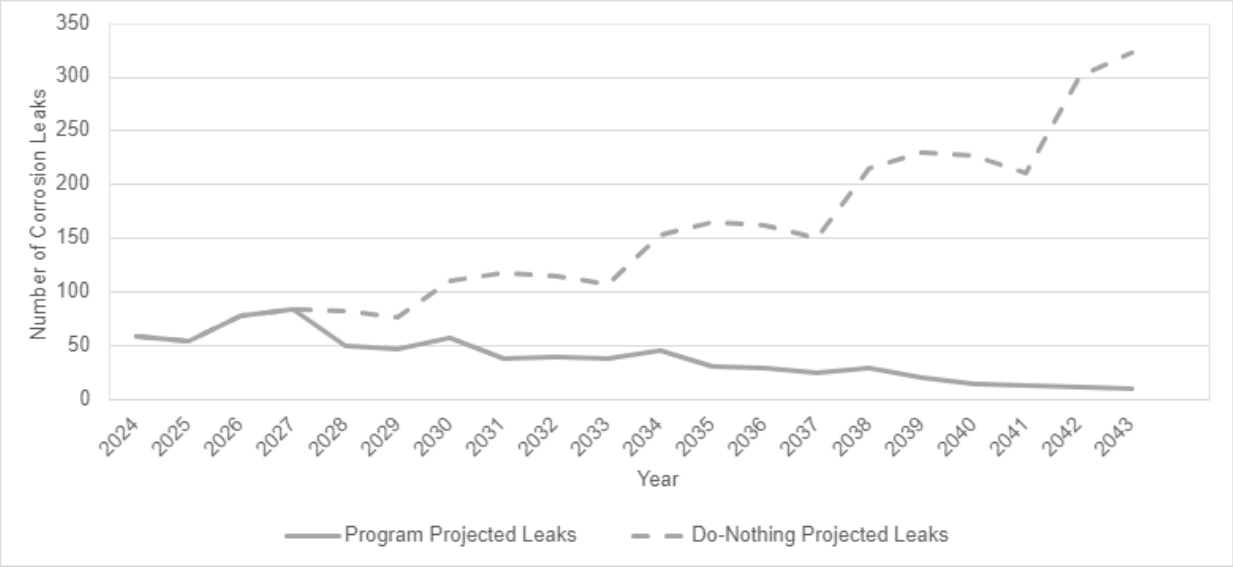


Figure 6.2-41: Predicted Failure Projections – Targeted Mains within the Program (5,100 km)

The vast majority (over 80% of steel mains) of distribution steel pipe being targeted within the Proactive Vintage Steel Replacement Program is small diameter (NPS 6 or smaller), intermediate pressure (MOP 64 psi or less) pipe that will be replaced by PE pipe, eliminating the corrosion leak risk, removing the requirement for CP and associated CP survey costs. Replacing aging steel pipe with PE pipe will better equip the distribution network for transition to hydrogen blending. Renewing aging steel pipes before they leak will also assist EGI in reducing GHG emissions.

By proactively replacing aging assets, EGI is avoiding significant risk while at the same time achieving cost savings (i.e., planned work is less costly than emergency work after a leak occurs). A vintage steel replacement methodology will work towards sustaining EGI's current reliability levels for steel mains and prepare the network for the potential eventual delivery of low-carbon, blended hydrogen.

The projects created to support the Proactive Vintage Steel Replacement Program will initially be prioritized based on the following factors:

- Relative risk in comparison to other projects within the program
- Opportunities to combine with other pipe replacement programs such as Relocations
- Planned moratoriums which will limit the ability to execute projects for a specified period

This proactive program replaces deteriorating piping at a planned and manageable pace before the rate of deterioration and failure exceeds EGI's ability to respond to such failures. Additionally, as studies to support the hydrogen strategy are finalized, new areas targeted for hydrogen injection will be identified and given higher priority than they would otherwise have been given among the other considerations.

6.2.3.6.3.3 Enhanced Distribution Integrity Management Program

In response to the St. Laurent Decision[35] and direction from the Ontario Energy Board (OEB), in 2024, EGI implemented an Enhanced Distribution Integrity Management Program (EDIMP) for its distribution pipe[36]. The program is designed to improve EGI's understanding of the condition and risk associated with a subset of distribution (DIMP) pipelines (as identified in the criteria stated in **Table 6.2-4**) and evaluate alternatives to address any issues discovered through this improved

[35] EB-2020-0293
[36] EB-2022-0200, Exhibit 1.13

understanding. Although the methodology has already been applied to the St. Laurent Pipeline as discussed later in this document, the condition and risk assessment component of the program formally began in 2024. The inspection and assessment program is primarily funded through an O&M variance account but will also require a small amount of capital investment to make targeted pipelines inspectable using ILI technologies and perform digs to verify inspection results. Once condition is verified and risk is assessed, additional capital investment is expected to be required to remediate sections of these pipelines. In some cases, EDIMP pipelines may require large capital investment subject to the OEB's Leave to Construct (LTC) process. In addition to the St. Laurent pipeline, some other pipelines described in the following section have been identified as major pipe replacements to be included in the EDIMP. While the categorization of these projects indicates that a major pipe replacement is expected, the EDIMP will be used to determine the final remedial action for these pipelines.

6.2.3.6.3.4 Proactive Vintage Steel Pipe Replacement Program (Replace)

Analytics, failure history, tacit knowledge, and condition assessments have identified condition and risk issues with some of EGI's more significant distribution mains. As mentioned above, some of these mains will be subject to further inspection and assessment where they meet the criteria outlined in *EB-2022-0200, Exhibit 1.13*. Failure of mains may result in significant negative impact to public and worker safety and/or significant customer outages. The following provides a summary of the known condition and risks relating to these pipelines along with rationale for a major replacement project as a strategy.

St Laurent Pipeline Replacement Project (SLPRP)

The St. Laurent Pipeline Replacement Project (SLPRP) involves a critical pipeline that directly or indirectly serves natural gas to approximately 168,000 residential, commercial, industrial, and institutional customers in the City of Ottawa and Gatineau, Québec. The pipeline traverses a highly urban location and is near residential, commercial, and office buildings, as well as high-traffic motorways such as the 417 Highway and the St. Laurent Boulevard.

Following the 2022 OEB decision to deny the LTC application[37], EGI reassessed the reliability of the St. Laurent pipeline by gathering additional condition information. Approximately 39% of the St. Laurent pipeline system was inspected using an ILI crawler tool. Several key observations informed the reliability assessment:

- **Presence of significant corrosion:** Several corrosion features were of significant depth (> 50% depth), including one with reported depth of 80% or greater (ILI tool is unable to size defects greater than 80% depth of the nominal wall thickness [NWT]). The feature was considered to require immediate repair to ensure safety and reliable service and was subsequently urgently replaced in November 2022. There is a significant possibility that additional severe corrosion features exist on the uninspected segments of the line.
- **Degraded ILI tool performance:** The tool's performance was degraded as compared to the vendor's stated specifications for sizing and detection. This included an apparent under call bias (i.e., actual defect dimensions were more severe than reported in the ILI).
- **High number of suspected third-party damage features:** There were 386 dents identified over the 4.5 kms of inspected length. Eleven of the dents were likely due to third-party damage. This corresponds to a **per-kilometre-a-year** hit rate estimate that is within the highest 13% of hit rates across the EGI distribution system.

A risk assessment was performed to evaluate the risk related to the continued operation of the pipeline in its current state. Using the data gathered, a Quantitative Risk Assessment (QRA) has been completed to assess the residual risk of the St. Laurent pipeline system. The QRA uses industry standard reliability methods and published failure rates to form a comprehensive assessment of potential threats that could affect the pipeline. The reliability of the pipeline was compared against industry failure rate thresholds and significant incident benchmarks. Additionally, the QRA was supplemented with consequences of various outcomes and mapped to the EGI Standard Operational Risk Assessment Matrix. Based on the assessment and evaluation criteria, EGI concluded that:

- There is 8.8 km of the 11.2 km pipeline (79%) failing the *CSA Z662 - Annex O* reliability thresholds. Several segments fail the reliability thresholds by several orders of magnitude.
- The rate of estimated significant incidents on the St. Laurent pipeline is much higher than the historical average observed in the industry (e.g., PHMSA[38] database).
- The pipeline risks plotted on the EGI Standard Operational Risk Assessment Matrix show that many of the Financial, Operational Disruption, and Health & Safety Risk scenarios meet the EGI definition of **high risk or very high risk**.

An LTC application was filed with the OEB. Subject to the approval of the LTC application, construction work is scheduled to begin in 2025.

[37] EB-2020-0293
[38] Pipeline and Hazardous Materials Safety Administration

For additional detail on this investment, see **Appendix A** and **Exhibit B-1-1 evidence**.

Port Stanley Line

This asset is among the pipelines managed under the EDIMP. The EDIMP team was recently stood up and is advancing inspection and assessment work. Consequently, the Port Stanley Line Project scope is subject to change based on EDIMP inspection discoveries and assessments. The current scope is described below.

The NPS 8 Port Stanley Line was constructed in 1959 and is approximately 20 km in length. This single feed system provides natural gas to Port Stanley and St. Thomas, with about 13,000 customers, including a regional hospital and a retirement home in Port Stanley. The pipeline has unknown grade and wall thickness, is classified as bare and unprotected, and is known to exhibit the characteristics of vintage steel pipe as discussed in **Table 6.2-2**.

The pipeline has had a number of leaks which have been compounded by maintainability issues – the pipeline is difficult to access in various locations and extensive corrosion has made welding repairs difficult to complete.

Figure 6.2-42 to **Figure 6.2-44** show areas in the Port Stanley Line exhibiting factors that can lead to difficulty in maintaining the pipeline, poor condition, and increased risk.

Figure 6.2-42: Corrosion

Figure 6.2-43: Exposed Crossing

Figure 6.2-44: Below-Grade Stations

NPS 12 Martin Grove Rd

This asset is among the pipelines managed under the EDIMP. The EDIMP team was recently stood up and will is advancing inspection and assessment work. Consequently, the NPS 12 Martin Grove Rd Project scope is subject to change based on EDIMP inspection discoveries and assessments. The current scope is described below.

The NPS 12 Martin Grove Rd Project addresses condition and risk concerns for approximately 6.4 km of 1955-installed vintage steel pipe located in Toronto.

There are several concerns such as a large number of connections (approximately 360) to the high pressure (> 175 psi / 1,200 kPa) main system, as well as poor depth of cover (DOC) issues. The large number of connections to the high-pressure main is a concern due to the known integrity issues associated with the degradation of the field-applied coatings and possible corrosion initiation locations. There are two known unrestrained compression couplings, nine restrained compression couplings, and three suspect valves that may have been tied into the main using compression couplings but not shown in EGI records. Cathodic protection (CP) history for the past 20 years shows that over 15% of the readings taken were below the minimum requirements. Poor CP protection levels can lead to corrosion.

DOC has been identified as a significant concern for these main segments as identified by 2018 and 2019 DOC surveys that found over 52% of the survey locations had DOC less than 90 cm, with 77 survey locations measuring less than 60 cm of cover. Poor DOC can lead to increased third-party damages.

For additional detail on this investment, see **Appendix A**.

NPS 12 Wilson Ave

This asset is among the pipelines managed under the Enhanced Distribution Integrity Management Program (EDIMP). The EDIMP team was recently stood up and is advancing inspection and assessment work. Consequently, the NPS 12 Wilson Ave Project scope is subject to change based on EDIMP inspection discoveries and assessments. The current scope is described below.

The NPS 12 Wilson Ave Project mitigates the risk from 8.3 km of early 1960s vintage pipe (with some main segments as old as 1955) located in Toronto. This main supplies key customers, including the Humber River hospital, North York Sheridan Mall, Bombardier Aerospace, and Teskey Concrete Company.

There were issues with stray current-induced corrosion from nearby Toronto Transit Commission (TTC) rail systems resulting in significant leak repairs in 2017. There are three unrestrained compression couplings and four restrained compression couplings along this section of main. Another significant degradation factor is the poor field-applied coatings at service connections. There are approximately 250 service connections along this section of main, and there has been a history of leaks arising from these service connections. SMA input noted that when repairs were made, they observed very poor coating conditions; and in some cases, the coatings were no longer present leaving bare steel exposed. Curb valve tees have been damaged historically due to their location within the roadway and lack of cover. **Figure 6.2-45** shows corrosion pitting from TTC stray current.

For additional detail on this investment, see **Appendix A**.

Figure 6.2-45: Corrosion Pitting from TTC Stray Current

6.2.3.6.3.5 Reactive Services Replacement Program (Replace)

The Reactive Copper Services Replacement Program aims to remove all outstanding active copper services and replace these assets with new plastic services and anodeless risers. This is completed through a proactive service replacement program as well as through a condition-based and customer-related-driven program that trigger the need to replace these assets. Condition-based drivers are monitored through existing activities of the DIMP, as well as the Leak and Corrosion Survey programs. Copper services are also replaced through proactive Vintage Mains Replacement programs and relocation projects.

6.2.3.6.3.6 Aerial Crossing Inspection Program (Maintain)

Through EGI's DIMP, condition surveys and assessments have been executed to get a full population and condition understanding. From these condition assessments, there are approximately 160 aerial crossings that have been identified, mostly in the Southwest region of the franchise. About 88% of these are pre-1970 vintage pipe, with 43% of these being pre-1950 vintage.

The maintenance strategy for aerial crossings includes the development of an ongoing inspection program that will provide specialized condition reviews for the known aerial crossings that will assess corrosion, erosion, loss of support, and coatings along with other condition factors. Mitigation activities, such as repair or replacement, will be decided upon with the use of the condition assessments.

6.2.3.6.4 DISTRIBUTION STEEL PIPE POST-1970 PROGRAMS AND STRATEGIES

The maintenance strategy for post-1970 distribution steel pipe is consistent with pre- and including 1970 steel mains (see **Section 6.2.3.4.1**), where several condition inspection programs are in place, such as the Leak Survey and the Cathodic Protection Survey programs. For more detail on common distribution strategies, see **Section 6.2.3.6.2**.

The preferred life cycle approach to corrosion leaks on post-1970 distribution steel pipe is to repair them as they are discovered and perform replacements where condition, risk, and other factors result in a repair not being viable through the Emergency Replacement Program. The number of failures for this asset subclass in the short term is considered manageable through existing approaches. EGI continues to monitor these failures to determine if a proactive maintenance and replacement program is required.

6.2.3.6.5 DISTRIBUTION PLASTIC PIPE PROGRAMS AND STRATEGIES

EGI evaluates asset strategies for the value that they deliver in terms of operational reliability, risk, and cost over the long term. This drives a combination of reactive programs to respond to assets that have already failed and proactive programs to manage the growing number of leaks expected to occur as pipe assets approach the end of their useful life and the overall system condition degrades.

Maintenance strategies are described in **Section 6.2.3.2** and lead to the following replacement/renewal strategies for distribution plastic pipe.

6.2.3.6.5.1 General Mains Replacement Program (Replace)

Vintage Plastic Aldyl A Replacement

The approach for vintage plastic Aldyl A is to address leaks and other material faults on a reactive basis through the Emergency Replacement Program. There may be some localized replacement projects where stress intensification factors (like rocky soil) are accelerating degradation and increasing failures. The DIMP Reliability Models for vintage plastic pipe is annually updated with new failure data as it becomes available, and changes in trends (should they develop) will be reviewed annually to see if changes to EGI's strategy should be taken.

Although there have not been any reported incidents associated with Aldyl A at EGI, several major incidents have occurred in the industry over the past few decades, with the latest in March of 2023 in West Reading, resulting in significant health and safety implications. DIMP is taking a proactive approach in assessing Aldyl A hazards based on findings from industry incidents and applying knowledge to the EGI system in order to develop a comprehensive understanding of Aldyl A risk and develop an appropriate asset strategy.

6.2.3.6.5.2 Emergency Program (Maintain)

Intermediate Plastic Mains

A field sampling and laboratory testing project to evaluate the remaining service life of intermediate plastic resins indicates this cohort of installed plastic exhibits acceptable residual performance. The long-term hydrostatic testing of all the tested pipe samples indicated acceptable performance relative to the performance of Aldyl A pipe in both ductile and slow-crack failure modes, providing condition-based evidence to extend the service life for this type of plastic. The condition of intermediate plastic will continue to be monitored through leak data and QMERs. The approach for intermediate plastic mains is to address leaks and other material faults on a reactive basis through the Emergency Program.

6.2.3.6.5.3 Proactive Service Replacement Program

AMP Fitting Replacement

Based on the AHR operating process and reliability models, it is expected that the majority of copper risers will fail after 2037. The degradation of the asset population is significant, outpacing current leak quantities over the next 10 years. Due to the very large numbers of projected leaks, a proactive replacement program is required to manage the risk and ensure that costs and emergency response can be managed on a year-by-year basis. The current pacing of the AMP Fitting Replacement Program plans to replace increasing numbers of copper risers per year increasing to 14,000 by 2026. **Figure 6.2-46** demonstrates the number of expected leaks discovered on a yearly basis.

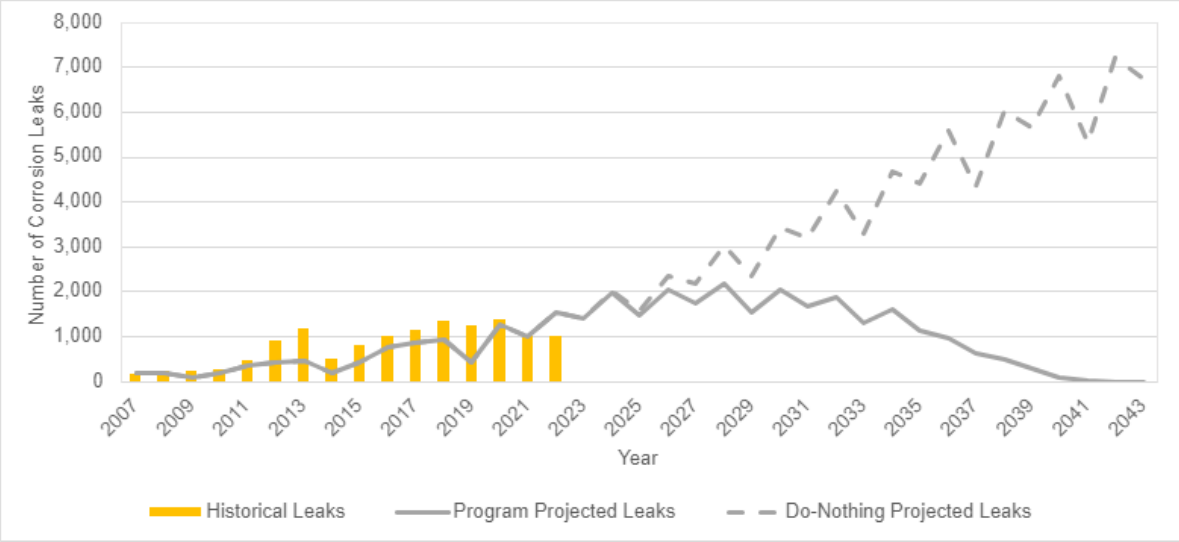


Figure 6.2-46: Copper (AMP Fittings) Riser Leak Projection – Reactive vs Proactive Strategy

EGI has developed a replacement program and the proposed replacement rate targets stabilization and eventual reduction of leak rates. The targets were determined through extensive risk modelling and were set to avoid the potential of a leak resulting in below-grade migration into a dwelling and resulting in a fatality. Even with the proactive replacement program, EGI will still experience significant leaks rates each year that will require emergency response repairs, increasing reactive spend (see **Figure 6.2-47**). The benefits of a proactive approach are limited not only to a reduction of risk, but there is also a cost benefit to proactively planning these replacements resulting from the ability to plan work more efficiently and reduce the requirement for premium time. The cost to perform an emergency repair for a leaking AMP fitting is approximately $400 more than the cost to proactively replace it. Therefore, performing proactive replacement work before AMP fittings leak will save the customer up to $79MM over the course of the program.

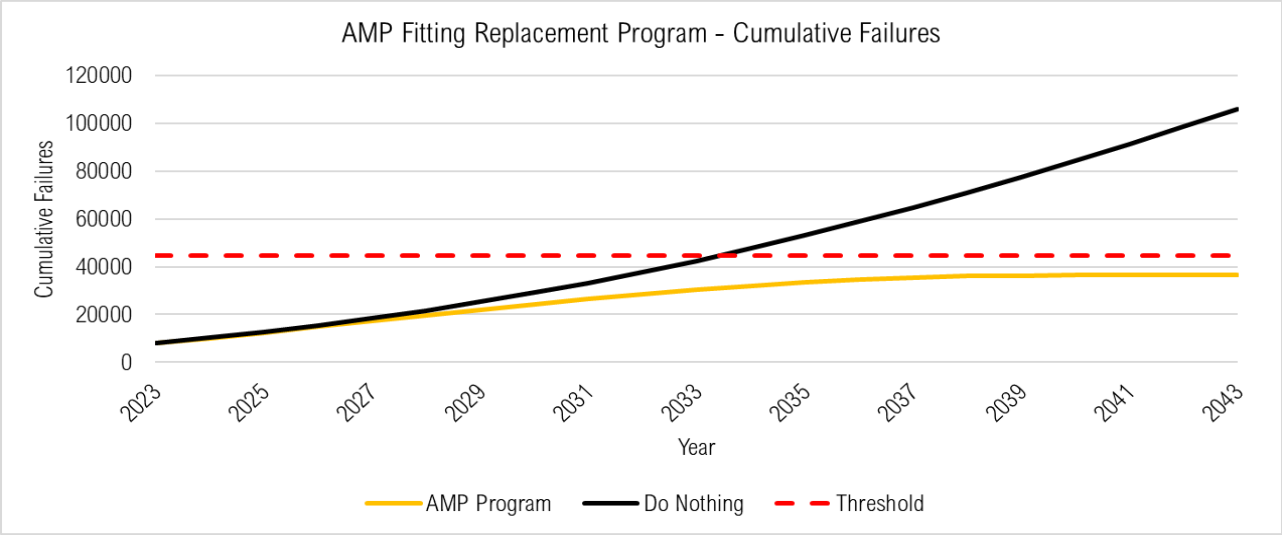


Figure 6.2-47: AMP Fitting Replacement Program – Cumulative Failures

This approach matches the preferences of the majority of customers who indicated in the 2023 AMP Customer Engagement that EGI should increase spending in the short run to replace the AMP fittings to reduce the total long-term cost to customers.

6.2.3.7 Distribution Pipe Capital Expenditure Summary

The average annual capital spend is forecast to be $280MM as summarized in **Table 6.2-6**. The Distribution Pipe capital is further summarized as part of EGI's total 10-year capital plan in **Section 3**. For the status of the outcomes of the IRP assessment process, including the binary screen and the status evaluation of IRPAs, see **Appendix B**.

Table 6.2-6: Distribution Pipe Capital Summary ($ Millions) - EGI

Asset Class Strategy	Program Name	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	10-Year Forecast
Maintain	Class Location Program	2.5	6.9	5.5	6.4	6.9	5.0	5.0	5.0	5.0	5.0	53.4
	Corrosion Prevention Program	10.0	7.8	7.3	9.2	9.1	8.3	8.4	8.8	7.6	7.6	84.0
	EDIMP	0.0	19.7	21.0	1.1	0.0	0.0	0.0	0.0	0.0	2.7	44.4
	Emergency Program	11.1	12.4	11.8	10.6	12.5	15.5	15.2	14.4	17.6	21.8	142.9
	Relocation Program	47.3	48.8	42.2	43.6	46.1	49.7	46.7	51.2	51.8	56.1	483.4
	Transmission Integrity Management Program	64.7	54.6	25.5	23.1	20.8	21.3	18.5	18.6	18.6	18.6	284.2
Improve	Independent Asset Integrity Review (IAIR) Program	11.3	10.0	24.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.5
Replace	Bare and Unprotected Program	12.1	11.9	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.7

Asset Class Strategy	Program Name	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	10-Year Forecast
	General Main Replacement Program	17.2	15.2	15.9	14.6	0.2	1.6	2.3	7.0	0.5	0.1	74.7
	Proactive Service Replacement Program	17.4	19.9	19.1	18.8	18.0	18.0	18.0	18.0	18.0	18.0	183.1
	Proactive Vintage Steel Pipe Replacement Program	92.7	93.5	36.7	56.5	87.5	132.7	87.3	71.9	79.7	68.0	806.6
	Reactive Service Replacement Program	45.2	47.6	45.6	50.1	50.9	58.7	58.1	65.7	68.1	77.0	567.2
Total		331.5	348.2	263.5	233.9	251.7	310.8	259.7	260.6	267.0	275.0	**2,802.0**

6.2.4 Distribution Stations

The Distribution Stations asset class is comprised of facilities and assets which its primary purposes are to reduce pressure from a system operating at higher pressure to a system operating at lower pressure and provide overpressure protection to the lower-pressure system. Depending on the facility, additional purposes may include gas metering, odourization, and monitoring.

This asset class is comprised of approximately 37,000 sites throughout Ontario. This includes all natural gas entry points into the EGI distribution network, control points throughout the network, and delivery points to end-use customers. Renewable natural gas (RNG) and compressed natural gas (CNG) customer stations and any other applicable Distribution Station-specific Energy Transition capital investments which support EGI's low-carbon strategy are included in the Distribution Stations asset class. Distribution Stations is organized into three subclasses based on function:

1. **Stations with Auxiliary Equipment** reduce upstream pressure and distribute natural gas to pipeline systems operating at lower pressures and/or customers and employ additional equipment to ensure the safe and reliable distribution of natural gas.

2. **Distribution System Stations** reduce upstream pressure and distribute natural gas to a downstream gas main or header in the downstream system.

3. **Customer Stations** reduce upstream pressure and deliver to a downstream customer that consumes the natural gas with a total connected load greater than 12 m^3/h and with a delivery pressure to the customer of 14 kPa or greater.

EGI monitors the industry for incidents that may be relevant to EGI's assets. As such, EGI has assessed the potential for an incident on a low-pressure system such as that which occurred in Merrimack Valley, Massachusetts where a distribution system was overpressured. EGI took some immediate measures to review procedures and records and ensure that sense lines were inside the perimeter of regulation stations. EGI has evaluated the risk in each of these installations and will target the stations that require additional layers of protection to bring the risk to broadly tolerable or as low as reasonably practicable.

With more than 37,000 stations of varying degrees of complexity and criticality, EGI is developing analytics to establish age, condition, and risk to develop the associated maintenance and replacement strategies.

As EGI continues to review and standardize operating standards and the use of various equipment and fittings, plans will be developed to bring these into alignment in a way that balances risk, cost, and performance. An example would be the addition of fire suppression systems at large Stations with Auxiliary Equipment stations to ensure compliance with applicable codes and standards.

Figure 6.2-48 shows the station hierarchy by station type. Note that there are many possible configurations of distribution station assets downstream of the entry point into the distribution system. **Figure 6.2-48** is for illustrative purposes only and is not meant to display all possible configurations.

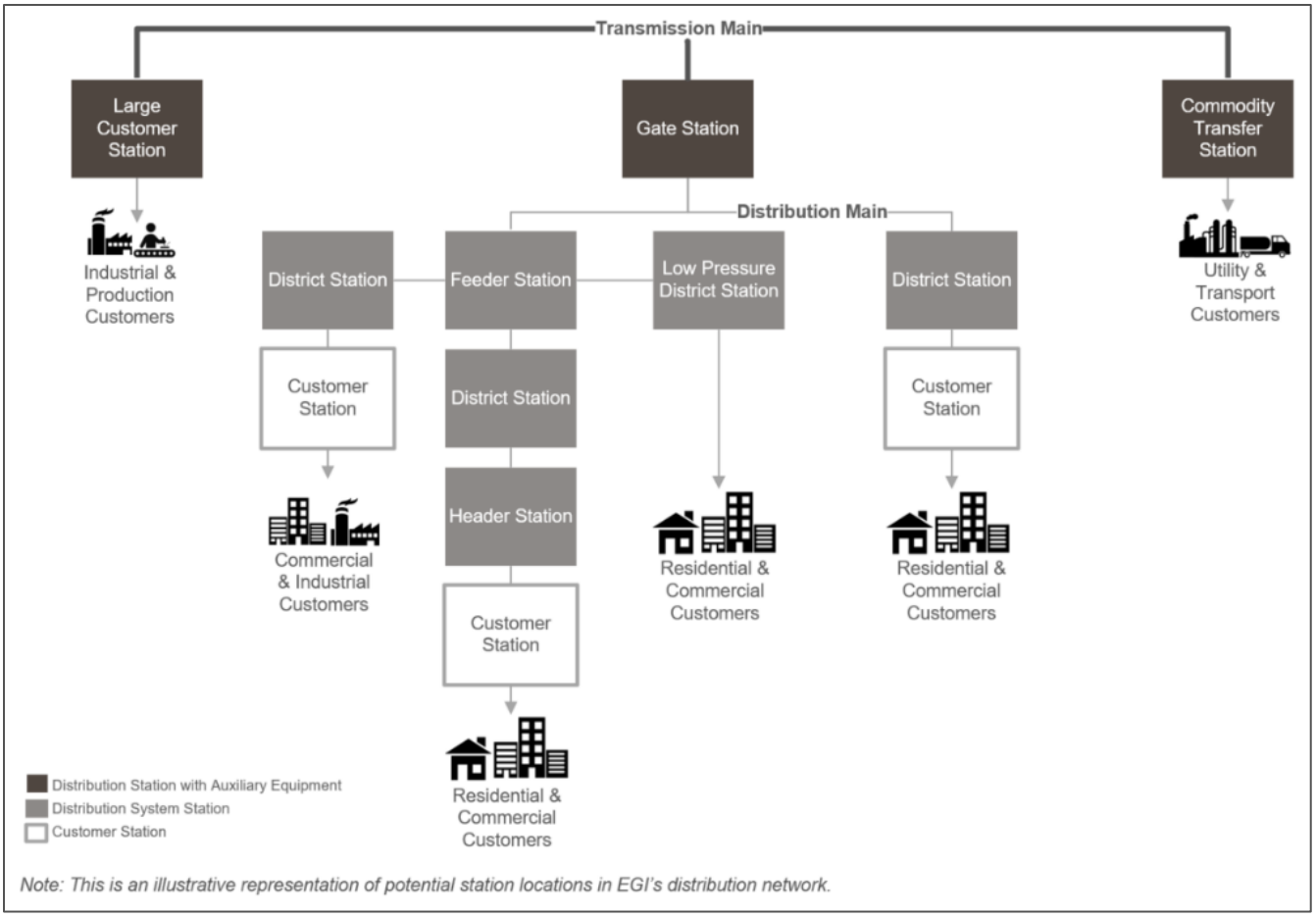


Figure 6.2-48: Station Hierarchy by Type

The Distribution Stations asset class includes the following asset component subsystems:

- Pressure control
- Station valves
- Strainers and filters
- Piping systems
- Heating system (boilers and heat exchangers)
- Telemetry system
- Odourization system
- Measurement system
- Civil and site assets

Figure 6.2-49 depicts the typical schematics and interconnection of systems associated with distribution stations. Station components and layout will vary based on the design, type, and function of the station. A typical example of a station in the Station with Auxiliary Equipment subclass consists of six system components: (1) the inlet valve assembly for isolating and/or bypassing the station; (2) filtration to remove contaminants (where applicable); (3) the measurement system to accurately track the gas flow or volume; (4) the heating, pressure control and odourization systems; (5) the outlet/supply valve assembly; and (6) the outlet piping. These systems are interconnected through the telemetry system, which monitors and controls the operation and performance of each station component.

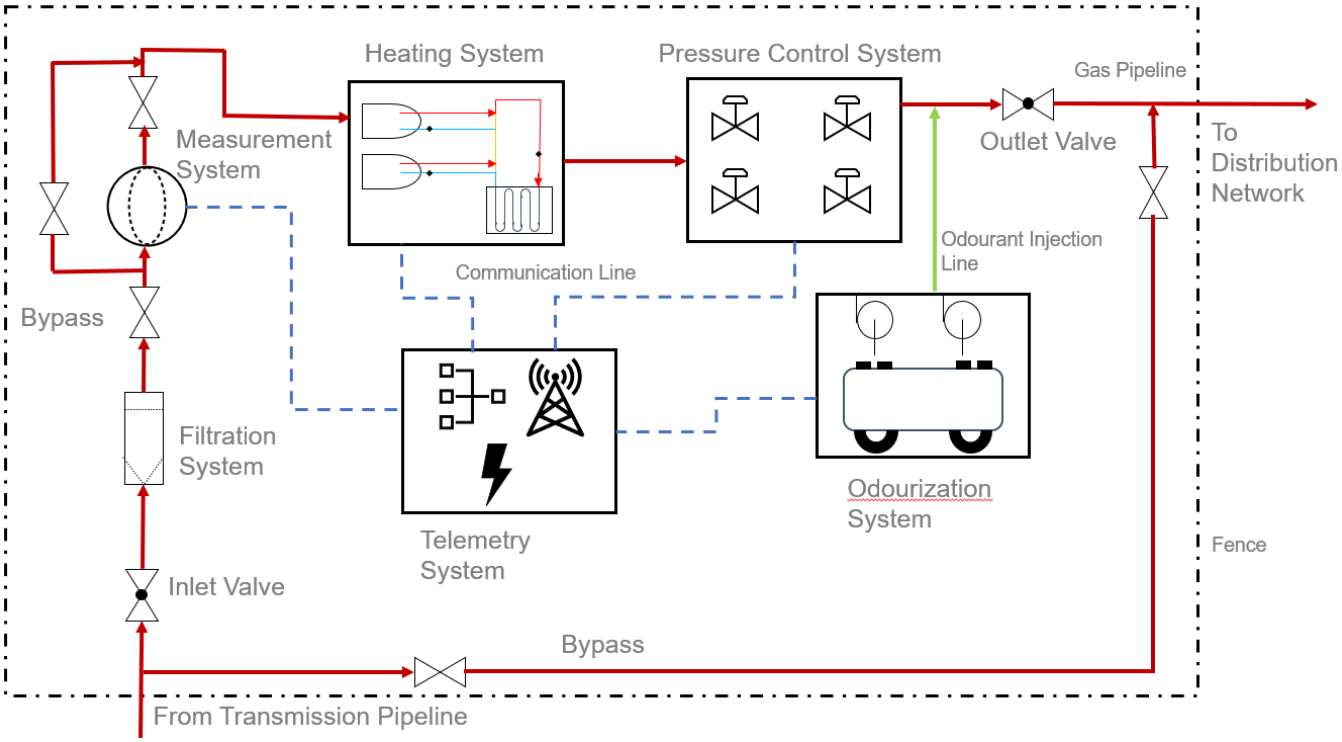


Figure 6.2-49: Station Components

The **pressure control** components control and regulate gas pressure from a higher pressure (inlet pressure) to a set lower pressure (outlet pressure). Pressure control equipment typically consists of operator regulators, monitor regulators, relief valves, and slam-shut devices. Operator regulators control pressures while monitor regulators, relief valves, and slam-shut devices provide overpressure protection in the event the operator regulator fails. Pressure regulators maintain a desired outlet pressure while providing the required flow to satisfy a variable downstream demand and can be direct-operated or pilot-operated. Relief valves provide an audible and odour notification in the event of operator-regulator malfunction.

The **station valve** components control the flow of gas through the station and include all inlet valves, outlet valves, bypass valves, and component isolation and process valves. Station valves are used to direct flow, isolate station components, and shut down gas supply for planned or unplanned events.

Strainers and filters are utilized to remove particles of dirt and/or liquids from the gas before they can damage downstream system components such as regulators, pilots, meters, or other equipment.

The **piping system** within stations is comprised of the pipe connecting each of the component groups, as well as ancillary piping and tubing. Ancillary piping includes glycol piping for the heating system, tubing for pressure control, and piping and tubing for the odourization system. Piping may be installed below- or above-grade with pipe supports and may be insulated to retain heat or for noise attenuation. Protection of the piping system consists of underground corrosion control systems and aboveground high-performance coating and paint.

The **heating system** components ensure that gas temperatures within the distribution system remain above a site-specific targeted setpoint, as the reduction in temperature caused by pressure regulation can have detrimental effects on equipment performance. The heating system is comprised of two subcomponents: (1) the boiler and (2) the heat exchanger. The pressurized boiler heats and circulates glycol through a glycol loop to the heat exchanger, which transfers heat to the gas prior to pressure reduction. Heating systems may also be comprised of small component heaters or heat trace systems that are used for thermal protection of critical components such as regulators and pilots as well as protection against frost heave of the station piping.

The **telemetry system** connects station equipment to a network that remotely transmits station performance information to centralized Gas Control management for monitoring and control. Information such as inlet and outlet pressures and temperature, gas flow rate, odourant injection rate, and other critical characteristics of station performance are monitored in real time. Typical subcomponents include:

- Programmable logic controller (PLC) / remote terminal unit (RTU) as the central processor

- Pressure and temperature sensors and transmitters
- Pressure recorders
- Gas monitors
- Communications devices and antenna towers
- Power supply, uninterruptible power supply (UPS), backup generators, and other electrical assets
- Weather systems

The **odourization system** components are responsible for the introduction of odourant into the gas stream to ensure gas is detectable at low concentrations as natural gas is odourless in its basic state. Odourant is introduced automatically at all stations at the entry point to the gas distribution network. Subcomponents of the odourization system include:

- Odourant tank
- Odourant pumps
- Injection point with sight glass
- Odourant containment
- Meters or orifice plates, valves, tubing, and controllers
- Atmospheric monitoring devices
- PLCs

The **measurement system** components provide a corrected volumetric measure of the amount of natural gas flowing through a particular site. Measurement devices are used in customer stations as a custody transfer point between EGI and the customer, subject to the Meter Exchange Government Inspection (MXGI) Program in **Section 6.2.5.4**. EGI uses many different meter types and electronic volume correcting equipment to calculate pressure and temperature compensation factors in real time. At customer or system stations where the design requires, EGI incorporates measurement devices to measure the rate of gas flow through its system. These measurement devices are critical for calculating the demand requirements (rate of odourant flow and heating system temperature requirements) for other station components.

Civil assets in the Stations with Auxiliary Equipment subclass can include individual buildings for housing telemetry assets, heating/boiler equipment, the odourization system, the pressure control system, and other miscellaneous equipment. Civil assets also include fencing, foundations, property lighting, security systems, piping supports and barriers, water management systems such as culverts and ditches, and general property.

6.2.4.1 Distribution Stations Inventory

Table 6.2-7 lists the inventory details for the Distribution Stations asset class.

Table 6.2-7: Distribution Stations Asset Class Inventory[39]

Asset Subclass	Inventory
Stations with Auxiliary Equipment	459
Distribution System Stations	7,828
Customer Stations[40]	30,056

[39] The inventory for meters and regulators (discussed in **Section 6.2.5**) also includes meters and regulators located at customer stations reflected in the inventory shown in **Table 6.2-17**.
[40] CNG stations included in Customer Stations inventory class as of October 23, 2023.

6.2.4.2 Distribution Stations Condition and Strategy Overview

Table 6.2-8: Distribution Stations Condition and Strategy Overview

Asset Subclass	Avg. Age (Year)	Condition	Risk / Opportunity	Asset Class Strategies	Programs, Tactics, and Standards
Stations with Auxiliary Equipment	See **Table 6.2-9**.	Assets in the Stations with Auxiliary Equipment subclass are inspected and maintained on a regular basis in accordance with operating standards. At certain sites, the telemetry, pressure control, and heating system components have been found to have the following deficiencies: obsolescence, performance issues, and nonstandard configurations.	Risks identified for Stations with Auxiliary Equipment: **Employee and Contractor Health and Safety Risk / Public Health and Safety Risk:** Impact on surrounding population in the event of loss of containment **Financial Risk:** Commodity loss, repair costs, and regulatory penalties **Operational Risk:** Loss of service to customers **Environmental Risk:** Noise, spills, and GHG emissions	Create	• CNG Program

				Maintain	• Equipment operating standards for auxiliary components
					• Facilities Integrity Management Program (FIMP)
					  • Inspections
					• Obsolete Heating Equipment Program
					• Telemetry Program
					• Corrosion Prevention Program
					  • Stations Painting
					• Odourization Program
					• Telemetry Program
					• Emergency Program

				Improve	• Compliance Remediation Program • Energy Transition Program
				Replace	• Stations with Auxiliary Equipment Replacement Program • Distribution System Station Replacement Program • Header Station Replacement Program • Vaulted Stations Replacement Program • Customer Station Replacement Program • Pressure Factor Metering (PFM) Rebuild • Inside Regulator • Civil Replacements Program
Distribution System Stations	See **Table 6.2-11**.	Distribution System Stations assets are inspected through field condition survey assessments to identify the type of regulators, belowground installations, nonconforming configurations, and vintage/obsolete components contributing to a higher potential of failures and operational issues.	Risks identified for Distribution System Stations: **Employee and Contractor Health and Safety Risk / Public Health and Safety Risk:** Public impact, threat to overpressuring customer piping **Financial Risk:** Repair and high maintenance costs, and customer supply impact **Operational Risk:** Loss of service to customers	Create	• Compressed Natural Gas (CNG) Program
				Maintain	• Emergency Program • Corrosion Prevention Program • Stations Painting • Distribution Integrity Management Program (DIMP) • Pressure Control and Protection Inspection Standard
				Improve	• Compliance Remediation Program • Energy Transition Program • Distribution System Station Replacement Strategy • Header Station Replacement Program • Vaulted Stations Replacement Program • Stations Capital Upgrades Program • DIMP • Pressure Control and Protection Inspection Standard
				Replace	• Distribution System Station Replacement Strategy • Header Station Replacement Program • Vaulted Stations Replacement Program • Civil Replacements Program • Pressure Control and Protection Inspection Standard • Customer Station Replacement Program

Asset Subclass	Avg. Age (Year)	Condition	Risk / Opportunity	Asset Class Strategies	Programs, Tactics, and Standards
					• PFM Rebuild • Inside Regulator
Customer Stations	See **Table 6.2-14**: .	Customer Stations assets are inspected through field condition survey assessments to identify the type of regulators, belowground installations, nonconforming configurations, and vintage/obsolete components contributing to a higher potential of failures and operational issues.	Risks identified for Customer Stations: **Employee and Contractor Health and Safety Risk / Public Health and Safety Risk:** Public impact, threat to overpressuring customer piping **Financial Risk:** Repair and high maintenance costs, and customer supply impact **Operational Risk:** Loss of service to customers	Create	• CNG Program
				Maintain	• Corrosion Prevention Program • Stations Painting • DIMP • Emergency Program • Pressure Control and Protection Inspection Standard
				Improve	• Compliance Remediation Program • Energy Transition Program
				Replace	• Customer Station Replacement Program • PFM Rebuild • Inside Regulator

6.2.4.3 Stations with Auxiliary Equipment

The assets in the Stations with Auxiliary Equipment subclass are the most complex distribution stations within EGI. Most are uniquely configured and involve the highest pressures and volumes. These stations include entry points into the gas distribution system and require additional types of equipment, which are not required in other stations downstream of the network.

Station components can vary greatly depending on the station's purpose and design complexity. Stations with auxiliary equipment have components that consist of piping, meters, regulators, valves, filters, separators, heaters, odourant, controls, and in some cases, structures. These stations are grouped according to function:

- **Gate and Transmission Stations** accept gas from a transmission company's pipeline (EGI or other) and supply gas to the distribution system, acting as the custody transfer and entry points of natural gas into the network. Station components included in these stations are filters, pressure control, odourization, measurement, station valves, heating, and telemetry. Gate stations typically accept incoming gas pressures from the transmission company at high pressures and regulate to distribution pressures. In a particular location, a single gate station can supply gas to over 600,000 customers.
- **Feeder Stations** are large regulator stations within the gas distribution system. Station components included in feeder stations are pressure control, measurement, gas preheating, and telemetry. Feeder stations typically accept incoming high pressures and regulate to distribution pressures.
- **Large Customer Stations** refer to commercial or industrial stations where the downstream system served is a single service.
- **Gas Producer Stations** are stations fed from an Ontario producer's facility and feed into a company pipeline. Most station sites have aboveground components, with some piping and operating equipment located belowground. All gate and transmission, feeder, large customer station, and gas producer sites are located on EGI-owned or -leased property and most are within fenced and controlled access compounds. The additional station equipment (i.e., filtration, heating systems and/or odourization) at these sites present increased hazards that require enhanced attention in the form of more frequent onsite inspections. These sites are the custody transfer point and critical pressure control location from the transmission company's pipelines into the EGI distribution network or to a large customer site.

Table 6.2-9 represents the age of the various systems components at all station sites for this subclass. The age of individual systems is used for evaluation rather than the age of the original activation of the station site, as individual station components are replaced based on their condition. Typically, the oldest assets tend to be the pressure control components, which have the longest expected life span. **Table 6.2-9** shows the differences in the actual average age and the maximum asset age.

Table 6.2-9: Stations with Auxiliary Equipment Station Component Age

Station Component	Average Asset Age (Years)	Maximum Asset Age (Years)
Pressure Control	36	63
Odourization	33	49
Heating	30	51
Telemetry	20	38

6.2.4.3.1 CONDITION METHODOLOGY

EGI station assets are inspected and maintained on a regular basis in accordance with operating standards. For example, the pressure control system is inspected on a frequency that considers inlet MOP, inlet pipe size, station type, and regulator type. Inspection results and trouble call history are recorded and analyzed to understand asset performance, condition, and health.

EGI has enhanced the Facilities Integrity Management Program (FIMP), which provides the framework to identify threats, monitor facility conditions, and manage integrity data to ensure that the pipeline facilities system is suitable for continued safe and reliable service and to comply with applicable regulations. Where applicable, the identified threats can be monitored or remediated to extend the useful life. FIMP applies to stations that meet the following criteria:

- Facilities connected to pipelines that are part of the GDS Transmission Integrity Management Program (TIMP), including Storage and Transmission Operations (STO) system, customer stations, and valve sites.
- Any station interconnected to EGI and any other gas transmission company, distribution utility, or production facility that supplies gas into or receives gas from the EGI network and is not the final point of use (including facilities connecting EGI with a GDS affiliate, and facilities receiving RNG, CNG, LNG or hydrogen for blending into the pipeline system).
- Station Classes A, B, and C1, as per the Facilities Terms and Definitions
- A station which contains any of the following equipment:
  - Glycol-based heating system (heat exchanger or line heater)
  - Filtration of one of the following types, where the filter is deemed to be a pressure vessel as per ASME Boiler and Pressure Vessel Code:
    - Liquid removal (filter separator, separator, scrubber, and coalescer)
    - Custom-designed dry gas filters (excluding stations with canister-style dry gas filters including Canadian/American Meter CFR, Peco Type 30, or similar, and any other filters with connection sizes smaller than NPS 2)
  - Odourization

6.2.4.3.2 CONDITION FINDINGS

The condition at each station is unique in terms of asset condition, obsolescence, and compliance. Station components may vary in age due to the replacement history of the site. Historically, station issues have been identified when existing maintenance procedures are executed. A list of typical findings can be found in **Table 6.2-10**.

Table 6.2-10: Typical Station Issues

Issue	Description
Construction and Configuration	• Station configurations are not in compliance with current design standards and a safety or reliability issue requires remediation. • Electrical configurations are not in compliance with current design standards and may result in a higher potential for electrical supply failures, employee safety concerns, and violation of Electrical Safety Authority (ESA) standards. • Lack of adequate backup power contributes to a high probability of station power loss during hydro outages resulting in system and monitoring failures. • Leak containment issues contribute to potential code compliance violations, potential high cleanup costs, and environmental impacts in the event of loss of containment for glycol or odourant.
Function	• The asset is unable to deliver the required demand (i.e., insufficient gas supply, heating requirements, or overworked components) and can result in loss of supply to customers. • Equipment precision could result in incorrect gas measurement systems and potential revenue loss. • Sealing issues increase the probability of asset failure and downstream overpressure situations.
Operability	Operating performance and reliability interventions contribute to increased unplanned maintenance costs and potential safety concerns.
Maintainability	Component accessibility issues contribute to increased maintenance costs, potential asset failures, and employee safety concerns.
Components	• Parts are no longer available, repairs result in long downtime, or repair costs are excessive. • Glycol conditioning issues indicate the degradation of heating system internal components which result in higher maintenance costs and decreased component reliability. • Communication issues contribute to electronic component failures and loss of remote monitoring, alarming, and control.

Issue	Description
	• Recurring component issues contribute to increased failures and component reliability concerns. • Corrosion is an indication of component degradation and less reliable assets. • Insulation damage promotes rapid corrosion growth on piping. • Building degradation and damage can result in leaks and lack of component protection causing premature failure and less reliable assets.
External Factors	• Dirt and debris increase the probability of failure and downstream overpressure situations. • Damaged components contribute to increased maintenance costs and potential employee safety concerns. • Pipe heaving occurs due to inadequate heating supply or improper construction methods resulting in undue stress to piping and other components. • Improper support can result in movement or settlement causing undue stress to piping and components. • A sinking foundation causes stress in piping and other critical components. • Damages to fences or other physical security equipment could result in vulnerability threats. • Increased site security and control threats related to cybersecurity concerns on critical infrastructure can result in public safety and system reliability concerns.

In addition to maintenance inspection results, the condition and health of station components may be subject to further engineering analysis and future FIMP inspections. These stations are evaluated based on the following:

- Age of critical components such as regulators, boilers, and RTU
- Performance of the asset such as known operational problems
- Asset history and the evaluation of failure events
- SMA input

To better understand asset condition, the FIMP will provide direct assessment data as described in **Section 6.2.4.3.1**.

6.2.4.3.3 RISK AND OPPORTUNITY

Assets in the Stations with Auxiliary Equipment subclass are a vital part of the distribution network; as such, failures have significant consequences and must be avoided. Mitigation strategies to reduce risk to the lowest practicable level include redundancy of critical systems and a comprehensive inspection and maintenance program.

When station components are not maintained, the following are types of failures and the likely consequences (failure scenarios) that are observed for this asset subclass:

- **Loss of Pressure Control:** Pressure control failures could cause an overpressure or under-pressure scenario.
- **Overpressure Event:** Stations are the delineation between different operating network pressures. Failures causing overpressure situations result in the upstream higher-pressure network interacting with the downstream lower-pressure network. In this scenario, the pressure of the downstream network increases to levels beyond which it is rated. Overpressure could lead to component failure in the downstream network, overstressing pipe or fittings, loss of containment, and gas entering customer premises if the customer regulator fails. The potential for fire or explosion is increased in an overpressure situation.

  The frequency of pressure control failure is dependent on the configuration of the station. A station with a single regulator and single run will fail more frequently than a station with double regulators and double runs. Each of these could result in a release to the environment, leading to potential ignition or explosions.

  The consequence of an overpressure event from a financial impact includes commodity loss, service disruptions; increased network leak surveys and system checks; repairs or replacement of company-owned property; or damages to public, commercial, or industrial property. Pressure control failures may lead to unintended GHG emissions of natural gas to the environment, impact EGI's reputation, and fail to meet the expected high levels of operational reliability.
- **Under-Pressure Event:** Under-pressure at a station can lead to loss of service for customers. This is of particular concern for industrial customers, who expect a reliable natural gas supply for processes, and other customers for

heating needs during colder periods. Stations approaching design capacity could experience under-pressure situations, loss of service to customers, and station equipment performing beyond recommended operating limits.

Typically, the pressure control design includes redundancy with a method of overpressure protection to reduce the likelihood of a pressure control failure.

- **Loss of Measurement System Function:** Measurement equipment can be used to measure customer and system gas flow rates, and accurately inject odourant into the pipeline. Loss of measurement functionality could lead to inaccuracy of gas measurement, inaccurate billings of commodity transfer which could result in volume billings or purchase disputes, and improper odourant levels (undetectable gas leaks).
- **Loss of Odourant System Function:** The odourant system adds the odour in natural gas so that it is detectable in the event of a release. Failure of the odourant injection system could result in leaks not being readily detectable which could lead to public health and safety concerns, service disruption implications, commodity losses from undetected leaks, public property damages, or fines from the technical regulatory authority. Reputational and financial risk may result from the increase in emergency and unplanned callouts to unreliable odourant injection systems. Inoperable odourant systems would lead to a failure to maintain proper odourant levels as mandated by code requirements, potentially impacting the safety and reliability of the gas distribution network.
- **Loss of Heating System Function:** Loss of the heating system function could result in two scenarios: (1) frost heave or (2) pressure control failure due to the freezing of station components. Frost heave occurs when the gas is cooled due to the pressure reduction and causes an upward swelling of soil around public or private property near the gas main. Freezing of station components such as creating large ice buildup around valves can prevent operation if gas isolation is required. This could result in the loss of pressure control and potentially lead to an overpressure or under-pressure situation. The financial impact includes commodity loss; service disruptions; increased network leak surveys and system checks; repairs or replacement of company-owned property; or damages caused to public, commercial, or industrial property. Inoperable systems will lead to a failure to maintain operational supply to customers.
- **Valve System Malfunction:** The frequency of a valve malfunction is low. Inoperable station valves prevent isolating gas flow within the station. This would lead to isolation of the station where available (up and/or downstream of the location), increased maintenance, and potentially longer emergency response times. Valves may also experience leakage to the atmosphere through failed sealing elements, which can result in increased GHGs and in some cases may also result in the creation of flammable atmospheres where the gas is able to accumulate within buildings.
- **Loss of Telemetry System Function:** Failure of real-time monitoring would cause a delay in responding to system operation problems or emergencies. Stations with an older telemetry system have a higher failure frequency. Without the telemetry system, there is no visibility to the performance and operation of EGI's system causing increased callouts, emergency system repairs, greater patrols, and potential impacts to station equipment dependent on telemetry components. Failures of the telemetry system could be caused by cybersecurity attacks into the communications network.
- **Loss of Electrical System Function:** Loss of the electrical system function could impact the odourant, telemetry, auxiliary systems (i.e., fire suppression), and heating systems as all rely on electrical power or backup power systems to function properly. Without a power supply, the failures described for each station component can exist. The frequency of losing power at a station depends on the frequency of electricity outages in the area, third-party damage, and backup power system failures.

Equipment failures can occur in any asset subclass component and its impact is dependent on site location, demand on the system, and redundancy which could affect response times if a failure occurs. The impact of each system failure is different; however, there are some interdependencies between system failures. The extent of impact is dependent on the station location (i.e., whether the station is in a populated or remote area), the number of customers serviced by the station, and whether the station serves a single-feed or multi-feed system. The subsystems within these stations have interdependencies which may impact the reliability and performance of other systems. Therefore, the complexity of failures in one subsystem may lead to potential failures of other subsystems. For example, the measurement system is used to both measure gas flow and calculate the proper odourant injection rate. The response times to address equipment failure can vary depending on the location of EGI's response team, reinforcing the design strategy to include redundancy where appropriate.

The risk for assets in the Stations with Auxiliary Equipment subclass is dominated by financial risk, which may require fixing any damages to public property, relights due to service disruption, commodity loss, replacing and repairing company property, and any regulatory penalties. Failures at these stations could impact gas supply to EGI's customers leading to decreased operational reliability and reputational impacts. The public health and safety and employee and contractor health and safety risks for these assets are higher if the station is in an urban or developed area due to a high potential impact on the surrounding population. Operational risks identified include loss of service to customers, and the potential for over/under-pressure scenarios. Finally, there can be environmental risk through the unplanned release of GHGs in the event of a component malfunction.

6.2.4.4 Distribution System Stations

The assets within the Distribution System Stations subclass reduce gas pressure from a network operating at a higher pressure to a network operating at a lower pressure depending on the needs of downstream natural gas main. These types of stations are typically located aboveground, with or without an enclosure and differ in size, operating pressure conditions, number of downstream connected customers, and gas volume delivered. Distribution system station components consist of piping, meters, regulators, valves and, in some cases, limited pressure monitoring. Distribution system station function and components vary greatly depending on use and design complexity:

District Stations operate within the gas distribution network and regulate the flow of gas from a higher pressure to a lower pressure. District stations are primarily used for pressure control and may have basic pressure-monitoring capabilities (district stations with a gas preheating system are included in the Stations with Auxiliary Equipment subclass). District stations are typically located within roadway allowances and can be housed within a box enclosure, fenced in, located aboveground without an enclosure, or buried below-grade in a vault.

Multi-Unit Building (MUB) are multi-unit residential buildings which have a mix of residential customers with in-suite appliances, commercial customers, and/or central boilers. The supply of gas is through vertical piping that runs through a chase or outside the building, and the distribution of gas may involve a garage header with sub-metering. These are sometimes referred to as garage headers or vertical subdivisions. Garage headers have meters in meter closets or branches in a basement parking garage. Vertical subdivisions include vertical runs to meter closets or individual units.

Distribution system stations consist of mechanical components with shorter lifespans relative to other gas-carrying assets (see **Table 6.2-11**).

Table 6.2-11: Distribution System Stations Station Component Age

Average Asset Age (Years)	Maximum Asset Age (Years)
38	127

In addition to the average age of assets, there are variations in how the replacement of components have been captured in record systems. In some cases, the age of the asset reflects the last intervention to replace a component; and in other cases, the age of the asset reflects its initial installation date even if some components have been replaced since that time.

Based on information in the appropriate systems of record, **Figure 6.2-50** reflects the age (through installation date) of the distribution system stations. Two outliers in the number of stations in the Union rate zone at 25 and 36 years can be attributed to the integration of legacy asset information systems. This reflects the date of the acquisition of the assets, not the installation date. Work continues to understand the demographics of station assets and their component systems.

Although age is not the only factor in evaluating station asset condition, an increase in failure is seen as the asset approaches the end of its life.

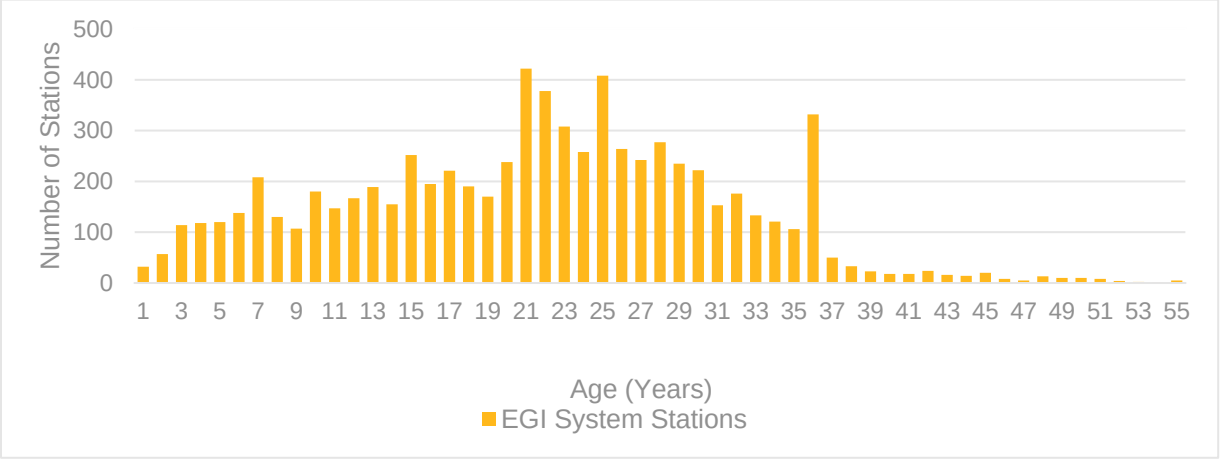


Figure 6.2-50: Distribution System Stations – Installation Year Demographics

Distribution system stations are generally installed either aboveground or belowground in a vault (see **Figure 6.2-51**) and typically installed on public rights-of-way but can also be on private property or easements. Aboveground, they may be protected from the elements within a box enclosure or exposed to the elements. Belowground vault locations can experience aggressive condition degradation from a wet environment, flooding, or sidewalk/road runoff and may create confined spaces requiring specific procedures for safe entry. These assets can experience accelerated pipe coating degradation which can lead to corrosion. Flooding could impact the mechanical operation of the pressure control and valve systems.

Figure 6.2-51: Examples of Distribution System Stations

As seen in the **Figure 6.2-51** photos, some distribution system stations consist of some components which are bolted or threaded to the adjacent piping, allowing for relatively easy removal and replacement of these components when issues are identified. This allows for more cost-effective component-level replacements, and these can normally be undertaken by a small crew of company employees. In other cases, components are welded to the adjacent piping and replacement of those components may require complex isolations which result in a larger construction project. In such cases, age, condition, and expected longevity of all components within the station are taken into consideration along with operability and ongoing maintenance challenges before determining the appropriate scope of the replacement project.

6.2.4.4.1 CONDITION METHODOLOGY

The methodology for determining the condition of distribution system stations assets uses a combination of data analysis of the asset's failure and event history and a qualitative onsite condition assessment. These methods provide an understanding of the station asset age, past performance, and future projected reliability. This methodology is also applied to Customer Stations assets (see **Section 6.2.4.5**).

The DIMP used statistical reliability analysis and modelling of the EGD stations historical failure data to make predictions about the life of distribution system station assets in a previous version of the Asset Management Plan[41]. To support an integrated approach for assessing asset health for EGI stations and accounting for differences in design, construction practices, maintenance, and availability of data for both legacy companies, the most recent AHR leveraged available condition-related data through field inspection programs to evaluate the asset health.

Since distribution stations are predominately above-grade assets and inspected regularly through maintenance programs, the DIMP leveraged this opportunity to collect condition-related information during inspections. The condition information is comprised of a series of visual evaluations as well as some functional operational assessments which have been determined by SMAs to be an early indicator of functional failure of a specific station subsystem.

[41] EB-2020-0181, Exhibit C, Tab 2, Schedule 1

The Field Assessment Survey Tool (FAST) was used to capture condition information at EGD stations, while the 2018 Station Painting Survey that recorded corrosion severity was used for Union stations. To better understand how the condition of each subsystem aggregates to the station level, the condition of the four major subsystems was assessed on various parameters that contribute to the different failure modes. A scoring methodology was designed to differentiate between the ranking of each subsystem based on their criticality prior to rolling up the subsystem's condition. The roll-up methodology is considered as an indicator for the overall station condition. The results of this analysis can be seen in **Section 6.2.4.4.2**.

Onsite condition assessments are conducted to assess, classify, and further understand condition details that cannot be determined through data analysis alone. **Table 6.2-12** outlines the specific condition evaluation criteria used to assess station components. These assessments inform the priority of individual stations for station replacement programs.

Table 6.2-12: Evaluation Criteria for Station Components

Station Component	Condition Evaluation
Pressure Control	• Correct operating parameters for each regulator (i.e., outlet pressure matches the correct set point) • Ability to lock up under zero flow condition • Appropriate response to changes in outlet pressures and flows • Overpressure protection device operating at its specified set point and adequate capacity • Obsolete equipment and/or parts unavailable • Improper/nonstandard configuration
Station Valves	• Difficulty with operating and moving freely • Valve not sealing completely and inability to isolate gas flow • Valve leaking to atmosphere • Valve damaged or inaccessible
Piping	• Presence of corrosion indicators • Damage to insulation or coating • Pipe heaving or movement
Other issues	• Level of corrosion • Signage or station protection • Issues impacting safety and the ability to perform maintenance inspections • Condition of paint and pipe coating • Performance of the components • Level of heaving or piping alignment • Overall site safety condition • Obsolete equipment no longer supported by product manufacturers

Other factors to be assessed include:

- Station capacity verification to ensure system reliability to meet current demands and evaluation of energy needs in the future
- Compliance with relevant codes and standards

The condition information collected through FAST consists of a customized ranking system for each subsystem and its failure mode to reflect the observed condition in the field. Each inspection criterion is ranked on a scale of 1 to 5 for each subsystem, with 1 being indicative of like-new condition and 5 indicative of very poor condition requiring remediation. The full list of degradation rating scales and corresponding descriptions for each inspection criteria are listed in **Table 6.2-13**.

Table 6.2-13: Degradation Rating Scale

Degradation Process	Degradation Rating	Description
Corrosion	1	Like new
	2	Some minimal surface corrosion or evidence of aging
	3	Moderate surface corrosion
	4	Pitting corrosion
	5	Severe localized or extensive corrosion
Issue with Fence	Yes	Threat from improper fencing
	No	No threat
Pipe Coating	1	Like new
	2	Minimal peeling or disbondment
	3	Partial disbondment or paint touchup
	4	Moderate disbondment or partial repaint
	5	Severe disbondment – repaint
Pipe Heaving	1	No heaving
	2	Unknown reason
	3	Settlement
	4	Lack of heating
	5	Improper construction
Pressure Control System Performance	1	No Issue
	2	Regulator locks up slower than normal
	3	Regulator locks up past set point
	4	Regulator does not fully lock up
	5	Regulator fails to lock up
Valve Functionality	1	No issue
	2	Minimal difficulty
	3	Works with difficulty
	4	Does not seal the flow
	5	Seized/damaged
Vegetation	Yes	Threat from vegetation growth
	No	No threat
Water Buildup	Yes	Threat from water buildup
	No	No threat

6.2.4.4.2 CONDITION FINDINGS

As assets age and degrade, they typically begin to fail at an increasing rate, and the accumulation of those failures over time will begin to account for a greater proportion of the total population. As of September 2023, approximately 10,000 station condition assessments were collected through FAST. Approximately 4,000 of these condition assessments were conducted since 2019 and were considered for this report due to the latest assessments being better indicators of current asset condition. These assessments represent approximately 25% of the total number of EGD DIMP stations.

Utilizing the degradation rating scale and ranking each subsystem based on their criticality to the station level, **Figure 6.2-52** helps to illustrate the findings of the condition assessments and provides insight into the mitigation levels required for the current replacement program.

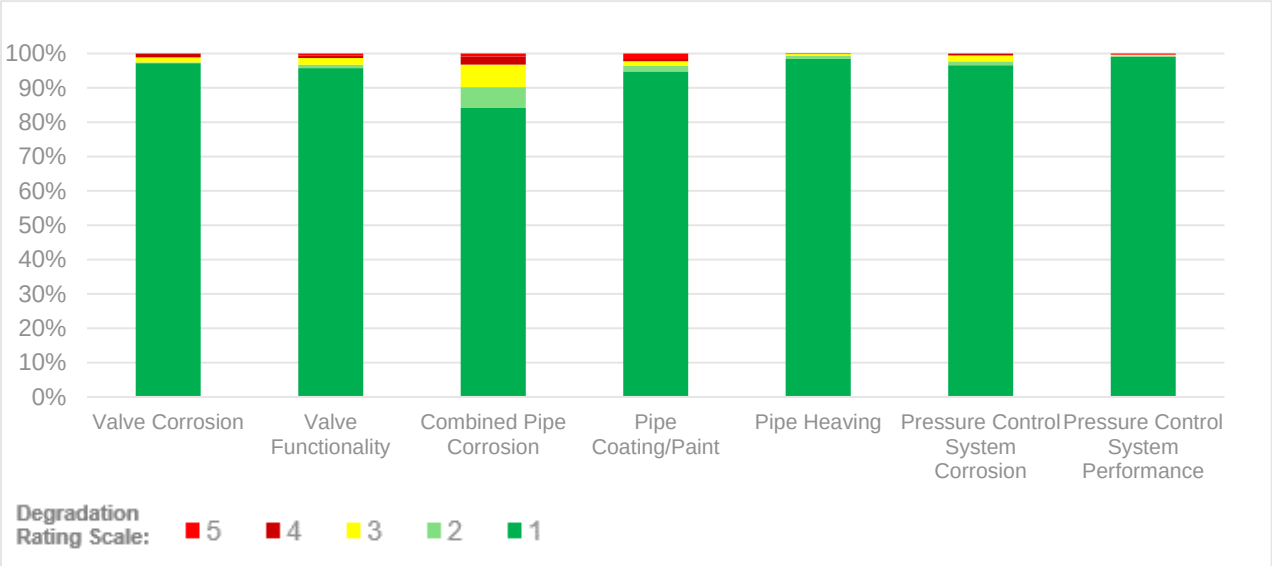


Figure 6.2-52: Distribution System Stations Condition Aggregate – EGD Rate Zone

Figure 6.2-52 reveals that Distribution System Stations are in relatively good condition with a constantly low-component failure rate indicating the historical replacement and renewal programs are effective. At this time, Union rate zones' assets have a different assessment methodology, as described above, within the AHR Program. A plan is being developed to integrate both legacy assessment methodologies into a common approach.

A Station Painting Survey was initiated in 2018 to collect corrosion assessments at Union Distribution System Stations. The inspections focused on the corrosion defects on station subcomponents (mainly piping subsystem). Corrosion degradation was evaluated using the criteria defined in the ASTM D 160-01 standard. Approximately 5,000 stations identified by Union SMAs as critical or exposed to higher risk of degradation were selected for the assessments. Since 2018, approximately 1,480 stations with some corrosion indications have received mitigation work mostly related to corrosion removal and repainting activities and there is a program to continue with the balance of the population.

In 2022, approximately 2,000 Union system stations were inspected as part of a DIMP inspection plan. The collected information on condition and applicable deteriorating factors for these stations is shown in **Figure 6.2-53** and **Figure 6.2-54**.

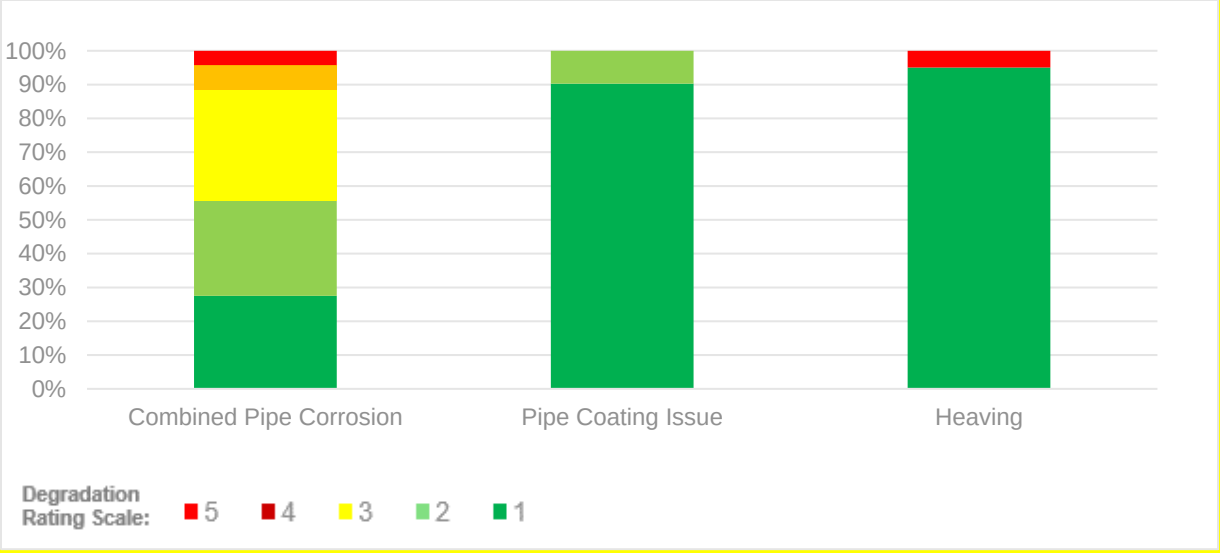


Figure 6.2-53: Distribution System Stations Condition Aggregate – EGD Rate Zone

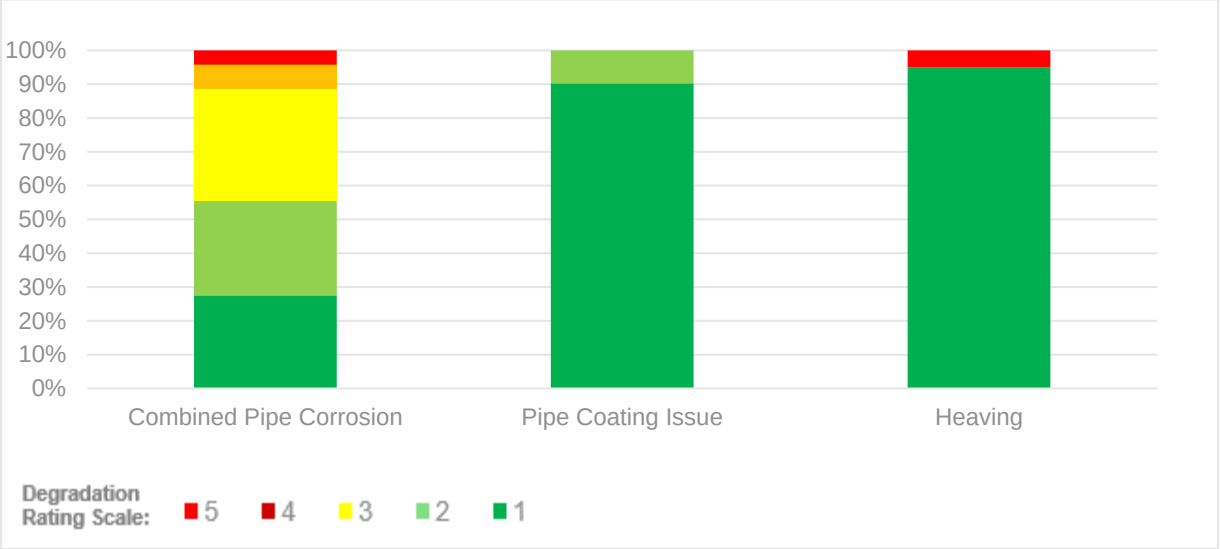


Figure 6.2-54: Condition Assessment of Union System Stations – Inspection Results

Onsite condition assessments continue to be collected on an ongoing basis to thoroughly understand the condition of distribution system station assets. Results of the surveys (e.g., issues that have been identified in the valve, pressure control, or piping component groups) are actively addressed through reactive repairs or through replacement programs where appropriate.

The system station replacement programs are informed by condition surveys to reduce the risk of any issues observed. For example, boot-style regulators, which use a combination of a flexible boot element and gas pressure to regulate downstream flow and pressure, may be more susceptible to higher failure rates due to their design. This type of regulator station design has demonstrated susceptibility to failures caused by debris, particulates, hydrates, and sulfur deposits. Adopting a new design philosophy to use alternative regulator models or including filtration minimizes the potential for downstream overpressure events.

Another example of issues from field reviews of distribution system station sites have found nonconforming configurations or locations deemed to be potential hazards to safe site operation, such as clearance issues or potential threats from third-party

damage. It is anticipated that these potential hazards may exist across the distribution system station population of certain vintages when construction practices and standards were not consistently applied. It is also expected, in some cases, that local area development over time has encroached on the facilities resulting in higher risk of station damage from external influences, such as vehicle traffic or debris from above or compromised station supports.

Distribution system stations that experience a high differential pressure reduction from inlet to outlet pressure are associated with a higher risk of failure. For instance, as natural gas passes through the pressure control device, the gas temperature decreases approximately 4°C for each 700 kPa of pressure reduction (the Joule-Thomson Effect). High differential pressure control significantly decreases gas temperature from high inlet pressure to lower outlet pressure. Stations where a high-pressure reduction occurs can be subject to freezing of station components. Freezing may cause a loss of pressure control if there is moisture in the gas, heaving, and potential failure of the station piping if there is moisture in the ground surrounding the station. The temperature reduction of the gas could also cool the downstream piping and impact the surrounding grounds including the potential to damage roads. The effects of the Joule-Thomson Effect are illustrated in **Figure 6.2-55**. Ice buildup is visible on the downstream components and the station assembly is misaligned due to heaving.

Figure 6.2-55: The Joule-Thomson Effect on a District Station

6.2.4.4.3 RISK AND OPPORTUNITY

The risks identified for distribution system stations are operational risk, financial risk, employee and contractor health and safety risk, and public health and safety risk which may lead to the following consequences:

- Public impact, threat to overpressuring customer piping
- Repair and high maintenance costs, and customer supply impact
- Loss of service to customers

These risks are also applicable to the Customer Stations asset subclass (see **Section 6.2.4.5**). Risks are dependent on station design and location:

- **Overpressure Event:** In an overpressure event, the downstream network is operating above the designed maximum pressure. In addition to the risks discussed in **Section 6.2.4.3.3**, distribution system stations feeding low-pressure networks have additional safety consequences, as these networks are designed without individual regulators at customer meter sets, normally considered a second line of defence against potential overpressure of piping inside the customer's premises.
- **Under-Pressure Event:** In an under-pressure event, the downstream network is operating below the designed minimum pressure. For risks associated with under-pressure events, see **Section 6.2.4.3.3**.
- **Loss of Pressure Control (Lockup):** A regulator fails to lock up when it cannot completely shut off gas flow in low-flow conditions. Pressure control failures could cause the unplanned release of natural gas, a pipeline rupture or overpressure delivery to customers. The impact and frequency of a pressure control failure varies. The frequency of a pressure control failure causing a minor impact, such as a repair, is higher than the frequency of overpressure delivery to a customer due to the multiple layers of protection within the gas distribution network.
- **Loss of Containment (Leaks):** A leak is an unplanned release of gas from the gas distribution system. The risk of a leak leading to a fire or explosion has the potential to cause injury to members of the public. The risk of an

overpressure event at the station could similarly lead to a leak in the downstream system, including inside the customer's premises if other safeguards fail. Financial loss is possible due to total repair costs, commodity loss, relighting customer gas appliances, and any property damages caused by a gas leak and subsequent fire or explosion. Risks identified are potential GHG emissions, environmental impact, service interruptions, overpressure or under-pressure events, and reputational damages associated with reduced public confidence.

- **Valve System Malfunction:** A valve malfunctions when it no longer provides isolation of the gas as intended. For risks associated with valve system malfunctions, see **Section 6.2.4.3.3**.

Additional issues that were considered in the risk assessments were obsolete regulators, single-run stations, and stations with noncompliance issues. When obsolete regulators fail, they cannot be easily replaced as the existing station configuration may not have replacement parts available. When this occurs, the station must be replaced in its entirety, leading to a disruption in service and gas delivery impact. Single-run configurations are stations without a standby run available. A standby run can take over control to provide the required capacity and pressure of gas to a system if maintenance of the station is required. Some stations are capable of a manual bypass as a mitigation measure to reduce the potential for a disruption of service. Exposure to under-pressure risk is greater in the absence of a standby run. Noncompliant stations are typically locations where surrounding developments have encroached within the hazardous zone, causing clearance concerns.

Distribution system stations that were installed below grade in a vault were evaluated to consider risks such as additional maintenance requirements, leaks within a confined space, increased replacement cost, and potential for worker injury. It is expected that the projected reliability for these belowground assets will be lower and will degrade faster than other aboveground assets due to corrosion hazards associated with pooling within the vault of excess road run-off water and salt.

6.2.4.5 Customer Stations

Customer stations reduce upstream pressure and deliver gas to a downstream customer with a total connected load greater than12 m^3/h and with a delivery pressure of 14 kPa or greater (with a limited number of exceptions). Customer pressure and volume requirements are driven by their natural gas-fired equipment requirements.

Typical components of customer stations can vary greatly based on customer delivery requirements (e.g., gas volume, and delivery pressure). The smallest customer stations are typically comprised of small diameter piping, a single regulator, meter, and shutoff valve. Larger customer stations can be comprised of multiple regulators and meters, large-diameter piping and headers, an electrical system, controls and telemetry, and multiple valves. EGI's largest in-franchise customer station facilities typically supply natural gas to major electric power producers, steel mills, chemical plants, smelters, and other process-based industrial plants. CNG stations are included in the Customer Stations subclass.

Note that all customer stations that have filters/strainers, odourant, and heating equipment are considered part of the Stations with Auxiliary Equipment asset subclass (see **Section 6.2.4.3**).

Table 6.2-14: Customer Stations Station Component Age

Rate Zone(s)	Average Asset Age (Years)	Maximum Asset Age (Years)
EGI	19	65

Although age is not the only factor (see **Table 6.2-14**) in evaluating station asset conditions, an increase in failure is seen as the asset approaches the end of its useful life. In addition to the average age of assets, there are variations in how the replacement of components has been captured in systems. In some cases, the age of the asset reflects the last intervention to replace a component; and in other cases, the age of the asset reflects its initial installation date, even if some components have been replaced since that time.

Based on information in the appropriate systems of record, **Figure 6.2-56** reflects the age of the customer stations.

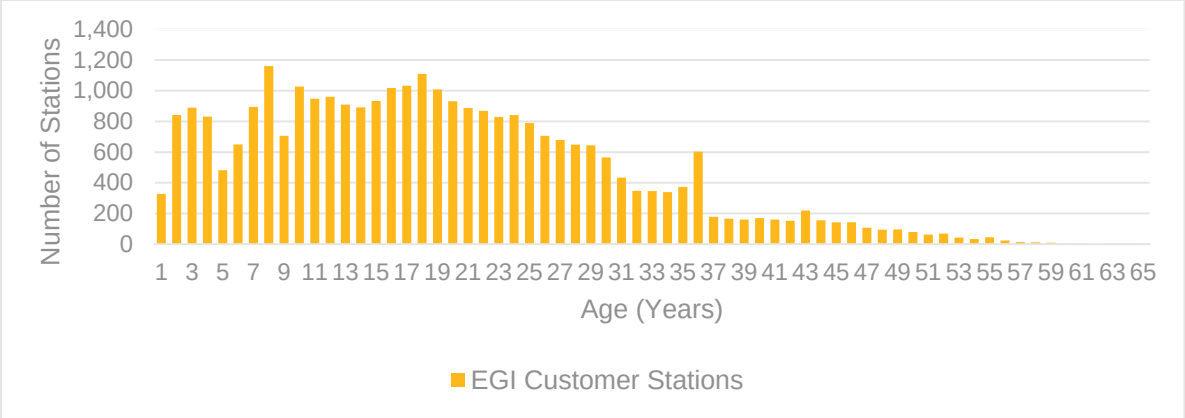


Figure 6.2-56: EGI Customer Stations – Age Demographics

6.2.4.5.1 CONDITION METHODOLOGY

The condition methodology for customer stations is the same as for distribution system stations (see **Section 6.2.4.4.1**).

6.2.4.5.2 CONDITION FINDINGS

Customer stations experience failures similar to distribution system stations (see **Section 6.2.4.4.1**). The condition findings for the EGD rate zone are similar to what was described in **Section 6.2.4.4.2**. Of the 8,000 assessments, 4,098 were customer stations; and from the aggregated ranking of each subsystem based on their criticality to the station level, **Figure 6.2-57** helps to illustrate the findings of the condition assessments and provides insight into the mitigation levels required for the current replacement program.

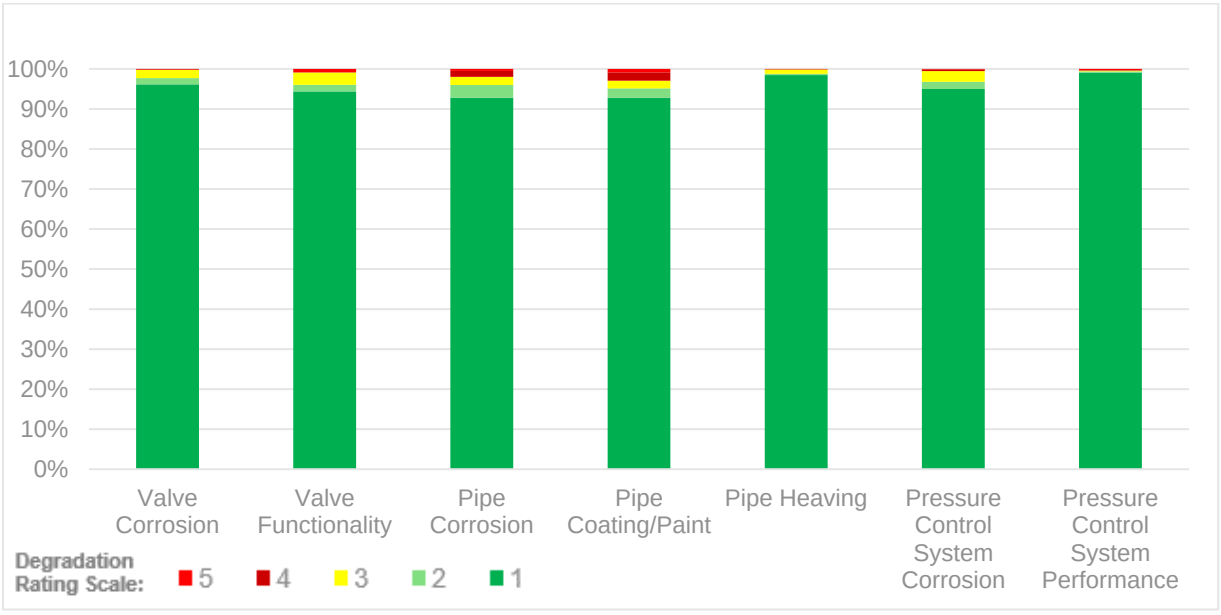


Figure 6.2-57: Customer Stations: EGD Projected Failure Events

In 2018, the Station Painting Survey was initiated to collect condition information at Union stations. Approximately 5,000 stations identified by Union SMAs as critical or exposed to higher risk of degradation were selected for the assessments. The inspections mainly focused on identifying corrosion defects on station piping subsystem. Since 2018, approximately 1,480 stations with corrosion issues have been selected for mitigation. Although these stations have not been reinspected since the mitigation work, it is assumed that all identified issues have been rectified.

Figure 6.2-58 shows the condition of approximately 5,000 inspected Union customer stations given the completed remediation work.

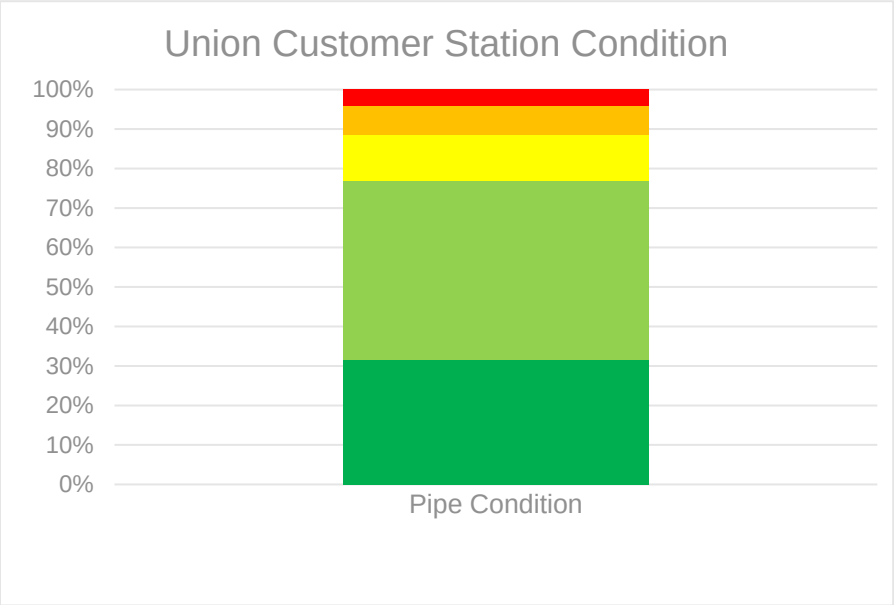


Figure 6.2-58: Condition Assessment of Union Customer Stations – Inspection Results

6.2.4.5.3 RISK AND OPPORTUNITY

The risks identified for the Customer Stations asset class are similar to risks for the Distribution System Stations asset class (see **Section 6.2.4.4.3**). The hazards identified include:

- Overpressure of non-boot style regulators
- Nonconforming station configurations
- Stations with compliance-related issues
- Stations experiencing loss of containment (leaks)

The risk assessment on these conditions determines the potential failure of the asset: pressure control failure, valve system malfunction, and loss of containment (leaks) discussed in **Section 6.2.4.4.3**.

Customer stations are the final pressure control point prior to entering into a customer's building. Additionally, the stations are typically located very close to and are sometimes directly attached to a customer's building. Therefore, leaks or loss of containment at a customer station can lead to an explosion and/or disruption of the work at the customer's facility. Some factors included in this risk category are damage to property, injuries to members of the public, and the cost to repair damaged assets.

Another concern with a subset of these assets is the design or configuration of some customer stations which does not allow for required maintenance work (compliance work) to be completed without interrupting the customer.

Inside Regulator Relocation Risks

EGI has performed a survey to identify inside regulators at customer stations which may experience a higher leak rate from higher-operating pressure piping compared to pipes operating at lower pressures (for same hole size). Indoor regulators use higher-operating pressure pipe indoors; potential leaks may be able to reach their lower flammability limit (LFL) faster. Depending on leak rate, building ventilation, and room size, it is possible for an indoor gas leak to build up to its LFL, leading to possible ignition and resulting in damage and/or disruptions to the customer's facility.

6.2.4.6 Distribution Stations Asset Class Strategies and Program Outcomes

6.2.4.6.1 STATIONS WITH AUXILIARY EQUIPMENT STRATEGIES

6.2.4.6.1.1 Stations with Auxiliary Equipment Replacement Program (Replace)

This strategy targets the replacement and/or rebuild of station components at sites prioritized based on condition, age, and observations identified through site inspections and SMA reviews. Station investments are selected based on value framework assessment results and compliance/design standards. The goal of this strategy is to proactively replace or rebuild station components prior to end of life when it is deemed appropriate to reduce risk and maintain a safe and reliable distribution system. The 2023 AMP Customer Engagement results indicated customers were supportive of EGI investing to maintain current levels of safety and reliability. Despite this strategy, there may be instances where reactive replacement occurs.

This strategy includes considerations to leverage resources and plan capital replacements in a thoughtful manner that can vary by site. Some considerations include:

- **Replacement of individual component assets upon failure** – For example, a failure of one of the pumps within the boiler system results in the pump being replaced, but no other work is done at the site. This is the preferred approach when the remainder of the system assets are in healthy condition (reactive).
- **Replacement of components based on expected failure** – For example, if the entire boiler system is in poor condition based on field-based verifications and review of past maintenance and failure data review to determine what is required to maintain the intended function of the assets, this could lead to a component level replacement (reactive) or the entire system could be replaced (proactive).
- **Multiple component rebuilds to benefit from combined resources and project scope** – For example, if the boiler system is in poor condition with a high expectation of failure and the telemetry and odourization systems are currently approaching poor condition, all three systems are replaced (proactive).
- **Replacement and upgrade of components evaluated to be at or approaching capacity**, as identified through EGI's hydraulic modeling process (see **Section 6.1.5.1.2**). For example, if regulators are evaluated to be approaching capacity in the upcoming year, components will be upsized to handle the appropriate projected system demands. (Replacement and upgrades would be subject to IRP screening as prescribed by the OEB and applied where technically and economically feasible.)

Following the OEB Decision and Order for EB-2022-0200, EGI has adjusted the program methodology as described above, taking a minimalist approach and focusing on component level replacement as the preferred alternative to address more immediate risks, even though this approach may impact customers in the long run due to capital inefficiencies of phased rebuild work. While this supports EGI's ability to work within a reduced capital envelope, it is expected to lead to increased spend on each asset over time due to economies of scale associated with larger replacement projects. Additionally, such an approach is not always plausible in cases where the legacy codes to which the station was originally constructed have changed and more extensive upgrades are necessary to allow for component replacements in order to comply to current codes, similar to the challenges often experienced during building renovations.

Replacements of Major Stations with Auxiliary Equipment investments include:

- Brantford Gate Station
- Vidal St. Station

For additional detail on these investments, see **Appendix A**.

6.2.4.6.1.2 Compliance Remediation Program (Improve)

This strategy targets the elimination of compliance concerns at stations identified through engineering assessments and Process Hazard Analyses (PHAs), using a managed approach to monitor and address identified code compliance issues. The strategy targets individual station sites found to have compliance deficiency issues such as issues on access/egress, building codes and fire codes, venting, and site security vulnerabilities, as well as environmental compliance approvals.

6.2.4.6.1.3 Obsolete Heating Equipment Program (Maintain)

This strategy targets stations with heating equipment that has reached end of life, with a focus on systems where there is a risk of a glycol spill. Natural gas heating equipment is used in many system and customer stations to help mitigate failure of equipment due to the freezing of liquids in the gas stream and moisture surrounding buried piping. Over many years of operation, a variety of heating systems have been used, resulting in varying equipment age and ultimately equipment

obsolescence. This work will maintain system reliability, ensure operating costs for heating systems are minimized, and reduce the potential for glycol spills including providing the appropriate containment systems to minimize the impacts of an event.

6.2.4.6.1.4 Odourization Program (Maintain)

This strategy targets stations with older odourization systems, specifically those with compliance issues. The expenditures in this portfolio include investments to upgrade odourant systems to ensure compliance to current codes, such as replacing old tanks and painting rusted containment pans and tank stands. Additionally, performance capability will be added by installing heat tracer lines, heated cabinets, improved tank valves, and indoor regulator panels. This work will help to ensure safe, compliant, and continuous odourization and mitigate the risk of tank rupture, frequent freeze-offs, and nuisance odour calls.

6.2.4.6.1.5 Telemetry Program (Maintain)

This strategy aims to maintain reliable telemetry equipment and will focus on component replacements as these have a much shorter anticipated life span than other station equipment. Telemetry components have varying life expectancies and are upgraded to address obsolescence, communication issues, electrical configurations, and backup power. Obsolete equipment cannot be replaced like-for-like if it is damaged and may compound communication issues. The scope of the Telemetry Strategy includes:

- Replacement and upgrade of telemetry instrumentation, electrical and power generation assets, and telemetry communications assets
- Replacement and upgrade of servers and network devices such as firewalls, modems, and routers
- Supply and installation of security assets (swipe card access, video surveillance, and intrusion detection assets)
- Tower network expansion as required to augment communication pathways
- Computer terminal and server expansion to support central logbook repository, data analytics, and data historians

6.2.4.6.1.6 Facilities Integrity Management Program (Maintain)

The Facilities Integrity Management Program (FIMP) assesses stations against threats that are listed in the EGI Hazard and Risk Common Register to identify susceptibility to the risks and determine mitigation strategies for individual sites, ensuring that risk is managed to the lowest practical levels. The strategy for the FIMP is to perform inspections with approved technologies used at EGI or other utilities for similar asset types. These inspections will assess the condition of existing station assets and will detect any concerns or issues to help determine the likelihood and consequence of failure of individual components and evaluate the risk. This strategy will allow for targeted repairs or replacements and will maintain the useful life of assets by identifying condition issues prior to the occurrence of an incident. When analysis indicates that ongoing repair costs are likely to exceed capital requirements to replace the asset, the mitigation strategy is evaluated to ensure that risk is managed to the lowest practicable level.

6.2.4.6.2 DISTRIBUTION STATIONS PROGRAMS AND STRATEGIES

6.2.4.6.2.1 Distribution System Station Replacement Program (Replace)

This strategy mitigates risks associated with station condition and legacy station designs. As station risks can be significant (e.g., one station may supply gas to hundreds of customers), all downstream mains and services can be affected by a failure. Stations are identified through regular inspections, information collection, and condition methodology. This strategy will maintain the station population's current average condition and operational reliability, ensure operational capacity to meet current demands, and minimize process safety risk. The program targets stations with the following issues:

- Belowground boxes
- Boot-style regulators
- Capacity issues
- Poor performance and poor condition
- Low-pressure control
- Obsolete components

Condition assessment reviews, SMA consultation, and risk assessments are all used to prioritize stations for replacement. Since these stations are small and prefabricated off site, the scope of the investment includes replacing the entire station (pressure control, overpressure protection, and valves), and as necessary, associated inlet and outlet piping belowground. There are situations in which a component replacement is the optimal solution based on the configuration of the existing

station. Situations that allow for the targeted replacement would be a flange-by-flange station that allows for relatively easy replacement of a section of the station when compared to welded components.

The replacement pace for distribution system stations is based on history and maintains the reliability of the station population at a relatively consistent level within the 10-year plan. This aligns with feedback from the 2023 AMP Customer Engagement where the majority of customers indicated a preference for EGI to assess the long-term health of the system and to spread out costs over time (even if that means higher rates now).

Following the OEB Decision EB-2022-0200, this program has been re-paced to reduce the proactive replacement to maintain the historical replacement pace and is focused more on the FAST data as mentioned above to target replacements and/or risk remediation based on field findings.

6.2.4.6.2.2 Header Station Replacement Program (Replace)

This strategy targets header stations that require replacement due to the following issues: unsafe installation locations, poorly performing components, poor condition, obsolete components, nonstandard configurations, and other issues identified in **Section 6.2.4.4.2**. Stations are evaluated to validate downstream customer impact, asset condition, and workers' health and safety to ensure maximum risk reduction and benefit for each replacement.

For the EGD rate zone, the strategy for header stations is to replace approximately 25 header stations per year or alter to remediate the identified concerns based on condition assessments, component age, and obsolescence. Header stations are called **system stations** in the Union rate zone and the strategy is included in the Distribution System Station Replacement Strategy (see **Section 6.2.4.6.2.1)**.

Following the OEB Decision EB-2022-0200, this program has been re-paced to reduce the proactive replacement and to maintain the historical replacement pace. The program is focused more on the FAST data as mentioned above to target replacements and/or risk remediation based on field findings.

6.2.4.6.2.3 Vaulted Stations Replacement Program (Replace)

This program targets a subset of distribution system stations installed in below-grade vaults. The scope of this program includes replacing all remaining vaulted stations with above-grade facilities, reducing the risk of equipment failure. These stations are advanced in age and present significant maintenance challenges due to their confined nature and risks related to asset deterioration and equipment failure. The vault design is prone to water ingress that can cause frost heave, accelerated corrosion of assets and of the vault itself, and can interfere with the proper equipment operation. These factors have a negative effect on reliability and worker safety. Solutions for each asset are developed considering either a typical system station design in an above-grade enclosure station or a fenced-in compound that could include land purchase. This program will decrease the risk of equipment failure, improve system reliability, and result in stations being more safely and efficiently maintained.

6.2.4.6.3 CUSTOMER STATIONS PROGRAM (REPLACE)

This program targets stations that have issues and concerns identified through regular inspections and will be based on condition, age, and obsolescence. Issues targeted include nonstandard configuration, unsafe installation locations, poor performing components, poor condition, and obsolete components. Execution of this program will maintain reliable gas supply to customers, address sites with nonconforming configurations, and minimize impacts to businesses and customers.

Condition assessment reviews, SMA consultation, and risk assessments are used to prioritize stations for replacement. Since these stations are small, the scope of the investment typically includes replacing the entire station (pressure control, overpressure protection, and valves) and as necessary, associated inlet/outlet piping belowground. However, customer stations are assessed for component level replacement to remediate the identified risks where applicable. Customer stations are the direct supply and control to commercial and industrial customers, and the consequence of a station failure can be significant. Prior to replacement, all stations are evaluated to validate customer impact, asset condition, and workers' health and safety to ensure maximum risk reduction and benefit.

The conditions and risks associated with customer stations assets continue to be monitored and assessed to determine if the current replacement rate is adequate to maintain the operational reliability and manage the risks associated with these assets.

Following the OEB Decision EB-2022-0200, this program has been re-paced to reduce proactive replacement to maintain the historical replacement pace and is focused more on the FAST data mentioned above to target replacements and/or risk remediation based on field findings. As an outcome, it is expected that the asset population health will decline and an increase to the replacement pace will be necessary in the future to maintain reliability levels.

Inside Regulator Room

Inside regulator room replacement aims to reduce the risks associated with the installation of pressure-reducing regulators inside a building by relocating the regulator to a lower-risk location (at the exterior of the building envelope). An external regulator room is an enclosed room with adequate ventilation that has not been specifically designed and approved to house EGI regulators or stations. The scope of work involves remediating the room enclosure to ensure adequate ventilation to the exterior and to modify enclosing walls to be air-sealed from the building to prevent gas migration. Across the Union rate zones, services that have inside regulators are being relocated outside of the building envelope where appropriate. Development of the scope and pacing of the project is ongoing and the highest risk installations are being prioritized for remediation. Highest risk installations include below-grade service entry without excess flow valves (EFVs) and no above-grade shutoff valve.

Pressure Factor Metering Rebuild

A subset of the customer stations population is called Pressure Factor Metering (PFM) stations. Many PFM stations in the Union rate zones do not have built-in bypasses or provisions for a bypass which does not allow for standard operation inspections to be performed without customer interruptions. These installations are operationally inspected every five years; and during this period, the total population will be assessed. Those that require a rebuild will be identified within the next five-year window. The mitigation of this configuration will be completed before the next inspection within the following five-year window.

6.2.4.6.3.1 CNG Station Strategy (Create)

The new Compressed Natural Gas (CNG) Station Strategy involves the acquisition of new large and mobile natural gas transportation (NGT) and small vehicle refueling appliances (VRA) station customers and the installation of the necessary fueling equipment. The timing and scope for new NGT assets are based on the likelihood of contract confirmation and historical station installations of similar size and scope.

The renewal and upgrade of existing stations ensures the continued safe, efficient, and reliable operations of all NGT stations. This approach includes the following activities:

- Small NGT stations (VRAs)
- Proactively replacing/rebuilding VRA compressors (~35 units per year)
- Proactively replacing/rebuilding remote panels (~33 units per year)
- Reactively replacing gas detectors as needed (~5 units per year)
- Large, mobile, and utility NGT stations
- Maintaining a proactive compressor block rebuild program (~3 to 4 units per year)
- Reactively remediating station components due to findings from onsite condition assessments
- Proactively replacing manual shutoff valves with automatic models when identified for replacement

6.2.4.6.4 COMMON DISTRIBUTIONS STATIONS PROGRAMS AND STRATEGIES

6.2.4.6.4.1 Corrosion Prevention Program (Maintain)

This program is to apply high-performance paint to mitigate corrosion of station assets. This program targets stations where existing paint has begun to fail or wear off, has a higher risk of corrosion due to roadside salt exposure, or are physically shaded. High-performance paint reduces the probability of leaks and piping/equipment failure due to significant corrosion. This program is specific to the Union rate zones only.

6.2.4.7 Distribution Stations Capital Expenditure Summary

The average annual capital spend is forecast to be $83.4 million (EGI) as summarized in **Table 6.2-15**. Distribution Stations capital is further summarized as part of EGD's total 10-year capital plan in **Section 3**. For the status of the outcomes of the IRP assessment process, including the binary screen and the status evaluation of IRPAs, see **Appendix B**.

Table 6.2-15: Distribution Stations Capital Summary ($ Millions) – EGI

Asset Class Strategy	Program Name	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	10-Year Forecast
Create	CNG Station Program	4.1	2.0	0.8	0.8	0.8	0.8	0.8	0.9	0.5	0.0	11.6
Maintain	Facilities Integrity Management Program	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
	Obsolete Heating Equipment Program	0.0	3.5	0.5	0.0	0.0	0.0	0.1	0.5	0.7	0.0	5.4
	Odourization Program	2.4	2.2	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	20.2
	Telemetry Program	3.6	3.5	3.5	3.4	3.4	3.6	3.7	3.8	3.7	3.7	36.1
Improve	Compliance Remediation Program	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Replace	Customer Station Replacement Program	2.8	1.1	1.1	1.1	1.0	1.0	1.0	1.0	0.0	0.0	10.1
	Distribution System Station Replacement Program	27.6	30.7	16.0	46.7	29.2	28.0	31.1	43.5	46.2	50.8	349.7

Asset Class Strategy	Program Name	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	10-Year Forecast
	Header Station Replacement Program	0.6	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.0	0.0	7.3
	Stations with Auxiliary Equipment Replacement Program	32.7	27.3	45.2	31.5	43.5	51.2	40.6	41.8	40.3	39.5	393.5
Total		73.7	71.4	70.7	86.5	80.8	87.6	80.1	94.4	93.4	95.9	**834.4**

6.2.5 Utilization

Utilization assets are the components of the distribution system that regulate system pressure, ensure low pressure delivery to the customer, and measure gas consumption. Safety is the paramount role of these assets, as the regulation system is the last line of defence to prevent overpressure to the customer. Unlike customer stations (described in **Section 6.2.4.5**), these assets support the delivery of gas primarily to customers consuming volumes less than 17.0 m³/h at a typical pressure of 7" wc.

Each Utilization asset subclass has unique characteristics and the management of each is tailored to ensure the safe and reliable delivery of natural gas. Utilization is comprised of three asset subclasses: (1) Measurement, (2) Pressure Regulation and Overpressure Protection, and (3) Belowground and Internal Piping.

6.2.5.1 Utilization Hierarchy

The asset class hierarchy for the Utilization asset class is summarized in **Figure 6.2-59**.

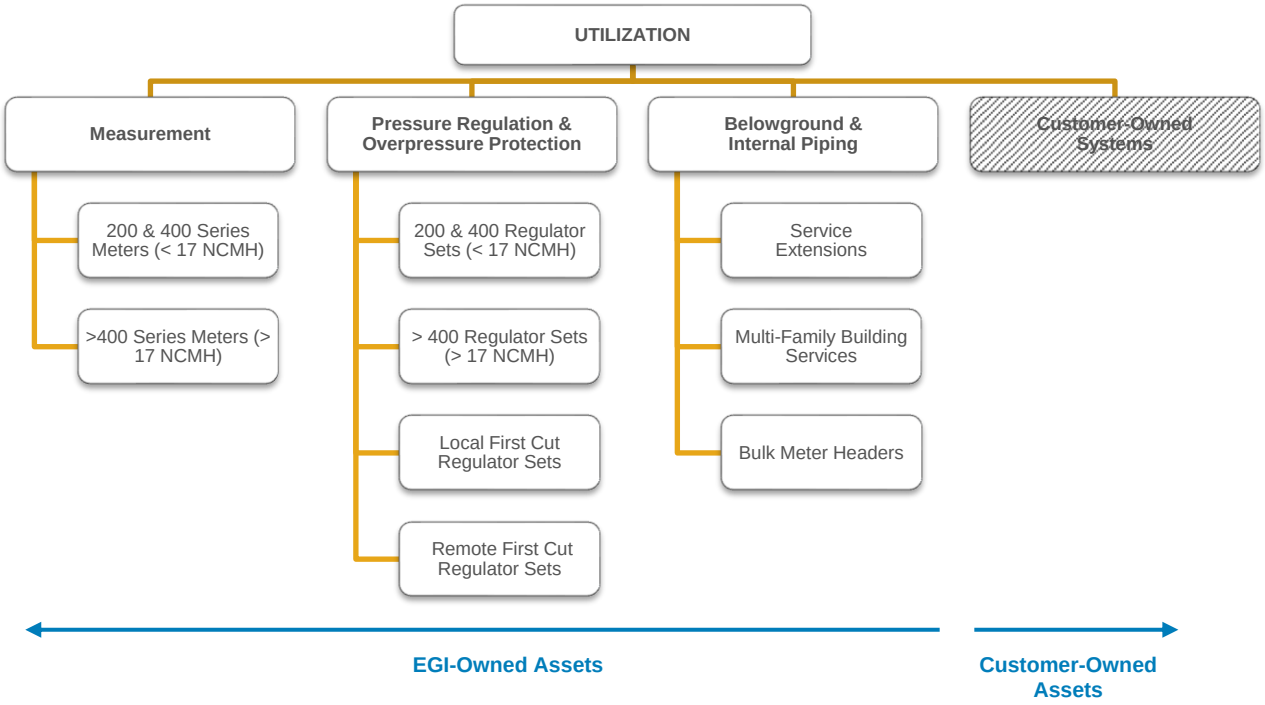


Figure 6.2-59: Utilization Asset Class Hierarchy

- **Measurement Systems** (natural gas meters and electronic volume correctors [EVCs]) track customer gas consumption. These systems directly link to customer billing and are subject to a stringent replacement program overseen by Measurement Canada. Measurement assets allow the safe operation of the natural gas network, provide accurate and timely measurement, and monitor and control the flow of natural gas in real time.
- **Natural Gas Meters** are devices used in measuring the quantity of natural gas delivered. Meters are classified as custody transfer or non-custody transfer. Custody transfer meters are billing meters for gas purchased from suppliers or sold to customers and must meet the legal requirements of the *Electricity and Gas Inspection Act*. The non-custody transfer meters are used for internal accounting of gas inventories. EGI uses a variety of gas meter types to fit different applications and requirements:
  - **Diaphragm meters** use positive displacement technology and internal mechanical temperature compensation to calculate delivered natural gas volumes at base temperature and pressure. The 200 series meter is the most common meter type in use. The 400 series meter is used for commercial and large residential loads and has incrementally more capacity than a 200 series meter. To mitigate supply chain challenges, EGI can substitute

200 & 400 class diaphragm meters with ultrasonic meters as required to continue connecting new customers and completing out-of-date meter exchanges pending industry approvals.

- **Commercial ultrasonic meters** are used as a direct substitute for 800/1000 series diaphragm meters. These meters use inferential ultrasonic flow measurement, electronic temperature correction, and consumption recording.
- **Rotary meters** are positive displacement devices comprised of a meter body with an EVC and are used in commercial and industrial applications.
- **Turbine meters** are inferential metering devices used at large commercial and industrial customer stations for high-volume metering. They are also used for volumetric measurement at interconnect sites between EGI and other pipeline companies.
- **Large ultrasonic meters** are sophisticated multi-path inferential measurement devices directly connected to RTUs for measurement of large volumes of gas at high pressures.

- **Electronic Volume Correctors** (**EVCs**) typically receive volume measurement inputs from a meter. EVCs measure the temperature or the temperature and pressure and correct the measured volume in real time.
- **Pressure Regulation and Overpressure Protection Systems** regulate the delivery of gas at a pressure appropriate for customer-owned gas-firing appliances and are the last line of defence for overpressure protection.

  Except for customers connected to low-pressure mains, each customer location has at least one regulator and one overpressure safety device installed to prevent gas entering the building at an unsafe pressure in the event of a malfunction. This asset subclass is comprised of the following components:

  - **Regulators** reduce natural gas pressure to safe operating limits and control its flow based on customer demand. Regulators in the Utilization asset class are regulated to deliver low pressure, typically at 7" wc.
  - **Safety devices** prevent downstream overpressure and are the last line of defence to prevent potentially hazardous conditions. Three typical safety devices used in the Utilization asset class are: (1) internal relief valves, (2) external relief valves, and (3) overpressure cut-offs.
  - **Piping on regulator sets** refers to any of the aboveground piping between the shutoff valve (commonly referred to as a shutoff or lock wing valve) and the meter outlet.
- **Belowground and Internal Piping Systems** are located upstream of inside meters and refer to piping running below grade or piping running inside a building.

  EGI owns a type of belowground asset called a **Service Extension**. Service extensions are belowground pipe between the regulator outlet and the meter inlet. This belowground piping is necessary in some configurations but is susceptible to corrosion and can require costly maintenance. Internal piping is typically found in multi-family buildings; this piping runs between the regulation and piping system located outside to meters inside the building.
- **Customer-Owned Systems** includes piping and assets downstream of the meter. Although EGI does not own these assets, *O. Reg. 212/01* requires an inspection of all installations upon initial connection to the gas supply or during the reintroduction of gas. In addition, EGI continues to inspect customer assets as part of a quality management program. By meeting these requirements, EGI helps to ensure the safe delivery of natural gas. As a last resort, EGI can terminate the natural gas supply if the customer fails to remediate any identified critical safety issues. Customer-owned systems are not part of EGI's assets, but they are included in this discussion for illustrative purposes and to provide a wholistic view of the work undertaken by EGI (see **Figure 6.2-60**).

Figure 6.2-60: Utilization Assets Illustration

6.2.5.2 Utilization Inventory

Utilization assets include all assets downstream of the shutoff valve and upstream of the meter outlet. The Utilization asset subclass delivers natural gas to a range of customers. **Table 6.2-16** describes EGI's customer classifications.

Table 6.2-16: Customer Classifications

Customer Type	Subtype	Customer Definition
Commercial / Bulk Metered Uses natural gas for commercial purposes, buying and selling goods or services, and usually for a profit	Commercial New Construction	a customer intending to operate a commercial business (including apartment buildings with one bulk meter) in a newly constructed building and intending to use natural gas to meet energy needs
	Commercial Conversion	a commercial customer using a fuel other than natural gas for commercial business and is converting to natural gas
Multi-Family / Apartment Uses natural gas for residential purposes in a large building with multiple residential suites that are individually metered	Apartment New	a traditional apartment customer and is a multi-residential dwelling containing more than six units that are metered individually
	Apartment Conversion	a multiple unit residential building using a fuel source other than natural gas and is converting to natural gas, and where each suite is individually metered

Customer Type	Subtype	Customer Definition
Industrial Uses natural gas for commercial purposes, manufacturing, or processing products	Industrial New Construction	a customer intending to run an industrial manufacturing business in a newly built facility and intending to use natural gas
	Industrial Conversion	an industrial facility using a fuel other than natural gas for industrial purposes and is converting to natural gas
Residential Uses natural gas for residential purposes	Residential New Construction	a new residential construction development of homes constructed by a builder for domestic purposes, including new subdivisions
	Residential Conversion	a residential customer using a fuel other than natural gas for domestic purposes and is converting to natural gas

Over 90% of customers are residential, with the remaining being mostly commercial. With 3.9 million EGI customers requiring low pressure delivery, understanding and maintaining the health of these assets is a critical part of providing safe and reliable gas delivery. **Figure 6.2-61** and **Figure 6.2-62** profile EGI's existing customer base by type and location. For a map of the EGI distribution operating regions, see **Figure 1.2-2**.

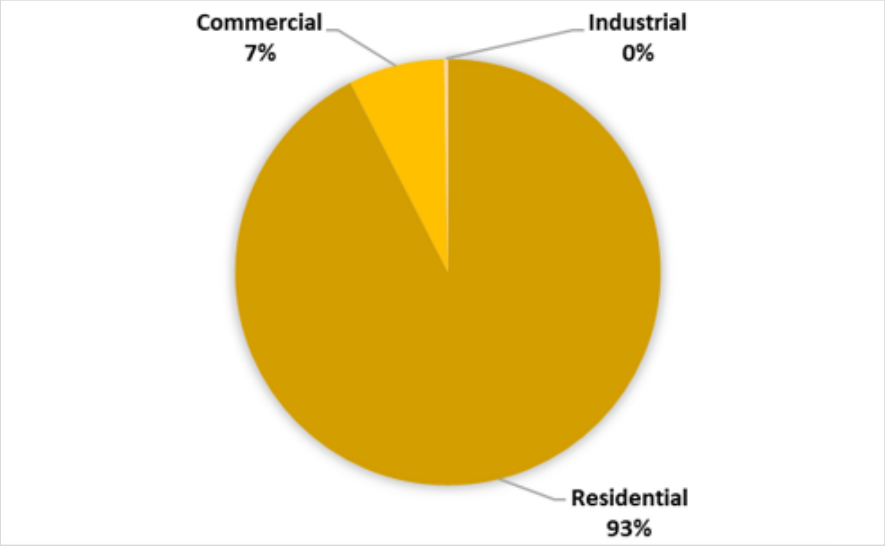


Figure 6.2-61: Customer Breakdown by Type

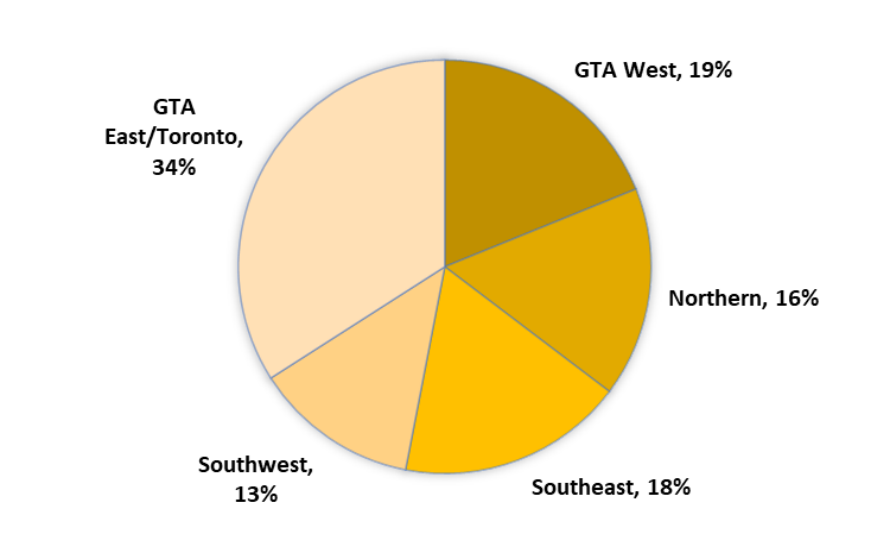


Figure 6.2-62: Customer Breakdown by Area

Table 6.2-17 lists the inventory details for the Utilization asset class.

Table 6.2-17: Utilization Asset Class Inventory

Asset Subclass	Inventory
Measurement Systems	
200 & 400 Series Meters (< 17 NCMH)	3,913,523
> 400 Series Meters (> 17 NCMH*)	68,336
Pressure Regulation and Overpressure Protection Systems	
200 & 400 Regulator Sets (< 17 NCMH)	3,535,517
> 400 Regulator Sets (> 17 NCMH)	119,865
Local First Cut Regulator Sets	68,792
Remote First Cut Regulator Sets	
Belowground and Internal Piping Systems	
Service Extensions	12,457
Multi-Family Building Services	3,002
Bulk Meter Headers	39

For the EGD rate zone, the number of meters includes those at customer stations within the Distribution Stations asset class. The number of regulators excludes the regulators at customer stations. The populations of > 400 Series Regulator Sets, Local, and Remote First Cut Regulator Sets have stations excluded.

For Union rate zones, the regulators at customer stations are excluded. The Local and Remote First Cut Regulator Sets may include customer stations; this will be refined as more asset population information is available. The inventories of Local and Remote First Cut Regulator Sets are combined due to a lack of asset system attribute available to distinguish between the two subpopulations. There is an ongoing DIMP inspection plan, which was initiated in 2021, aiming at identifying and validating each subpopulation through field survey.

6.2.5.3 Utilization Condition and Strategy Overview

Table 6.2-18: Utilization Condition and Strategy Overview

Asset Subclass	Avg. Age (Year)	Condition	Risk / Opportunity	Asset Class Strategies	Program Tactic, and Standards
Measurement Systems	**200 Series Meters (< 17 NCMH):** 24 to 27 years old **400 Series Meters (< 17 NCMH):** 13 to 15 years old **> 400 Series Meters (> 17 NCMH):** 16 to 20 years old	**Meter Exchange Government Inspection (MXGI) Program:** This program is designed to replace meters before they fail. Meter seal life (and extension) is based on sampling and testing to ensure Measurement Canada specifications are maintained. **Non-program:** Non-program meters that fail before the prescribed maximum service life are discovered during emergency calls or customer-initiated work.	Failing to remove expired meters from service carries penalties under the *Electricity and Gas Inspection Act*. Penalties could eventually lead to EGI's loss of accreditation, leading to higher meter replacement program costs. Therefore, maintaining Measurement Canada accreditation is critical for resealing meters, which allows for an extension to the life of meter assets that would otherwise need replacement. **Financial Risk:** A monetary penalty to EGI for not removing failed and overdue meters if the MXGI Program was not executed, as well as the financial impacts of a reduced asset life cycle. The financial risk of failed or leaking meters may lead to financial loss due to repair costs, relighting customer gas appliances, and any property damages. As well, EGI may lose revenue from stopped meters. **Workload Balancing:** Failure to manage the full life cycle of the meter population puts the company at risk for peaks and valleys in the workload plan. By maintaining a consistent workload, the company and contractors can manage and plan a predictable forecast of work and reduce the need to increase/decrease labour year over year.	Create	**Meter Purchases (Growth)** – Meters are forecasted and purchased to support new customer attachments. While this program is designed to support customer connections, its capital expenditures are tracked under the Utilization asset class.
				Maintain	Reactive maintenance, based on operating standards, is on an as-needed basis to address customer leaks and/or emergency calls. • *Electricity and Gas Inspection Act* • Electricity and Gas Inspection Regulations • Measurement Canada: S-S-06 – Sampling plans for the inspection of isolated lots of meters in service • Compliance Sampling – Allows sampling of the installed meter population to extend the seal life of the meters which manages meter replacement costs and stabilizes workload and meter purchases as some years have larger populations to survey
				Replace	**MXGI Program** – Follow the Measurement Canada regulated exchange (MXGI) program which replaces meters before their measurement seal expires. Balancing the workload based on population size and age supports the MXGI Program by ensuring the company has the right resourcing and consistent workload year over year, which will ensure that peaks and valleys do not occur and compliance to Measurement Canada's requirements are met. Reactive maintenance exchanges, based on operating standards, is on an as-needed basis to address customer leaks and/or emergency calls. • *Electricity and Gas Inspection Act* • Electricity and Gas Inspection Regulations
Pressure Regulation & Overpressure Protection	**200 & 400 Regulator Sets (< 17 NCMH):** Dependent on meter and regulator type: between 20 to 30 years old (~18% of the population is over 20 years old)	Failure history and trending indicates that the wear-out phase for regulators associated with 200 & 400 series meters is unlikely to occur before 30 years of age.	The majority of customers are connected to the distribution system through 200 & 400 series regulator sets. Not maintaining these assets can lead to: **Public Health and Safety Risk:** Loss of containment, threat of overpressuring customer piping, possibly leading to explosion **Financial Risk:** Repair, commodity loss, relights, and potential property damage costs **Operational:** Customer service disruptions **Environmental:** GHG emissions and environmental impact of a leak	Maintain	**Targeted Inspection and Remediation Program** – The Targeted Inspection and Remediation Strategy is used to remediate high-priority condition issues identified through EGI's DIMP. Through the DIMP, surveys collect information on the failure rates of assets, informing future policy decisions on replacement frequency. • The maintenance strategy for regulator sets is to proactively maintain units in conjunction with EGI's MXGI Program. • Reactive maintenance is on an as-needed basis (based on operating standards) to address customer leaks and/or emergency calls.
				Replace	• **MXGI Program** – Exchanging regulators during MXGI inspections prevents the population from reaching the wear-out phase. The MXGI Program covers all variations of meters and regulators and adheres to Measurement Canada requirements. • **Opportunistic Replacement** – If found to be 20 years or older, regulator sets are opportunistically replaced during meter exchanges.
	> 400 Regulator Sets (> 17 NCMH): Dependent on meter and regulator type:	Condition findings include corrosion of piping and regulators and not complying with installation specifications. The inspection program is planned to target the entire population of the > 400 series regulator sets.	The risks identified for > 400 series regulator sets are the same as 200 & 400 series regulator sets. Since delivery rates for > 400 series regulator sets are higher than delivery rates for the 200 & 400 series, the consequences are potentially greater and put a higher number of end users at risk.	Maintain	**Targeted Inspection and Remediation Program** – The Targeted Inspection and Remediation Strategy is used to remediate high-priority condition issues identified through EGI's DIMP. Through the DIMP, surveys collect information on the failure rates of assets, informing future policy decisions on replacement frequency. • The maintenance strategy for regulator sets is to proactively maintain units in conjunction with EGI's MXGI Program. • Reactive maintenance is on an as-needed basis (based on operating standards) to address customer leaks and/or emergency calls.

Asset Subclass	Avg. Age (Year)	Condition	Risk / Opportunity	Asset Class Strategies	Program Tactic, and Standards
	between 20 to 30 years old			Replace	• **MXGI Program** – Exchanging regulators during MXGI inspections prevents the population from reaching the wear-out phase. The MXGI Program covers all variations of meters and regulators and adheres to Measurement Canada requirements. • **Opportunistic Replacement** – If found to be 20 years or older, regulator sets are opportunistically replaced.
	Local First Cut Regulator Sets: Dependent on meter and regulator type: between 20 to 30 years old	Failure history and trending indicate the wear-out phase for regulators associated with 200 & 400 series meters is unlikely to occur before 30 years of age. First cut regulators were not historically replaced at the same time as second cut regulators, as per current installation standards. Sites not compliant with installation specifications are remediated.	The risks identified for local first cut regulator sets are the same as 200 & 400 series regulator sets. However, these assets present a higher consequence than traditional single cut regulator sets due to the higher pressures managed by two pressure cuts.	Maintain	**Targeted Inspection and Remediation Program** – The Targeted Inspection and Remediation Strategy is used to remediate high-priority condition issues identified through EGI's DIMP. Through the DIMP, surveys collect information on the failure rates of assets, informing future policy decisions on replacement frequency. • The maintenance strategy for regulator sets is to proactively maintain units in conjunction with EGI's MXGI Program. • Reactive maintenance is on an as-needed basis (based on operating standards) to address customer leaks and/or emergency calls.
				Replace	• **MXGI Program** – Exchanging regulators during MXGI inspections prevents the population from reaching the wear-out phase. The MXGI Program covers all variations of meters and regulators and adheres to Measurement Canada requirements. • **Opportunistic Replacement** – If found to be 20 years or older, regulator sets are opportunistically replaced**.**
	Remote First Cut Regulator Sets: Dependent on meter and regulator type: between 20 to 30 years old	Remote first cut regulator set sites older than 15 years were determined to have more significant condition issues. Remote first cut regulators are installed away from premises and near the property line, making them more susceptible to corrosion and third-party damage. First cut regulators were not historically replaced at the same time as second cut regulators.	The risks identified for remote first cut regulators are the same as local first cut regulator sets**.** As remote first cut regulators are installed away from the premises and near the property line, these assets are exposed to more elements originating from the roadway. Their placement can also make them susceptible to third-party damage from maintenance equipment and vehicles.	Maintain	**Targeted Inspection and Remediation Program** – The Targeted Inspection and Remediation Strategy is used to remediate high-priority condition issues identified through EGI's DIMP. Through the DIMP, surveys collect information on the failure rates of assets, informing future policy decisions on replacement frequency. • The maintenance strategy for regulator sets is to proactively maintain units in conjunction with EGI's MXGI Program. • Reactive maintenance is on an as-needed basis (based on operating standards) to address customer leaks and/or emergency calls.
				Replace	• **MXGI Program** – Exchanging regulators during MXGI inspections prevents the population from reaching the wear-out phase. The MXGI Program covers all variations of meters and regulators and adheres to Measurement Canada requirements. • **Opportunistic Replacement Program** – If found to be 20 years or older, regulator sets are opportunistically replaced.
Belowground & Internal Piping Systems	N/A	**Service Extensions:** A sample survey of service extensions showed that some subsets have a population that requires CP. **Multi-Family Building Services:** Generally, corrosion is found where the pipe intersects with the concrete wall; any severe corrosion that could affect safety is remediated. **Bulk Meter Headers:** Common issues include: • No clear demarcation points between EGI and customer assets • Obsolete regulators 20 years and older • Nonadherence to current installation and maintenance specifications • Vent clearances and configurations not met, not all fittings located aboveground, and obsolete components	The risks identified include financial, environmental, operational, and public health and safety risk. **Service Extensions:** Since this piping enters the building below grade, gas leaks may have a higher chance of migration into the building, resulting in gas accumulation and a potential incident. **Multi-Family Building Services:** Since this piping system category is located inside high-occupancy buildings, the potential consequence of failure is higher and a loss of containment will impact more people. **Bulk Meter Headers:** Since the buildings serviced are higher-occupancy units, there is potential for a higher consequence of failure. EGI is obtaining further information on these assets to better understand and manage asset risk.	Create	**Targeted Inspection and Remediation Program** – Sampling will be used to assess risks and validate the condition of the assets through the Leak Survey and Cathodic Protection Survey. The feasibility of an aboveground inspection tool will continue to be reviewed. The remediation of high-priority condition issues will be identified through the Leak Survey and Cathodic Protection Programs.
				Maintain	• Leak Management Operating Standard, including the Leak Survey Program conducted with defined frequency depending on material, age, cathodic protection and presence of wall-to-wall hard surface area • Corrosion Control Operating Standard, including Cathodic Protection Survey
				Replace	**Opportunistic Replacement** – Replace service extensions when the gas service is replaced and during planned city sidewalk/road replacements. Reactive maintenance is on an as-needed basis to address customer leaks and/or emergency calls.

Asset Subclass	Avg. Age (Year)	Condition	Risk / Opportunity	Asset Class Strategies	Program Tactic, and Standards
Customer-Owned Systems	N/A	EGI inspects customer-owned assets at the time of initial installation and after conducting relights. Customers are issued A-tag infractions if unacceptable conditions that present an immediate hazard are identified.	Failure of these components can cause loss of containment and appliance malfunction, resulting in public health and safety risk.	Maintain	• EGI inspects customer-owned assets at the time of initial installation and after conducting relights. • Reactive maintenance is on an as-needed basis to address customer leaks and/or emergency calls.

6.2.5.4 Measurement Systems

Meters represent the largest group of assets within the Utilization asset class. Meters measure gas flow to the customer premises. Different measurement devices are used to measure customer consumption, 200 & 400 series meters (<17 NCMH) have a capacity of 17.0 m^3/h or less and > 400 series meters (> 17 NCMH) have a capacity of 17.0 m^3/h or greater.

Certain meters have instruments (electronic volume correctors) that perform compensation to accurately measure gas flow.

Meters are managed through a well-established program detailing the performance testing, repair, and replacement requirements of meters and instruments. Measurement Canada approved all verified meters with an issuance of a certificate identifying the meter as compliant with Electricity and Gas Specification S-EG-02, which specifies meter tolerance. EGI must ensure all measurement devices remain in compliance for annual Measurement Canada audits and must demonstrate all aspects of its quality program, meter sampling, maintenance, and replacement activities are compliant to receive Measurement Canada accreditation as an authorized service provider and to adhere to Measurement Canada Accreditation Standard S-A-01.

The majority of EGI's customer base is residential and small commercial customers whose meter has been a 200 or 400 series diaphragm meter for many decades. Technological advances have introduced ultrasonic meters which are becoming available for the 200 & 400 series meters. EGI has an interest in upgrading its meters to ultrasonics as they offer enhanced safety features and can provide more insight back to the utility in real time when connected to a network. Diaphragm meters are becoming more difficult to procure as one of the major diaphragm meter manufacturers discontinued production of their line in 2021, in addition to other supply chain issues; therefore, EGI is substituting small diaphragm meters with ultrasonic meters to continue to connect new customers and execute meter exchanges. EGI is also exploring two options for Advanced Metering Infrastructure (AMI) deployment. The first option will complement the introduction of ultrasonic meters to EGI's system. The second option is to introduce a mid-market deployment of AMI for installation on rotary meters which will represent a much smaller portion of the meter population but provide monitoring of larger commercial customers.

6.2.5.4.1 CONDITION METHODOLOGY

The replacement of the meter population is prescribed by Measurement Canada requirements and fulfilled by EGI's meter exchange program. MXGI volumes are driven by a sampling program. Based on the failure rate of sampled meter groups (for more information on failure rates, see **Section 6.2.5.4.2**), groups of meters that have short seal life extensions available to them are also replaced. This approach optimizes sampling and meter group replacement costs, to stabilize workload and meter purchases as some years have larger populations to survey. Sample results and corresponding extension durations are used to indicate meter group health.

The methodology for determining meter replacement is developed by Measurement Canada and varies by meter type:

200 & 400 Series Meters (< 17 NCMH): The pace and methodology of diaphragm meter replacements is set by Measurement Canada's S-S-06 Standard Sampling Plans. Annual sampling is carried out on meter groups. Meters are due for replacement originally based on their initial life span (10 years for most 200 series meters, 7 years for 400 series meters). Meters are grouped homogenously; in the year before first expiry (typically at Year 9 for 200 series meters), samples are pulled from each group for testing. If the sample meters pass, then a life extension (8, 6, 4, or 2 years based on the meters' initial life span) is given to the meter group. If the sample meters fail, the meters are removed from service. Meter groups that pass require further testing after their next extended life span expires (8, 6, 4, or 2 years).

> 400 Series Meters (> 17 NCMH): Rotary meters, turbine meters, and instruments do not qualify for sample inspection. The life cycle management for these meters is to renew and replace prior to seal expiry. Rotary meters expire after 16 to 20 years, turbine meters at 6 years, and instruments at 7 to 12 years. The ultrasonic meter qualifies for the annual sampling program similar to the 200 & 400 series meters (with an initial seal life of 10 years). The ultrasonic meter has the potential to have a similar life span as the 200 series meter.

Exchanged meters are processed at the meter shops on EGI premises, as EGI has facilities that are Measurement Canada accredited. Processing includes labelling, cleaning, repairing, and performance testing. EGI can have meters sent off site to accredited meter inspections facilities as required. Meters are also exchanged when malfunctioning, when customer load changes, or if involved in billing investigations.

6.2.5.4.2 CONDITION FINDINGS

The MXGI Program is designed to keep the in-service meter population healthy. The length of meter life extensions is dependent on sample group performance. The evidence of in-service meter population health is shown in **Table 6.2-19** across both rate zones wherein the number of failures seen over the past five years represented less than 0.03% of the entire five-

year population combined. In addition, the maximum achievable extension decreases as sampling of a group increases. For 200 & 400 series meters, the typical in-service life for meter groups is 18 to 24 years. As manufacturing and handling processes have evolved over time, meter groups frequently reach 24 years and beyond. The historical quantity of program-exchanged meters and non-program-exchanged meters is shown in **Table 6.2-20**.

In previous years, the EGD strategy for determining the number of MXGI program meter exchanges was short-sighted and did not consider the end date for different vintages of meters, which led to a high potential for peaks and valleys in the number of MXGIs that would be required in later years. This was identified and mitigated during the integration of the two utilities and EGD adopted the workload balancing strategy that Union utilized which incorporated an end-of-life expectation for residential meters, providing better visibility to the meter population and the required number of exchanges for each year.

Table 6.2-19: Meter Sampling Program (Historical)

Year	Total Meter Population Represented by Sample	Total of Meters Achieving Seal Extension	Population of Failed Meters
2019	469,711	469,711	-
2020	372,474	372,272	202
2021	368,163	367,590	573
2022	668,110	668,110	-
2023	607,766	607,766	-

Table 6.2-20: Meter Replacements (Historical)

Year	MXGI Program Meter Exchanges	Non-Program Meter Exchanges
2019	101,272	32,247
2020	91,316	22,647
2021	76,617	23,062
2022	107,122	24,813
2023	134,022	30,340

Non-program meter exchanges are attributed to the reasons listed in **Figure 6.2-63**.

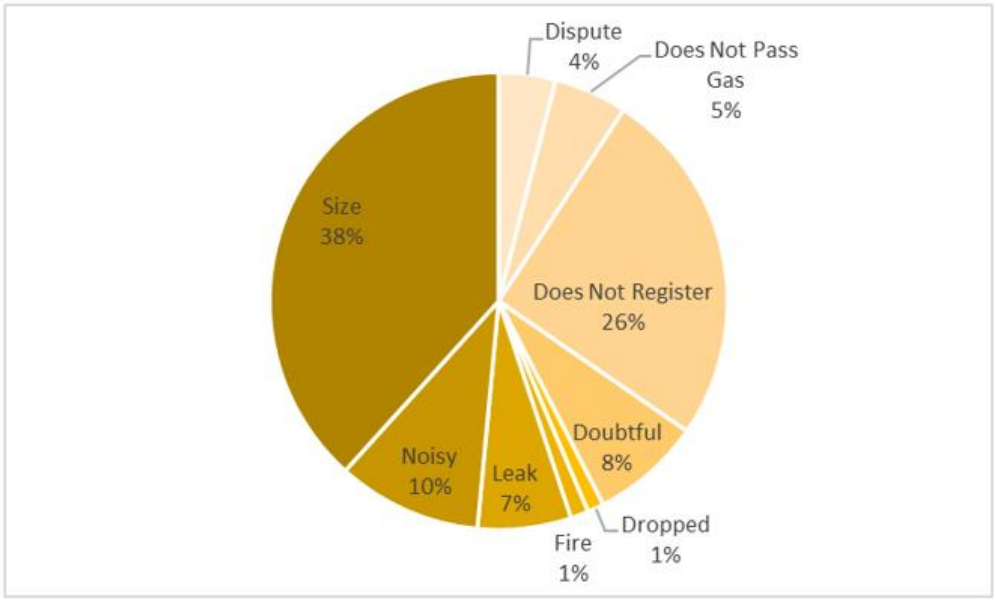


Figure 6.2-63: Typical Causes of Non-Program Meter Exchanges - EGI Rate Zone

6.2.5.4.3 RISK AND OPPORTUNITY

6.2.5.4.3.1 MXGI Risk

For detail on the risk and opportunity, see **Table 6.2-18**.

6.2.5.4.3.2 Non-MXGI Program Meter Exchange Risk

Non-MXGI Program meter exchanges target leaking meters, damaged meters, and meters that do not flow gas. Hazards associated with leaks could result in migration and gas accumulation. However, the health and safety risk associated with meters is minimal, as meters leak very infrequently and the majority are located outside customer premises. Very few meters are returned due to leaks. The financial risk of failed or leaking meters may lead to financial loss due to repair costs, relighting customer gas appliances, and any property damages. As well, EGI may lose revenue from stopped meters. These risks can result in damage to the EGI brand which promotes the core values of safety and reliability. In addition, there is a financial opportunity to remove groups of meters that have been sampled multiple times with the availability of short extensions remaining.

6.2.5.5 Pressure Regulation and Overpressure Protection Systems

EGI is accountable for managing over 3 million regulator sets that deliver low pressure natural gas to customers. These critical assets act as the last line of defence against overpressure. A regulator set is comprised of a regulator that reduces distribution gas pressure to delivery pressure, piping and overpressure protection devices. Proper performance of these assets is vital for the health and safety of customers, the public, and employees. **Table 6.2-21** describes the four subsets of this asset subclass.

Table 6.2-21: Regulator Set Descriptions

Regulator Set	Description
200 & 400 Series Regulator Sets (< 17 NCMH)	These regulator sets provide low-pressure delivery (typically 7" wc) to primarily residential customers. They are associated with meters having capacities of 17.0 m^3/h or less.

Regulator Set	Description
> 400 Series Regulator Sets (> 17 NCMH)	These regulator sets provide low-pressure delivery (typically 7" to 10" wc) to high-volume customers. They are associated with meters having capacities greater than 17.0 m^3/h.
Local First Cut Regulator Sets	These regulator sets are associated with services connected to higher-pressure mains and have two regulators in series in close proximity at the same assembly. The first cut regulator reduces pressure from a higher pressure (>100 psig) to an intermediate pressure (typically 60 psig) and the service cut regulator reduces pressure from intermediate to low pressure (up to 7" wc).
Remote First Cut Regulator Sets	These regulator sets are the same as the local first cut regulators, but the first cut is typically located close to the property line and the service continues below grade to the meter and regulator assembly adjacent to the premises. ***NOTE:*** *Remote first cut regulator sets are also known as farm taps or property line post regulator sets (PLPRs).*

6.2.5.5.1 200 & 400 SERIES REGULATOR SETS (< 17 NCMH)

The 200 & 400 series regulator sets account for the majority (approximately 95%) of all regulator sets. Currently, regulators with single meters are replaced at the same time as meters exchanged through the MXGI Program. Based on the MXGI Program requirements, replacements can happen as soon as after 10 years of service. For the age distribution of the 200 & 400 series regulator sets, see **Figure 6.2-64**.

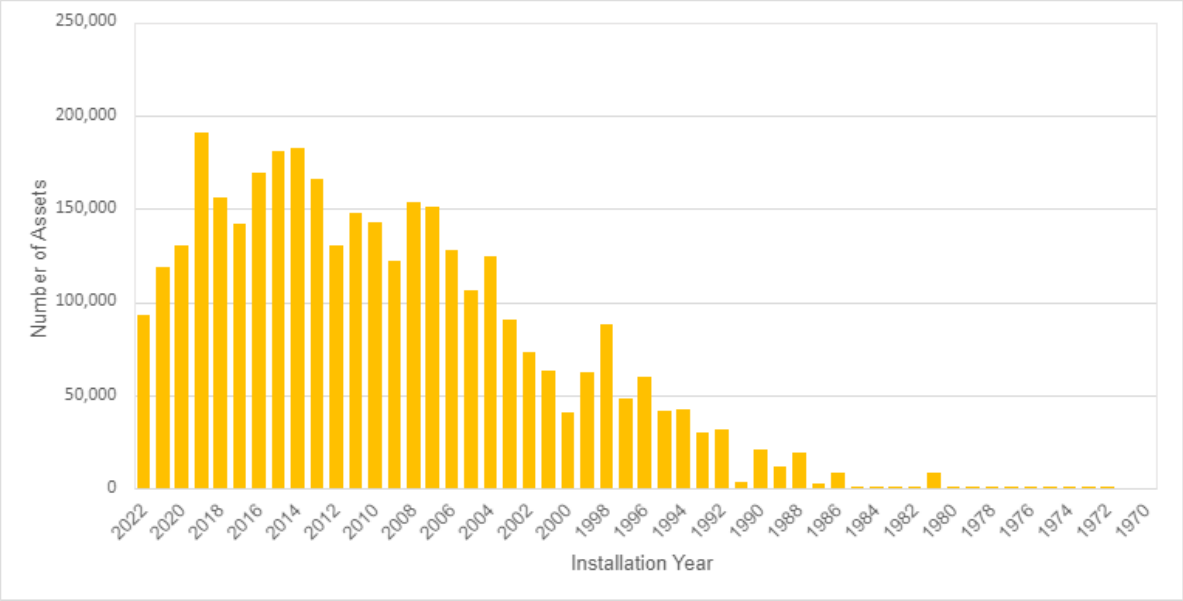


Figure 6.2-64: Age Distribution of 200 & 400 Series Regulator Sets – EGI Rate Zone

6.2.5.5.1.1 Condition Methodology

Regulator set condition is determined by performance, corrosion of piping, and adherence to installation specifications:

- **Regulator performance** is influenced by the age of the asset (mechanical wear and tear) and physical environment, potentially affecting the ability to lock up in abnormal conditions (to prevent overpressure) and the ability to contain gas (absence of leaks). Assessment is determined through failure data, laboratory testing, and age of the asset.
- **Corrosion of piping and regulators** can lead to loss of containment and faulty regulator performance. This is determined through an onsite visual assessment.
- **Adherence to installation specifications** is affected by a number of external factors which can affect failure rates and consequences. These include physical changes in site condition made by the customer after the initial installation

of the set, such as new building openings/vents, increased grade, and unreported damage, as well as regulatory specifications and codes that have changed since installation. This is determined by an onsite visual assessment.

Issues and outcomes affecting regulator sets, safety devices, and piping systems are summarized in **Table 6.2-22**.

Table 6.2-22: Component Issues and Outcomes Summary

Component	Issue	Outcome
Regulator	Incorrect delivery pressure	Regulator overpressure may cause downstream effects resulting in emergency response and potentially higher severity consequences to public health and safety.
	Regulator in contact with customer supply lines	Regulators in contact with customer supply lines can cause electrical continuity of belowground and aboveground systems. This can promote migration of corrosion between belowground and aboveground piping.
	Regulator too close to ground	Regulators that touch the ground are more susceptible to corrosion.
External Reliefs	External relief missing on downstream regulator	Absence or failure of this component removes overpressure protection, which is critical in the event of a regulator failure.
Regulator Cap	Damaged or missing	A damaged or missing regulator cap can allow water or debris to enter the regulator housing, resulting in faulty performance and compromised pressure control.
Vent	Orientation not downwards	The vent must point downwards to reduce the probability of water or debris entering regulator control components and compromising pressure control.
	Missing or incorrectly sized vent screen	Missing or incorrectly sized regulator vent screens can allow insects and/or debris to block vent openings, impeding regulator diaphragm movement and compromising pressure control.
	Presence of vent shields	Vent shields are legacy components that were in place to protect vents. Debris or ice can build up on the vent shield, causing blockage and compromising pressure control.
	Vent too close to grade or other surfaces	Vents that are too close to grade can experience splashing and freeze-up of the opening, or can be covered with snow/ice, compromising pressure control.
	Insufficient vent clearance to building openings	Vents must comply with minimum distances to building openings to prevent gas migration.
Fittings, Shutoff Valves, Piping	Buried fittings	Fittings, typically shutoff valves, must be aboveground to shut off gas in emergencies and avoid corrosion.
	Corrosion	Severe corrosion and pitting can lead to a loss of containment or abnormal operating condition.
All	Damaged by third party or environmental factors	Damages can lead to a loss of containment or abnormal operating condition.

These issues can contribute to failure of the regulation system and can cause over-pressured gas to enter the customer's supply piping, resulting in the potential failure of gas equipment, loss of containment, gas accumulation, and/or potential incidents.

Measurement Canada mandates the inspecting of EGI meter accuracy at prescribed frequencies. The associated pressure reducing regulators are also renewed during the MXGI as an opportunistic risk mitigation and cost optimization. To provide a more comprehensive assessment of condition for all components, DIMP has initiated a multi-year sample inspection program to directly assess the condition of 200 & 400 series regulator sets. The inspection criteria include an assessment of potential

hazards including corrosion on various components, external interference, and non-compliances. The findings are used to proactively prioritize risk mitigation activities which may include repair to extend the life of assets, or replacement when the assets have reached their end of life. This sample inspection program will be initiated in 2024 to inform on the asset health of the broader population of over 3.5 million 200 & 400 series regulator sets.

6.2.5.5.1.2 Condition Findings

Failure history and trending indicates that the wear-out phase for regulators associated with 200 & 400 series meters is unlikely to occur before 30 years of age. The current failure rate is very low relative to the total population. EGI replaces regulators proactively at the time of the meter exchange and before they fail.

Non-program regulators that fail before the manufacturer's recommended maximum service life are discovered during emergency calls or customer-initiated work. In most years, the number of regulators exchanged outside of the program is very minimal.

Three condition categories evaluated for 200 & 400 series regulator sets are (1) Regulator Performance, (2) Corrosion, and (3) Adherence to Installation Specifications:

Regulator Performance: Regulator performance is affected by wear-out due to a combination of internal mechanical cycling and field operating conditions such as the presence of debris in the gas or atmosphere, ice or snow load, and regulator set location. Additional layers of protection that are part of EGI's installation standard (e.g., overpressure protection) can mitigate regulator failure incidents. EGI uses actual regulator failure and exchange data where possible to establish failure modes and frequencies.

For regulators exchanged outside the MXGI Program, the historical data does not indicate the reasons for regulator exchanges. A conservative approach for the reliability study assumed that all exchanges were due to some type of failure. Failures may include a relieving regulator, regulator creeping, under-pressure, overpressure, or gas escapes. Non-failure replacements may be due to handling issues, customer load changes, changes to building openings, obsolete regulators, corrosion, and damages. The quantity of regulator exchanges independent of meter exchanges is relatively low. Analysis will continue to distinguish failure and non-failure exchanges within this group of assets.

Corrosion of Piping and Regulators: Condition assessment survey is being performed by DIMP to improve the understanding of potential hazards and condition of these 200 & 400 Series Regulator Sets. Results of the inspection survey are expected to be ready in 2025.

Adherence to Installation Specifications: It has been observed that regulator sets can have deviations from current installation specifications. This can occur when site conditions change over time, such as buildup of grade level, addition of new vents/building openings and building structures, as well as broken/missing components. In addition, installation specifications have changed over time and legacy specifications and components may still exist in some of these sets.

6.2.5.5.1.3 Risk and Opportunity

Any 200 & 400 series regulator sets in poor condition expose EGI to financial, public health and safety, operational, and environmental risk.

The safety risk with regulator sets is associated with the loss of gas containment in close proximity to buildings (including gas migration). Regulators (and associated relief valves) control gas pressure to protect the customers' piping and premises from overpressure. An overpressure event can result in damage to downstream equipment, loss of containment near a building, gas accumulation, and a potential for fire or explosion. The probability of a public health and safety risk is low due to the MXGI Program governing these assets.

Failure of these assets is commonly linked to financial risk. Overpressure and loss of containment generates costs associated with emergency response calls, repairs, commodity loss, relighting customers' gas appliances, property damage, and/or other claims. The operational risk includes customer service disruptions, reduced reliability, and media coverage resulting from these events which may result in reduced customer confidence in EGI.

Environmental risks include GHG emissions and environmental impact of a leak. EGI continues to take steps to gather necessary information and better manage these assets and their risks.

6.2.5.5.2 > 400 SERIES REGULATOR SETS (> 17 NCMH)

The > 400 series regulator sets are primarily used by commercial, industrial, and high-density residential customers. Failure of these regulator sets has the potential to cause overpressure to a customer's supply line and appliances. Overpressure can result in a loss of containment within the building, potentially allowing gas migration. The current policy states commercial regulators are opportunistically exchanged if found to be 20 years or older.

Figure 6.2-65 shows the age distribution of > 400 series regulator sets in EGD and Union rate zones, respectively. Historically, > 400 series regulator sets have not been tracked as separate asset components in the EGD or Union systems of record; therefore, the installation date of the service they are associated with has been used as a proxy to determine the age.

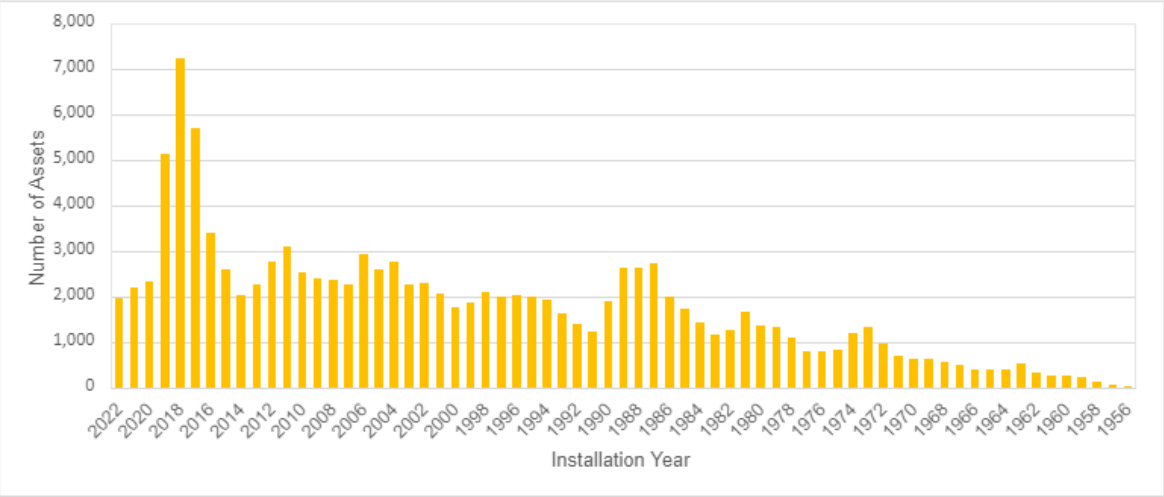


Figure 6.2-65: Age Distribution of > 400 Series Regulator Sets – EGI Rate Zone

Commercial Meter Manifolds are a subset of > 400 series regulator sets. These installations of multiple banked meters are typically located in commercial plazas. As EGI has not historically provided specifications on the addition of new meters to existing manifolds or criteria required for regulator set rebuilds, this configuration is more prone to condition issues and nonadherence to installation specifications.

6.2.5.5.2.1 Condition Methodology

The condition methodology for > 400 series regulator sets is the same as for the 200 & 400 series regulator sets (see **Section 6.2.5.5.1.1**).

6.2.5.5.2.2 Condition Findings

Inspection work plan is ongoing targeting the entire EGI population of the > 400 series regulator sets has been developed for this asset subclass including visual assessment of condition and degradation rating of components to be used as an early indicator of failure resulting in a proactive remediation approach. This inspection work plan was initiated in 2021 with a statistically significant random sample, continued into 2022 and is currently ongoing. As part of this survey, two main condition categories were evaluated for these regulator sets: corrosion of piping and regulators and adherence to installation specifications. Future replacement work will be used as an opportunity to evaluate the performance of pressure-controlling devices.

- **Corrosion of Piping and Regulators***:* The survey included a visual assessment of the condition including corrosion rating of service regulators, external relief valves, valving, and service piping for this asset subclass as well as risers (see **Figure 6.2-66**). Minimal and moderate external corrosion does not affect the engineering design and safe operation of the > 400 regulator assets and does not present any immediate safety concerns. Sites with severe pitting corrosion are identified for remediation.

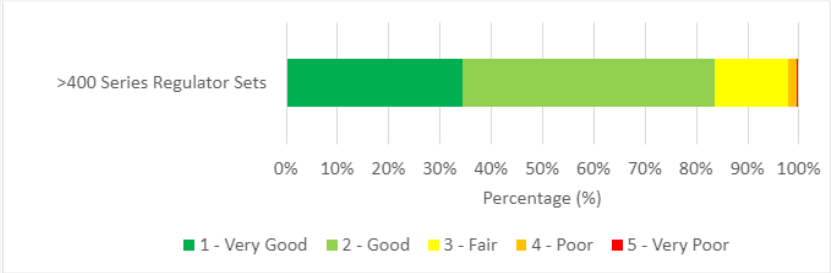


Figure 6.2-66: 400 Series Regulator Sets Corrosion Assessment – EGI

- **Adherence to Installation Specifications***:* The sample survey indicated that a small percentage of > 400 series regulator sets had issues related to adherence to current installation specifications. The most frequent issues identified were:
    - Improper vent orientation
    - Vent clearance issues
    - Damage to the regulator cap
    - Missing vent screen
    - Presence of vent shields
    - Regulator in contact with pipe
    - Regulator within ½ inch of pipe
    - Buried fitting
    - Inadequate protection

Remediation plans have been created to address and mitigate all sites with identified issues. As the inspection program is expanded to target the entire population of the >400 series regulator sets, additional locations requiring mitigation work will be identified and remediated in the future.

6.2.5.5.2.3 Risk and Opportunity

The risks associated with > 400 series regulator sets are the same as the 200 & 400 series regulator sets (see **Section 6.2.5.5.1.3**).

Historically, the probability of a > 400 series regulator failure is low. These assets are predominantly used in commercial, industrial, or higher-density residential premises, which typically serve a larger number of end-users than single-family residential premises; therefore, an abnormal operating condition for one of these assets puts a larger number of end users at risk. As well, > 400 series regulators have higher delivery flow rates than residential (200 & 400 series regulators) services. This results in potentially more severe consequences for safety and financial risks when compared to smaller flow regulator sets.

The most likely risk for > 400 series regulator sets is financial, due to the likely outcome of a failure only requiring remediation. The probability of a safety risk is low due to engineering policies governing these assets, and Quality Assurance (QA) testing on commercial regulators at EGI's Materials Evaluation Centre (MEC) where > 400 regulators are tested at the time of the meter exchange. Risk is further managed through proactive replacement of regulators if, during service calls, they are found to be older than 20 years.

6.2.5.5.3 LOCAL FIRST CUT REGULATOR SETS

When gas is delivered from a higher-pressure (> 100 psig) gas main, the regulator set will have two regulators installed in series (i.e., two pressure cuts). This configuration is not common and represents an estimated 2% of the total EGI services. The regulator set may also include additional components, such as external relief valves. **Figure 6.2-67** shows the age distribution of local double cut regulator sets in EGD and Union rate zones, respectively. For the Union rate zones, the distribution includes both local and remote first cut regulator sets as there is no asset attribute available in the current system of record to distinguish between the two subpopulations. An integrity inspection program targeting the inspection of the entire local and remote first cut regulator set population in the Union rate zones was initiated in 2021 which will allow for identification and validation of each subpopulation.

Historically, local first cut regulator sets have not been tracked as separate asset components in the EGD or Union systems of record. Therefore, the installation date of the service they are associated with has been used as a proxy to determine the age.

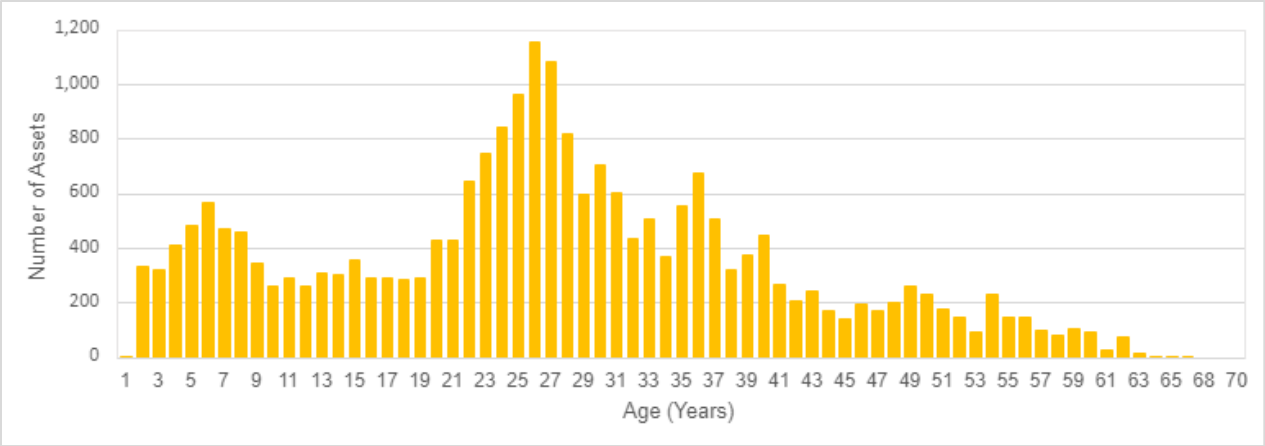


Figure 6.2-67: Age Distribution of Local and Remote First Cut Regulator Sets

6.2.5.5.3.1 Condition Methodology

The condition methodology for local first cut regulator sets is the same as for the 200 & 400 series regulator sets (see **Section 6.2.5.5.1.1**).

6.2.5.5.3.2 Condition Findings

For more detail on the Integrity inspection plan, see **Section 6.2.5.5.2.2**. The results of the inspection survey for EGI's local first cut regulator sets are shown in **Figure 6.2-68**.

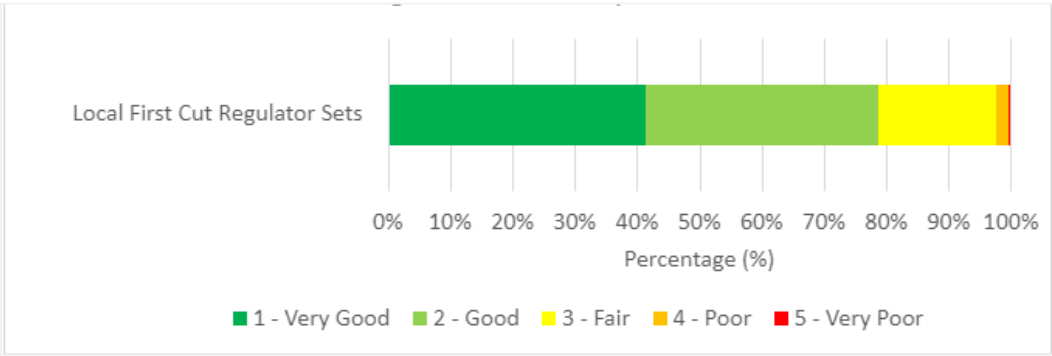


Figure 6.2-68: Corrosion Assessment of Local First Cut Regulator Sets – EGI

Adherence to Installation Specifications: The issues identified from the sample survey are the same as those described in the > 400 series regulator sets in the 2021 Inspection Survey (see **Section 6.2.5.5.2.2**). Remediation plans have been created to address and mitigate all sites with identified issues. As the inspection program is expanded to target the entire population of local first cut regulator sets, additional locations requiring mitigation work will be identified and remediated in the future.

6.2.5.5.3.3 Risk and Opportunity

The risks associated with local first cut regulator sets are the same as the 200 & 400 series regulator sets (see **Section 6.2.5.5.1.3**). Local first cut regulator sets present a higher consequence than traditional single cut regulator sets due to the higher pressures managed by two pressure cuts. The failure rate of local first cut regulator sets is very low due to the presence of multiple pressure regulators and multiple overpressure protection devices installed in series.

6.2.5.5.4 REMOTE FIRST CUT REGULATOR SETS

Table 6.2-21 describes remote first cut regulator sets, the majority of these double cut regulator sets are found in rural areas. **Figure 6.2-69** shows the age distribution of remote first cut regulator sets for the EGI rate zone. An Integrity inspection work

plan targeting the entire population of the remote first cut regulator sets in the rate zones has been developed to include visual assessment of condition and degradation rating of components. This will be used as an early indicator of failure resulting in a proactive remediation approach.

Historically, remote first cut regulator sets have not been tracked as separate asset components in the EGD or Union systems of record; therefore, the installation date of the service they are associated with has been used as a proxy to determine the age.

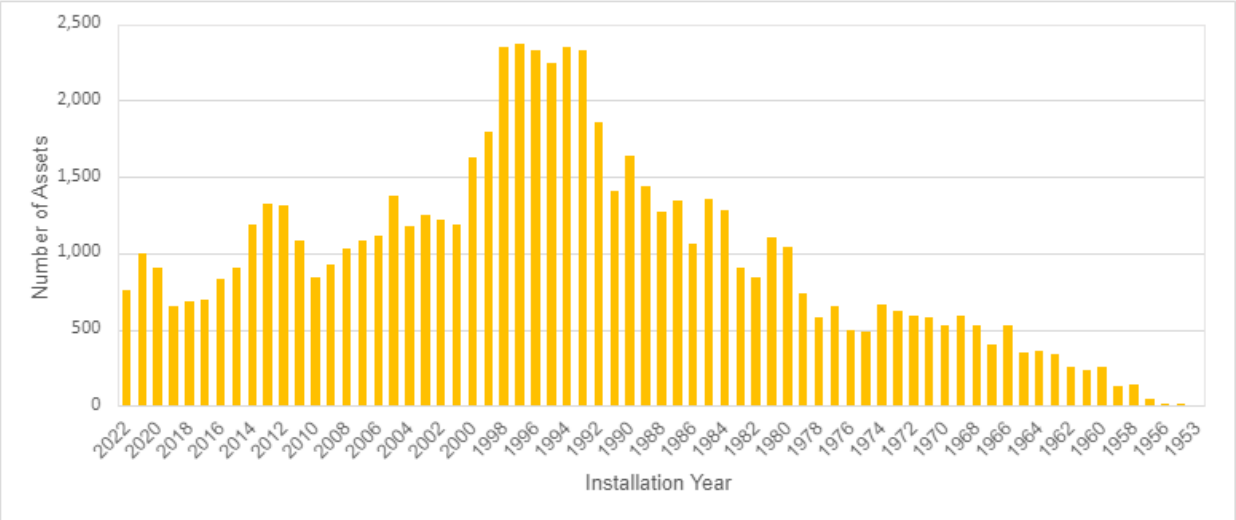


Figure 6.2-69: Age Distribution of Remote First Cut Regulator Sets – EGI Rate Zone

6.2.5.5.4.1 Condition Methodology

For the condition methodology, see **Section 6.2.5.5.1.1**.

6.2.5.5.4.2 Condition Findings

For more detail on the scope of the Integrity inspection plan, see **Section 6.2.5.5.2.2**. The results of the inspection survey for remote first cut regulator sets are shown in **Figure 6.2-70**.

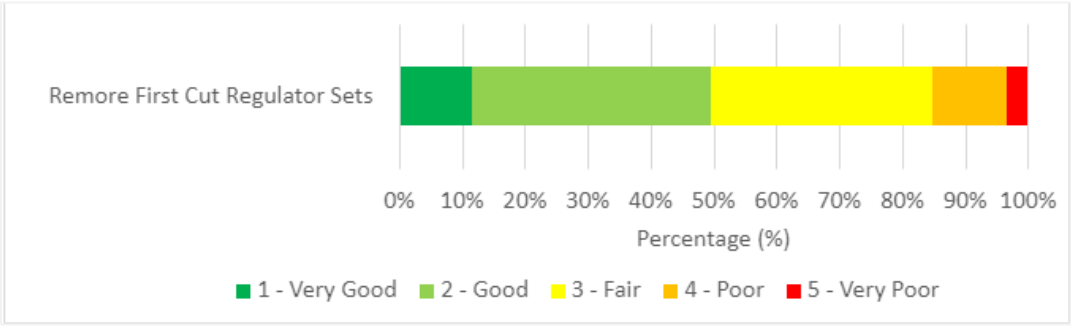


Figure 6.2-70: Remote First Cut Regulator Sets Assessment Rating – EGI

Adherence to Installation Specifications: The sample survey indicated that remote first cut regulator had issues related to adherence to installation specifications. The most frequent issues identified for remote first cut regulator sets were:

- Improper vent orientation
- Vent clearance issues
- Damage to the regulator cap
- Missing vent screen
- Obsolete regulators

- Buried fitting
- Inadequate protection

Most vintages had some level of nonadherence to installation specifications with an increasing trend as these assets approached 20 years of age. This is due to site conditions and installation specifications changing over time.

Remediation plans have been created to address and mitigate all sites with identified issues. As the Inspection Program is expanded to target the entire population of remote first cut regulator sets, additional locations requiring mitigation work will be identified and remediated in the future.

6.2.5.5.4.3 Risk and Opportunity

The risks associated with remote first cut regulator sets are the same as the 200 & 400 series regulator sets (see **Section 6.2.5.5.1.3**). Remote first cut regulator sets present a higher consequence than traditional single cut regulator sets due to the higher pressures managed by two pressure cuts. The failure rate of remote first cut regulator sets is very low due to the presence of multiple pressure regulators and multiple overpressure protection devices installed in series.

As most remote first cut regulators are installed away from the premises and near the property line, these assets are exposed to more elements originating from the roadway. Their placement can also make them susceptible to third-party damage from maintenance equipment and vehicles.

6.2.5.6 Belowground and Internal Piping Systems

Belowground and internal piping systems refer to piping running below grade and/or piping running inside a building, typically located upstream of inside meters. The Belowground and Internal Piping Systems subclass is categorized into:

- **Service Extensions:** Refer to service piping installed between the regulator (outside of the building) and the meter (inside the building) where the pipe enters the building belowground.
- **Multi-Family Building Services:** Refer to gas distribution networks within multi-unit buildings. Each may consist of a garage header, vertical headers, off-garage service pipes and/or vertical headers supplying meters for individual units. There are two main metering configurations:
  - **Ensuite Metering:** Internal piping leading to meters inside individual units
  - **Banked Metering:** Internal piping leading to meters grouped together in the garage or basement instead of each individual level of the building
- **Bulk Meter Headers:** Refer to gas distribution networks consisting of underground piping downstream of a meter feeding multiple individual customer buildings; regulation occurs downstream of the meter.

6.2.5.6.1 SERVICE EXTENSIONS

Service extensions, as described in **Section 6.2.5.6**, enter building walls below grade. Service extensions are commonly found at urban wall-to-wall premises. Due to lack of frontage space at these locations, the riser, regulator, and service extension are outside the building, and the meter is located inside the basement. EGI currently has 12,457 confirmed service extensions and around 40,000 inside meters (potential locations for service extensions) in Union. A multi-year inspection of potential locations was initiated in 2021 to confirm the number of service extensions.

Figure 6.2-71 shows the age distribution for known service extensions. Most of the population has been in place for under 25 years. Some of the contributing factors to installations within this time frame include the renewal of cast iron systems in downtown Toronto and a program moving regulators from inside to outside customer premises.

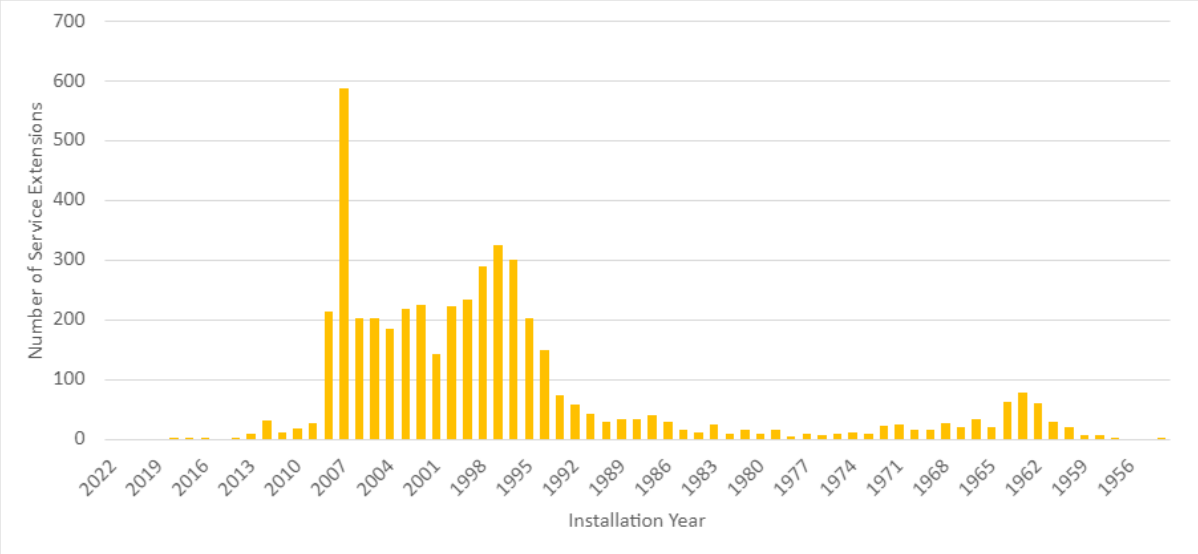


Figure 6.2-71: EGD Demographics – Service Extensions

6.2.5.6.1.1 Condition Methodology

All service extensions are isolated from cathodically protected steel services. Service extensions with depleted anodes are unprotected and more susceptible to corrosion, ultimately resulting in a loss of containment. CP and coating types are two factors influencing corrosion rate.

Direct assessment is the preferred approach to assess the condition of aboveground assets such as service extensions. Therefore, a multi-year inspection program was initiated in 2021 to evaluate the condition of service extensions. This program will continue to include the inspection of all the potential locations with service extensions in EGI areas.

The survey includes a visual assessment of the condition including corrosion rating of riser and service extension. Additionally, the CP of the service extension was assessed by measuring pipe-to-soil potential and incorporated into the condition ranking scale shown in **Figure 6.2-73**.

6.2.5.6.1.2 Condition Findings

CP surveys determine some correlation between age and CP status (see **Figure 6.2-72**). Newer installations are more likely to be cathodically protected while older service extensions are more likely to fail than newer service extensions.

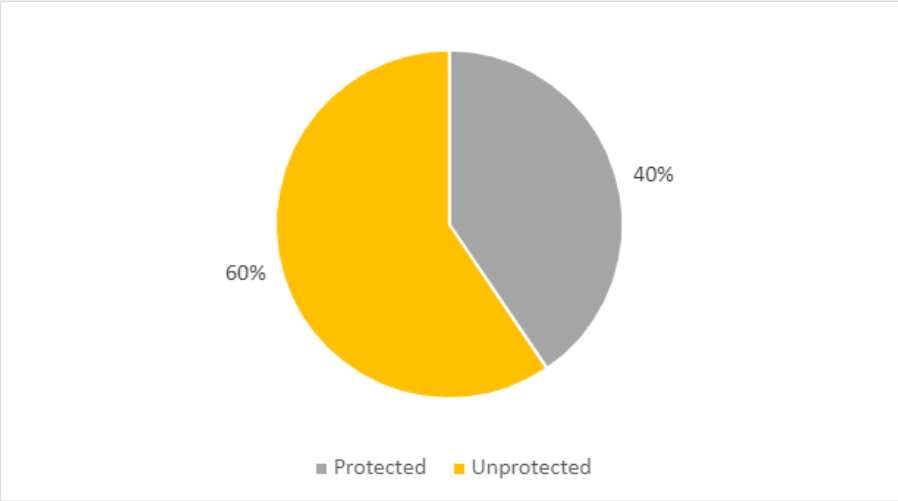


Figure 6.2-72: Percentage of Cathodic Protected/Unprotected Service Extensions

The inspection results collected to date indicate that most service extensions do not have adequate CP. Approximately 10% of service extensions identified with unprotected CP were also identified with “poor” or “very poor” corrosion condition at grade level. The corrosion condition for all inspection is summarized in **Figure 6.2-73**.

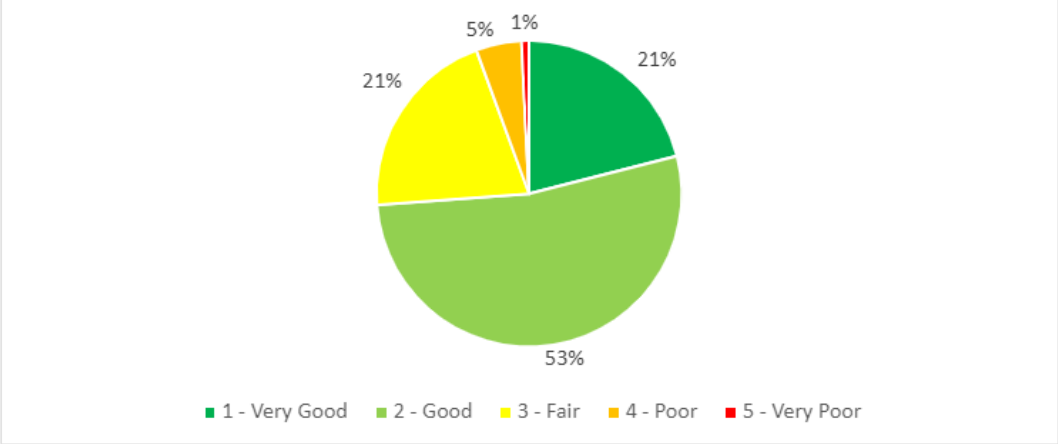


Figure 6.2-73: Corrosion Condition of Unprotected Service Extensions

6.2.5.6.1.3 Risk and Opportunity

If service extensions are not cathodically protected and properly coated, they can corrode at a higher rate, eventually leading to a loss of containment if not remediated. Since this piping enters the building below grade, gas leaks may have a higher chance of migration into the building, resulting in gas accumulation and a potential incident. Previous sample surveys show that the proportion of service extensions without CP increases with age. This may be due to old installation practices and depleted anodes over time.

Historical frequencies of failures for service extensions are low relative to the total population. Failure consequences can be high; they include the potential for underground gas migrating into a building. The safety risks identified for service extensions are gas leaks and gas migration. Identified financial risks include unplanned repair and relight costs, commodity loss, and property damage caused by gas leaks. The operational risks include customer service disruptions and media coverage from these events potentially resulting in reduced customer confidence in EGI. Environmental risks include GHG emissions and the environmental impact of a leak. EGI continues to take steps to gather necessary information and better manage these assets and their risks.

6.2.5.6.1.4 Multi-Family Building Services

Multi-family building services differ from typical installations significantly by having company-owned pipe within a building. The buildings are typically multiple-storied and contain many independent premises, each with their own meter installed either ensuite or in a rack of meters within the building. These buildings can also be multi-family-occupied town housing or row housing.

This piping can contain pressure regulation by a customer station or a low-pressure delivery regulation set. With ensuite configurations, the network of EGI-owned piping is extensive, as it includes all the piping leading to each meter on different floors of the building. With banked metering configurations, company-owned piping typically terminates in a common area (such as a garage or meter closet) where individual customer meters are grouped together.

6.2.5.6.1.5 Condition Methodology

Multi-family building installations have several additional challenges:

- Piping location creates challenges for leak and CP surveys.
- Some units may have isolated steel pipe upstream of the meter. EGI is working to ensure that all buildings that have this piping configuration are identified in appropriate systems and placed on a regular maintenance program. As these locations are added to the survey, there is the possibility that their internal piping will be found to be in poor condition, given that they may not have been previously surveyed.

Figure 6.2-74 shows the distribution of vintages for this asset subclass in the EGD rate zone, as well as the quantity of inside meters per building at these locations. An inventory investigation will determine how many of these configurations are in the

Union rate zones. Once known, a survey of each site will be conducted, and the assets will be included in the Targeted Inspection and Remediation Program.

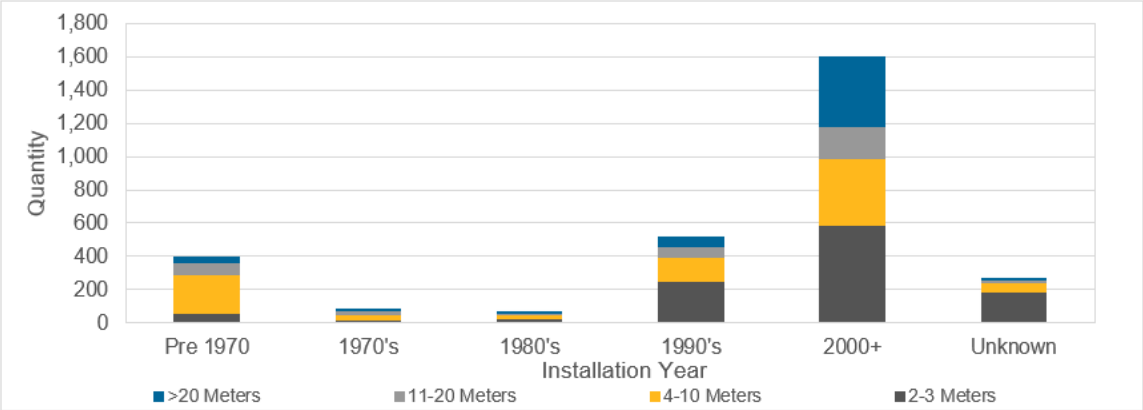


Figure 6.2-74: Multi-Family Installations Vintage Distribution and Meter Quantity at Each Site – EGD Rate Zone

This inspection program focuses on two main condition categories which were evaluated for multi-family building services:

1. **Adherence to Installation Specifications**
   - Proper support for piping by approved bracketing and minimum spacing
   - Proper support and spacing of meters
   - Meter location: fit for purpose, vulnerability to damage, and ventilation grille if enclosed
   - Identification markings per code
   - Pipe penetration through walls and floors, and the provision of insulating fittings
   - Valve location and accessibility
   - Physical barriers: existence, location, and condition
2. **Corrosion**
   - Presence of corrosion on piping
   - Presence of corrosion on joints
   - Pipe penetration through walls, floors, and into the building
   - Presence of corrosion on valves
   - Adequate corrosion protection

6.2.5.6.1.6 Condition Findings

EGI's Leak Survey Program provides insight into the condition of multi-family building services assets. Generally, corrosion is found where the pipe intersects with the concrete wall; any severe corrosion that could affect safety is remediated. Any leaks found on these assets are remediated immediately. Given the nature of these systems, leaks that do occur are very minor. Any safety concerns are reviewed with the resident or landlord; instances such as encroaching on EGI assets have been found. The inventory investigation will give further insight to the population and will be monitored as part of EGI's Integrity Program.

6.2.5.6.1.7 Risk and Opportunity

The risks associated with multi-family buildings services are the same as the service extensions (see **Section 6.2.5.6.1.3**).

Additional risks associated with multi-family buildings include:

- Installation standards allow for these buildings to have higher-pressure gas than a single-family residential unit.
- Unit density means potential incidents can have a greater impact. Loss of containment will impact more people, resulting in a greater probability of personal injury.

- If internal piping is in poor condition, improper physical support or damaged, there could be a loss of containment and gas accumulation within the building, making an incident possible. Buried piping from outdoor regulators to indoor meters is also at risk of leaking and migrating gas indoors.

The historical frequency of incidents related to multi-family building services is low. To ensure the safety risk remains low, programs are in place to identify these assets and to include them in programs that monitor condition, prevent failure, and minimize failure impacts. The operational risks include customer service disruptions and media coverage from these events potentially resulting in reduced customer confidence in EGI. Environmental risks include GHG emissions and environmental impact of a leak. EGI continues to take steps to gather necessary information and better manage these assets and their risks.

6.2.5.6.2 BULK METER HEADERS

Properties that may include many premises utilizing natural gas that are served through a common meter, where the meter measures the consumption of all premises collectively are considered bulk-metered sites. A bulk meter header is a configuration consisting of one sales meter only (SMO) or a sales station and its associated piping, which provides one measured gas consumption to a property that has several civic addresses within its boundary. Gas pressure may be reduced at either the same location as the bulk meter or it may be regulated elsewhere downstream in the system, possibly even at each premises. Examples include:

- Residential social housing development
- Farms equipped with multiple crop-dryers
- Academic, assembly, industrial, and military campuses

An example of this type of configuration is shown in **Figure 6.2-75**. Note that the piping downstream of the bulk meter operates at intermediate pressure, the same pressure as the gas main serving the bulk meter, and it can be EGI-owned or customer-owned.

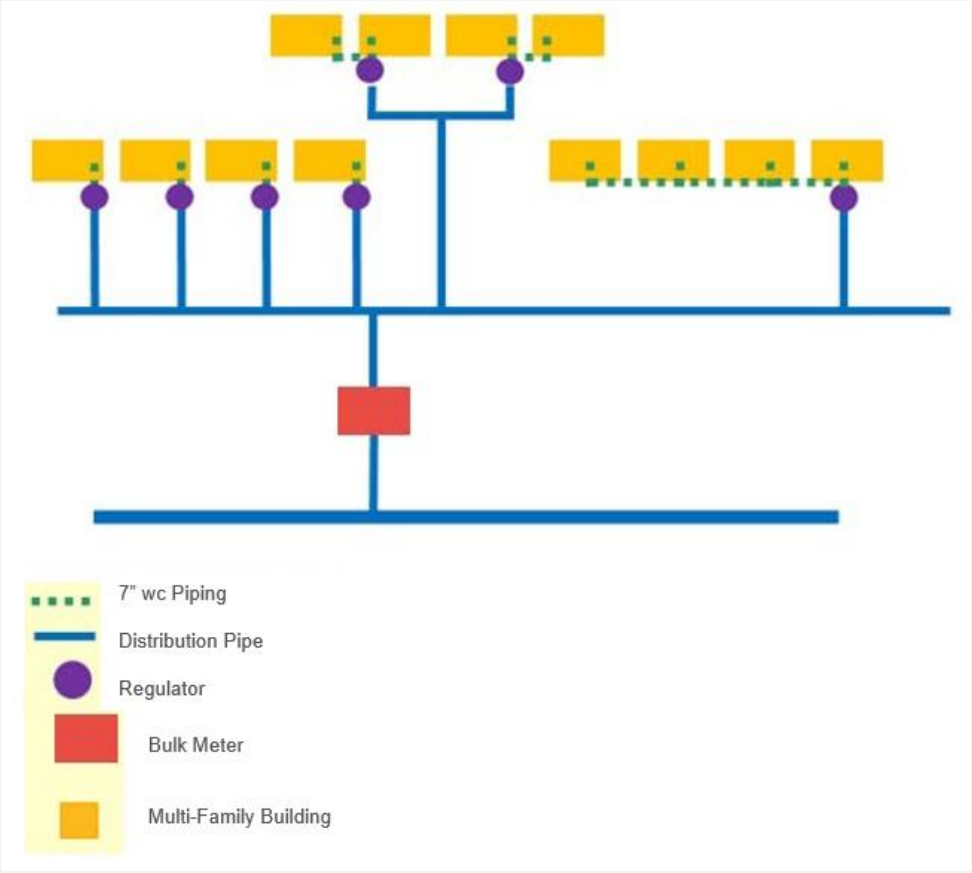


Figure 6.2-75: Bulk Meter Header Sample Configuration

6.2.5.6.2.1 Condition Methodology

An EGD rate zone survey in 2019 found no remediations required at any sites where the downstream piping was owned by EGI. EGI's DIMP is planning to identify and survey the Union rate zones' bulk meter headers.

6.2.5.6.2.2 Condition Findings

Previous surveys indicate the most common condition issues found on bulk meter headers are:

- Lack of a clear demarcation point between company and customer assets
- Presence of obsolete regulators 20 years and older
- Nonadherence to current installation and maintenance specifications (records, leak, and corrosion surveys)
- Vent clearances and configurations not consistent with current standards, not all fittings aboveground, and evidence of obsolete components

6.2.5.6.2.3 Risk and Opportunity

Historically, the probability of failure is low for these assets. However, bulk meter sites can have higher consequences if failure does occur since the buildings serviced are higher-density units. Safety risks are related to gas leaks and migration through underground infrastructure into buildings, resulting in gas accumulation and potential incidents, as well as the additional risk of unclear demarcation between EGI and customer assets to identify who is responsible for maintenance and repairs. Financial risks identified are losses due to repair costs, commodity loss, relighting customer gas appliances, property damages, and personal injury caused by a gas leak. The operational risk includes customer service disruptions and media coverage from these events potentially resulting in reduced customer confidence in EGI. Environmental risks include GHG emissions and environmental impact of a leak. EGI continues to take steps to gather necessary information and better manage these assets and their risks.

As noted above, there is ongoing work to identify bulk meter sites, assess their condition, and remediate as required, ensuring these locations are safe and provide reliable service to customers. Compliance with existing EGI policies on these assets keeps the safety risk low. The current process for assessing and remediating bulk meter sites provides continuous improvements and ensures the risk remains low.

6.2.5.7 Customer-Owned Systems

Customer-owned systems, as described in **Section 6.2.5.1**, may consist of:

- **Customer-owned piping** – the gas piping or tubing downstream of the meter outlet tailpiece and extending from the meter outlet to customer appliances.
- **Service jumpers** – a specific type of customer-owned pipe installed from an outside meter to inside the building, entering the building belowground.
- **Customer appliances** – gas appliances using gas delivered by EGI; examples include furnaces, water heaters, gas ranges, and fireplaces.
- **Private downstream gas piping and sub-metering** – multi-use buildings with retail, condominium corporation-owned boiler rooms and emergency generators; and residential vertical occupancies where the gas piping is owned by the condo corporation. EGI supplies a customer station with a bulk meter to supply gas to all the facilities of the multi-use building.

Customer-owned piping and appliances are typically designed to operate at standardized delivery pressures. Failure of these components can cause loss of containment and appliance malfunction, resulting in safety risk to customers and the public.

Regarding supply of gas, EGI must comply with *Gaseous Fuels O. Reg. 212/01, s. 16*, which states:

> No distributor shall supply gas to a premises unless the distributor is satisfied that the installation and use of the appliance or work comply with this Regulation and,
>
> (a) unless the distributor has inspected the appliance or work at least once within the previous 10 years; or
>
> (b) unless the distributor has inspected the appliance or work in accordance with a quality assurance inspection program. *O. Reg. 212/01, s. 16.*

EGI inspects customer-owned assets at the time of initial installation and after conducting relights. This includes inspection of appliances, supply piping, venting, and combustion air systems from the customer's transfer point. EGI ensures proper

installation, correct appliance operation, and no system leaks. Warning tags and reject tags are issued to ensure that no gas-fired appliance, accessory, or equipment is left in an unsafe operating condition.

6.2.5.8 Utilization Asset Class Strategies and Program Outcomes

6.2.5.8.1 METER RENEW, REVERIFY AND RE-SEAL (MAINTAIN)

EGI operates Measurement Canada accredited meter shops in North Bay, and Chatham, Ontario. Both meter shops have specialised accreditation activities approved by Measurement Canada which includes the sealing of new (discussed in **Section 6.2.5.8.2**), reverified or renewed metering devices. The difference between a reverified and renewed metering device is in what type of repair work is required and EGI is limited to what metering devices Measurement Canada allows for these types of repair verifications. A renewal repair restores the metering device back to a 'new' state, and full-service extension with a successful verification test. Whereas a reverified device is given a simple repair, and with a successful verification test allows the device a shortened service extension when compared to a new device. **Table 6.2-23** shows the service extensions available for each metering device that is maintained by the corresponding meter shop. The meter device is not restricted to a single renewal or reverification; this process can be completed multiple times on the same device for as long as the device stays in good condition, providing EGI is recognizing cost savings in comparison to purchasing a new metering device. Typically, the 200/400 series diaphragm meters do not go through the reverification process, due to the economics of purchasing new versus the cost of repair for these residential devices, as well as the shortened seal extension these types of devices receive through the MXGI program.

Table 6.2-23: Meter Service Extension

Meter Type	New Seal (Service Extension)	Renew Seal (Service Extension)	Reverified Seal (Service Extension)	Meter Shop
Rotary Meter	20 years	Not available	16 years	North Bay
Electronic Volume Corrector (EVC)	12 years	Not available	10 years	North Bay
Turbine Meter	6 years	6 years	4 years	North Bay
Ultra Sonic Meter – 1000/800 Series	10 years	10 years	8 years	Chatham
Diaphragm Meter – 2000/400 Series	10 years	Not available	8 years	Chatham

6.2.5.8.2 METER PURCHASES (CREATE/REPLACE)

The maintenance strategy for meters is to continue with the current MXGI Program and managing non-program meter exchanges. The renewal strategy for measurement assets are as follows:

- For 200, 400 and > 400 series meters covered under the MXGI Program.
- For > 400 series meters, meter exchanges will be conducted in the year of expiry or one year prior to expiry (if warranted) as there is no sampling program in place. The typical lifespan of > 1000 series meters vary by type:
  - Rotary meters: 16 to 20 years
  - Modules: 10 to 12 years
  - Turbine meters: 6 years
  - Instruments: 7 to 12 years

EGI reactively responds to customer leaks or other service interruption calls for non-program-related meter exchanges.

The Meter Purchase Program also accounts for purchase of meters which are associated with new customer connections. Costs for exchange meters and those required for new attachments are reflected separately in **Figure 6.2-25**.

6.2.5.8.3 MXGI PROGRAM (MAINTAIN)

The Meter Exchange Government Inspection (MXGI) Program is designed to replace meters before they fail. Meter seal life and extensions are based on sampling and testing to ensure Measurement Canada specifications are maintained. EGI continues to use testing evaluation data to project meter exchange volumes with a focus on leveling volumes over future years. Meters have a complete set of data that includes quantity, age, make, size, location, and historical performance. The completeness of this data enhances the optimization of the life cycle strategy.

This replacement program is mandated by Measurement Canada, which maximizes asset life through sampling and testing (MXGIs), to ensure the required level of metering accuracy. The projections for 2025 to 2034 are consistent based on population size and historical factors, the yearly target for Meter Exchanges Program[42] is 150,000, and the yearly forecast for Non-Program Meter Exchanges is 25,250.

MXGI quantities are influenced by historical customer addition patterns and group performance of sampled meters. Previous year sampling results inform a given year's budget. The average of the meter exchanges over the past 10 years was used to project averages for the next 10 years. To further refine longer-term forecasting of MXGI quantities, a predictive failure model is being built based on historical extension and failure results of meter groups.

6.2.5.8.4 ADVANCED METER INFRASTRUCTURE PILOT (IMPROVE)

EGI is in the process of deploying a pilot project for Advanced Meter Infrastructure (AMI) which, if implemented, would modernize customer meters and allow two-way communication. AMI is expected to provide significant benefits to customers, reduce meter reading and call centre costs, and eliminate estimated bills, while providing customers insight into their gas usage so they can make informed decisions. In the 2023 AMP Customer Engagement, the majority of customers support the installation of AMI in order to achieve the enhanced benefits, even at an impact to their rates as a result of the implementation. With access to granular usage information, EGI gains beneficial insights into peak consumption and usage patterns. This will also support EGI's implementation of an Integrated Resource Planning Alternative (IRPA) Program, and it may allow the deferral of reinforcement projects and promote carbon reduction. An AMI pilot project is currently underway; as results are received from the pilot, the scope of the AMI Program will be clearly defined and incorporated into future Asset Management Plans as required. Currently, there is no spend allocated for the next 10 years; however, this may change based on the results of the pilot project.

In addition to considering the broader application of AMI technology across EGI's system, a more refined AMI project is being considered for mid-market commercial customers, which will provide valuable insight into the larger users of the system. It will provide similar information as the AMI pilot that proposes to be deployed to all customers at a fraction of the cost. Focusing on the mid-market commercial customers and aligning the infrastructure to that of the current large volume billing customers will provide insights to peak consumption and usage patterns on the biggest draws on the system. This may support the IRPA Program, and it may allow for deferral of reinforcement projects and promote carbon reduction.

6.2.5.8.5 MXGI PROGRAM (REGULATION)

The strategy is to continue exchanging assets identified with 200 & 400 series meters in conjunction with the MXGI Program (meters). The strategy corrects other compliance issues as part of the MXGI Program as these critical assets serve most customers in the EGI franchise area. This strategy applies a planned and controlled spend of capital dollars while maintaining the current level of operational reliability.

The continuous improvement strategy for this program is made possible through data collection. Data will continue to be collected on regulator sets that become part of the MXGI Program through the Regulator and External Relief Valve Information Gathering Program. Data such as condition, adherence to installation specifications, regulator attributes, and failure classifications will be collected to iterate data models. Refinements include validating criteria that assist in prioritizing high-risk locations, analyzing asset life cycle, and assessing risk.

6.2.5.8.6 TARGETED INSPECTION AND REMEDIATION STRATEGY

The Targeted Inspection and Remediation Strategy is used to remediate high-priority condition issues identified through EGI's DIMP. Through the DIMP, surveys collect information on the failure rates of assets, informing future policy decisions on replacement frequency.

[42] Meter Exchanges Program includes both MXGI and Meter Exchange Government Sample (MXGS).

This proactive strategy manages safety risk by remediating all discovered compliance and integrity issues before they turn into failures, minimizing the risk to the safety of customers, employees and the public. The planned and controlled spend of capital dollars minimizes the financial impact of responding to emergency calls. The strategy supports operational reliability by ensuring that failures continue to be very minimal, minimizing customer outages and maintaining high customer confidence in EGI as a gas provider. This aligns with the feedback from the 2023 AMP Customer Engagement where most customers indicated a preference for EGI to assess the long-term health of the system and to spread out costs over time (even if that means higher rates now).

6.2.5.8.7 CONTINUE EXISTING PRACTICES AT INSTALLATION (CUSTOMER-OWNED SYSTEMS)

The current strategy for customer-owned systems is to continue existing practices at initial installation. For any subsequent issues, the customer is responsible for taking corrective action. A sub-metering initiative with the Technical Standards & Safety Authority (TSSA) and the Sub-metering Council of Ontario is also underway to formalize EGI's policy and requirements on private gas piping installations with measurement systems.

6.2.5.8.8 OPPORTUNISTIC REPLACEMENT

The opportunistic replacement strategy looks to replace regulator sets, internal piping configurations, and service extensions in conjunction with planned and unplanned adjacent work scheduled, such as planned city sidewalk/road replacements. Regulator sets are opportunistically replaced if found to be 20 years or older. This strategy will minimize safety risk by remediating integrity issues before they turn into failures and will also minimize the financial impact of responding to related emergency calls. This opportunistic approach minimizes costs associated with proactively renewing these assets.

6.2.5.9 Utilization Capital Expenditure Summary

The average annual capital spend is forecast to be $166MM (EGI) as summarized in **Table 6.2-24**. The Utilization capital is further summarized as part of EGI's total 10-year capital plan in **Section 3**.

Table 6.2-24: Utilization Capital Summary ($ Millions) - EGI

Asset Class Strategy	Program Name	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	10-Year Forecast
Create	Meter Purchases (Growth) Program	20.7	20.2	19.9	20.0	19.9	20.5	21.2	22.0	23.0	23.1	210.4
	MXGI Program	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	3.3
Maintain	Meter Purchases (Growth) Program	1.4	1.4	1.3	1.3	1.3	1.4	1.4	1.4	1.5	1.5	14.0
	MXGI Program	141.2	138.4	134.2	132.4	131.9	136.1	139.9	144.8	149.1	148.9	1,397.0
	Tools Replacement Program	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	Utilization Integrity Management Program	0.8	1.0	1.0	1.1	1.1	0.7	0.7	0.7	0.7	0.7	8.5
Improve	Advanced Metering Infrastructure AMI Program	0.0	0.0	2.7	2.6	2.5	2.5	2.5	0.0	0.0	0.0	12.9
	Opportunistic Replacement Program	1.4	0.9	0.9	1.1	1.1	1.1	1.1	1.1	1.2	1.2	11.1
Total		166.0	162.2	160.4	158.7	158.1	162.6	167.2	170.5	175.8	175.8	**1,657.4**

6.3 Storage and Transmission Operations

EGI's Storage and Transmission Operations (STO) asset classes consist of a system of natural gas assets that serve to receive, store, and transport natural gas. STO assets found at EGI include compressor stations, underground storage, transmission pipelines, and liquefied natural gas (LNG) storage.

EGI's storage and transmission assets are categorized in the following asset classes:

- Compressor Stations (includes Compression and Dehydration)
- Transmission Pipelines and Underground Storage
- Liquefied Natural Gas (LNG)

EGI owns and operates 35 underground storage pools located at Dawn, and about 1,500 km of transmission and storage pipelines. EGI has storage and transmission assets that serve to receive, store, and transport natural gas to major demand markets in Ontario, Québec, Maritimes, Michigan, and the U.S. Northeast. EGI's Dawn Hub, located in southwestern Ontario, is connected to most of North America's major natural gas basins, including abundant and affordable gas supplies in the Western Canadian Sedimentary Basin and the Utica and Marcellus producing regions.

EGI's Storage and Transmission system is highly integrated, making EGI's storage and transportation services very attractive to customers. The Storage and Transmission system connects EGI's customers to a set of assets that enhances diversification, competitiveness, reliability, liquidity, and security of natural gas supply. Natural gas can be purchased across North America when prices are lower, transported to and stored at Dawn, and withdrawn and delivered when and where needed. Dawn is one of the most physically traded natural gas hubs in North America. More than 100 companies buy and sell natural gas at Dawn.

EGI uses compressors to move natural gas in and out of underground storage reservoirs and into and through the transmission systems. Gas compressors are used to transport gas into and through the transmission systems and can be configured for the high flow rates required. Gas compressors are also used to move gas in and out of underground storage reservoirs by providing the high-pressure differential required to fill and empty the pools.

Underground storage provides seasonal balancing of gas supply purchases versus demand requirements of EGI's customers. The use of subsurface facilities for natural gas storage enables increased operational efficiency; conservation of produced natural gas; and more effective, reliable, and economic delivery to markets. These facilities are usually natural geological reservoirs such as depleted oil or natural gas fields sealed on top by an impermeable cap rock. Natural gas demand for EGI's in-franchise and ex-franchise customers varies seasonally and is greatly affected by residential heating requirements.

The storage capability of each reservoir is determined by the reservoir's maximum operating pressure (MOP), cushion pressure, and the size of the pool. Through EGI's reservoirs and LNG storage, the total storage working inventory is 319.3 petajoules (PJ) (199.7 PJ regulated and 119.6 PJ unregulated). Each reservoir is protected by a designated storage area (DSA) determined by EGI and approved by the OEB to protect the reservoir from exploratory drilling. The land above each reservoir is owned by EGI or leased from landowners with storage leases.

EGI's STO assets are mainly in southwestern Ontario and employ approximately 800,000 horsepower of combined centrifugal and reciprocating compression. Mostly, compression capacity is located at the Dawn compressor facility and nearby storage sites with additional capacity split between the Bright, Corunna, Lobo, and Parkway compressor stations. Dawn is the largest underground storage facility in Canada and a key natural gas trading hub that has interconnections to various transmission pipeline systems including Vector, Great Lakes Gas Transmission, ANR Link, DTE Energy MichCon, Bluewater, TC Energy Canadian Mainline, and Panhandle Eastern Pipeline through the EGI Panhandle Transmission System. These compressor stations employ 13 compressors with a combination of approximately 270,000 horsepower, a major natural gas dehydration plant, station piping, large diameter valves, electrical components, and other equipment required to support operations.

Integral to Storage and Transmission, dehydration facilities remove moisture from natural gas as it is taken from underground storage. This ensures that gas entering the transmission and distribution system meets the contractual standard of moisture content and avoids operational problems related to high moisture content. Natural gas in combination with water when cooled can form methane hydrates that can plug valves, fittings, or even pipelines. The dehydration process involves contact between the natural gas and liquid glycol streams to remove excessive moisture from the natural gas stream. The resultant natural gas helps to ensure pipelines are dry and customer quality specifications for moisture content are met. EGI is obligated to meet gas quality specifications that are set out in the applicable customer contract's *General Terms and Conditions*. While dehydration units can be found at various sites, the Dawn compressor station houses a major dehydration plant and associated piping, large diameter valves, electrical components, and other equipment required to support operations.

EGI operates one LNG facility, the Hagar station, located near Sudbury, Ontario. The Hagar station has been in operation since 1968. It is interconnected with the Sudbury Lateral System which is served from the TC Energy Canadian Mainline. As

an integrated Storage and Transmission system operator, EGI requires reserve capacity to support the provision of service to its customers across a range of potential operating scenarios. The Hagar facility provides reserve capacity that ensures reliable supply for customers served by the Sudbury Lateral System during peak demand periods, supply shortfall, unplanned low system pressures, or pipeline outages.

6.3.1 Storage and Transmission Objectives

The objectives for the STO asset classes are set at the system level (transmission, underground storage, and LNG) to specify independent objectives for each system, as all three systems work interdependently. For example, identical compressors in the Storage and Transmission systems serve a different purpose but are aligned with each system's objectives. Performance measures are identified for all systems' objectives.

6.3.1.1 Transmission System Objectives

Dawn Parkway Transmission System

The Dawn Parkway Transmission System is composed of up to four parallel NPS pipelines (26, 34, 42, and 48) and compressors, and metering and regulating stations running from the Dawn Hub easterly toward the Greater Toronto Area (GTA), terminating at the Parkway compressor station, Lisgar gate station, and Albion custody transfer station. This system has four major compressor stations (Dawn, Lobo, Bright, and Parkway) to facilitate transport as shown in **Figure 6.3-1**: .

The primary purpose of this system is to transport natural gas easterly from Dawn to Parkway and to Albion. The system serves in-franchise regions (GTA West, Southeast, and portions of the Southwest regions, in-franchise regions in Niagara, GTA, Eastern Ontario, Ottawa, and Northern Ontario) along the route directly, and ex-franchise transportation customers (gas moving between receipt and delivery points on the system). The system includes three import/export interconnects with TC Energy at (1) Kirkwall east of Cambridge, (2) Parkway compressor station in Mississauga, and (3) Albion custody transfer station in Toronto.

Figure 6.3-1: EGI Dawn to Parkway and Panhandle Systems

Panhandle Transmission System

The Panhandle Transmission System is composed of 16", 20", and 36" pipelines, and metering and regulating stations running westerly from the Dawn Hub towards Windsor, terminating at the Ojibway River crossing where it interconnects with the Panhandle Eastern Pipeline system located in Michigan. The Detroit River Crossing, also called the Panhandle Line crossing, consists of two 12" pipelines. The Sandwich compressor station is used to facilitate gas movement easterly.

The primary purpose of this system is to transport natural gas from Dawn and the Panhandle Eastern Pipeline to serve in-franchise markets in a portion of the Southwest region including Windsor-Essex, Chatham-Kent, and southern Lambton County. It also transports gas for ex-franchise transportation customers from the Panhandle Eastern Pipeline to the Dawn Hub.

Sarnia Industrial Line Transmission System

The Sarnia Industrial Line (SIL) Transmission System is composed of a series of parallel 10", 12", 16", and 20" pipelines and metering and regulating stations running northerly from the Courtright stations to the City of Sarnia. An 8" pipeline runs from the Dawn Hub to the SIL, and 20" pipelines run from Payne Pool to the SIL.

The primary purpose of this system is to transport natural gas from the Vector and Great Lakes Gas Transmission pipelines at the Courtright Stations, DTE Energy (via St. Clair Pipelines L.P.) at St. Clair Line station, Bluewater pipeline (via St. Clair Pipelines L.P.) at Bluewater Interconnect and Dow A Pool, and Dawn to the gas distribution system, serving a portion of the Southwest region located in the northwest portion of Lambton County. It also transports gas for ex-franchise transportation customers from the DTE Energy (St. Clair) and Bluewater pipelines to the Dawn Hub (see **Figure 6.3-2**).

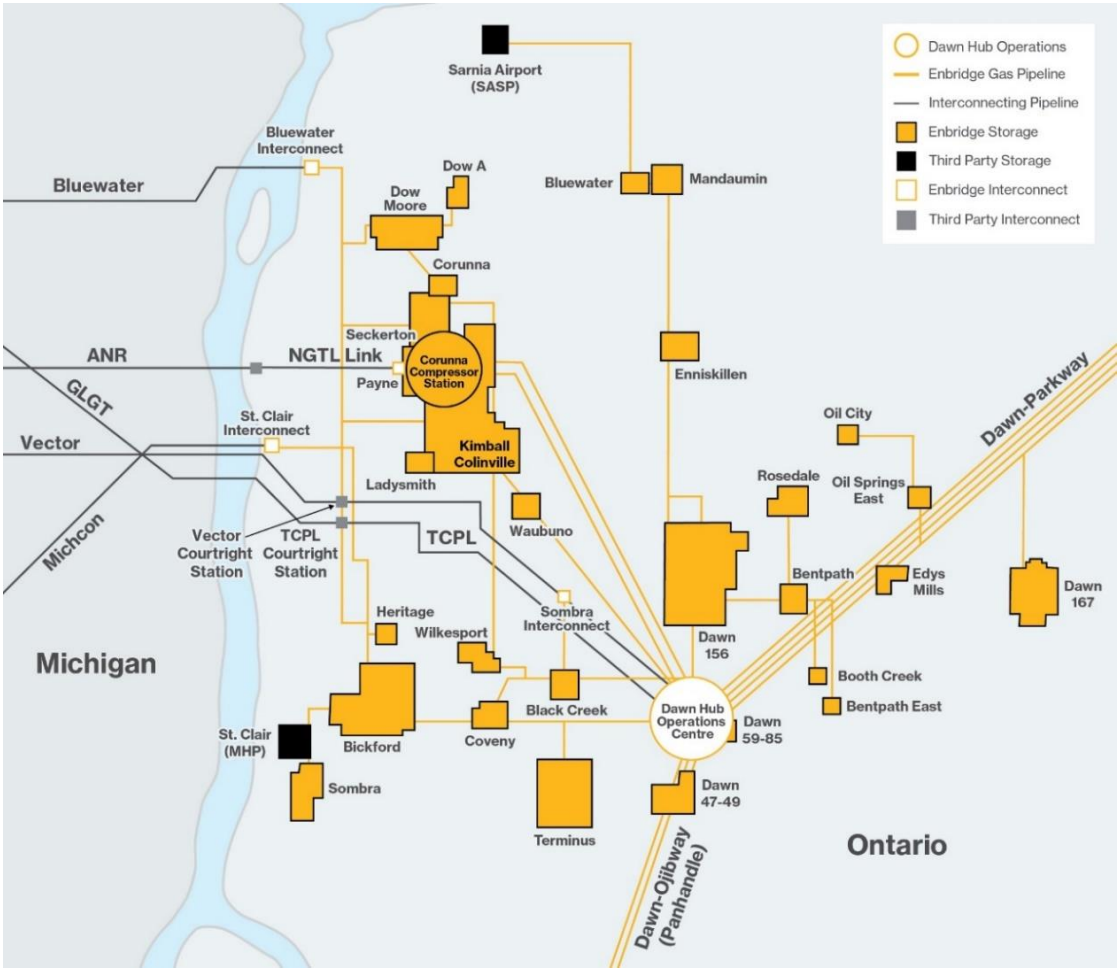


Figure 6.3-2: EGI Sarnia Industrial Line and Underground Storage Systems

Table 6.3-1 shows a summary of transmission system objectives for each system.

Table 6.3-1: Transmission System Objectives

Objectives		Asset Health Performance Measure
Compliant, Safe, Reliable, and Affordable Delivery of Energy	**Design Day Requirements** • Serve the design day demand requirements of all firm in-franchise customers on design day and other days as required.	• Service disruptions resulting from upstream and EGI transmission system capacity limitations
	Transportation Requirements • **Dawn Parkway** – Serve the transportation market between Dawn, Kirkwall, and Parkway in both easterly and westerly directions as required. • **Panhandle** – Serve the Ojibway to Dawn transportation requirements as required. • **Sarnia Industrial Line** – Serve the transportation market between St. Clair and Dawn, and Bluewater and Dawn as required.	• Service disruptions resulting from transmission system capacity limitations
	Loss of Critical Unit (LCU) • **Dawn Parkway –** Maintain the required LCU capability for transmission systems supported by LCU compression.	• Compressor availability • Percentage of successful compressor starts • Reliability percentage for transmission compression
	Measurement • Measure accurately all flow in and flow out at major stations, major customers, and pipeline interconnects.	
	Monitoring, Control and Operation • Monitor, operate, and control transmission systems from remote control rooms always and in emergencies.	
	Shutdowns and Outage Management • Minimize customer outage impacts during integrity work, construction activities, and emergency situations. • Allow for ongoing inspection with minimal customer disruptions.	• Compressor availability • Percentage of successful compressor starts • Reliability percentage for transmission compression
	Safety and Compliance • Maintain the natural gas system to meet codes, standards, and requirements of applicable governmental authorities for safety and operational effectiveness.	• Valve repairs • Percentage of leaks reported by leak survey (vs leaks reported by the public) • Pipeline Reliability as per *CSA Z662 Annex O*. • Number of leaks found and repaired in a rolling 12-month period • Compliance Regulatory Order Completion in 30 days • Stations Inspections • Work order percentage complete • Compressor availability • Reliability percentage for transmission compression • Percentage of successful compressor starts • Capital portfolio management delivery to plan

6.3.1.2 Underground Storage System Objectives

The Underground Storage System is largely situated in the area surrounding the Dawn Hub in Lambton County in Southwestern Ontario. Storage is split into regulated and unregulated businesses, with a total working inventory of approximately 319.3 PJ. The annual injection and withdrawal cycle relies on compression at the Dawn and Corunna stations, on remote compression at a variety of individual storage pools and the Dawn dehydration plant. Planned maintenance work and capital projects are scheduled on an annual basis to meet design day and contractual firm requirements throughout the season. **Table 6.3-2** shows a summary for underground storage system objectives to ensure storage space is effectively and efficiently cycled.

Table 6.3-2: Underground Storage System Objectives

Objectives		Asset Health Performance Measure
Compliant, Safe, Reliable, and Affordable Delivery of Energy	• Operate and maintain 319.3 PJ of natural gas storage (199.7PJ regulated and 119.6 PJ unregulated). • Maintain the natural gas system to meet codes, standards, and requirements of applicable governmental authorities for safety and operational effectiveness.	• Greenhouse gas (GHG) emissions reduction (measured in fugitive emissions and fuel consumption reporting) • Number of leaks found and repaired in a rolling 12-month period
Optimize Deliverability	• Maximize design day deliverability to serve regulated and unregulated businesses. • Integrate legacy storage system operations to fill and empty the storage system more efficiently and increasing design day deliverability.	N/A
Maintain Quality	• Provide natural gas supply to the transmission systems that meets required quality standards.	N/A

6.3.1.3 Liquefied Natural Gas System Objectives

The Liquefied Natural Gas (LNG) System's primary purpose is to supply natural gas to support the Sudbury Lateral System during peak demand periods and to meet security of supply requirements during the winter season, providing an option to back-feed to meet potential shortfalls. Natural gas feedstock is converted to liquid and pumped into a tank during the off-peak summer and fall seasons. The stored LNG is vaporized back into natural gas as required during the winter season. Under full load demand, the tank carries enough inventory to support the Sudbury Lateral System market for at least five days if necessary. **Table 6.3-3** shows a summary for the LNG System objectives.

Table 6.3-3: Liquefied Natural Gas System Objectives

Objectives		Asset Health Performance Measure
Compliant, Safe, Reliable, and Affordable Delivery of Energy	• Maintain the LNG system to meet codes, standards, and requirements of applicable governmental authorities for safety and operational effectiveness.	• Compliance rate of Inspections and Maintenance • Work Management process conformance • Capital portfolio management delivery to plan • Greenhouse gas (GHG) emissions reduction (measured in fugitive emissions and fuel consumption reporting) • Recovery of natural gas from piping taken out of service for maintenance (blowdown recovery) • Number of leaks found and repaired in a rolling 12-month period

	Objectives	Asset Health Performance Measure
Availability and Deliverability	• Meet system integrity requirements to support demand (for injection into the Sudbury Lateral System). • 100% availability of any LNG balances during the winter season (typically until the end of March) net of any system integrity withdrawals and gas boil-off.	• Targeted full nominal capacity of 658 TJ by December 1 annually • Target vaporization capability up to 90 TJ deliverability • GHG emissions reduction (measured in fugitive emissions and fuel consumption reporting)

6.3.2 Storage and Transmission Asset Class Hierarchy

The subclass breakdown for STO is organized by system and illustrated in **Figure 6.3-3**[43].

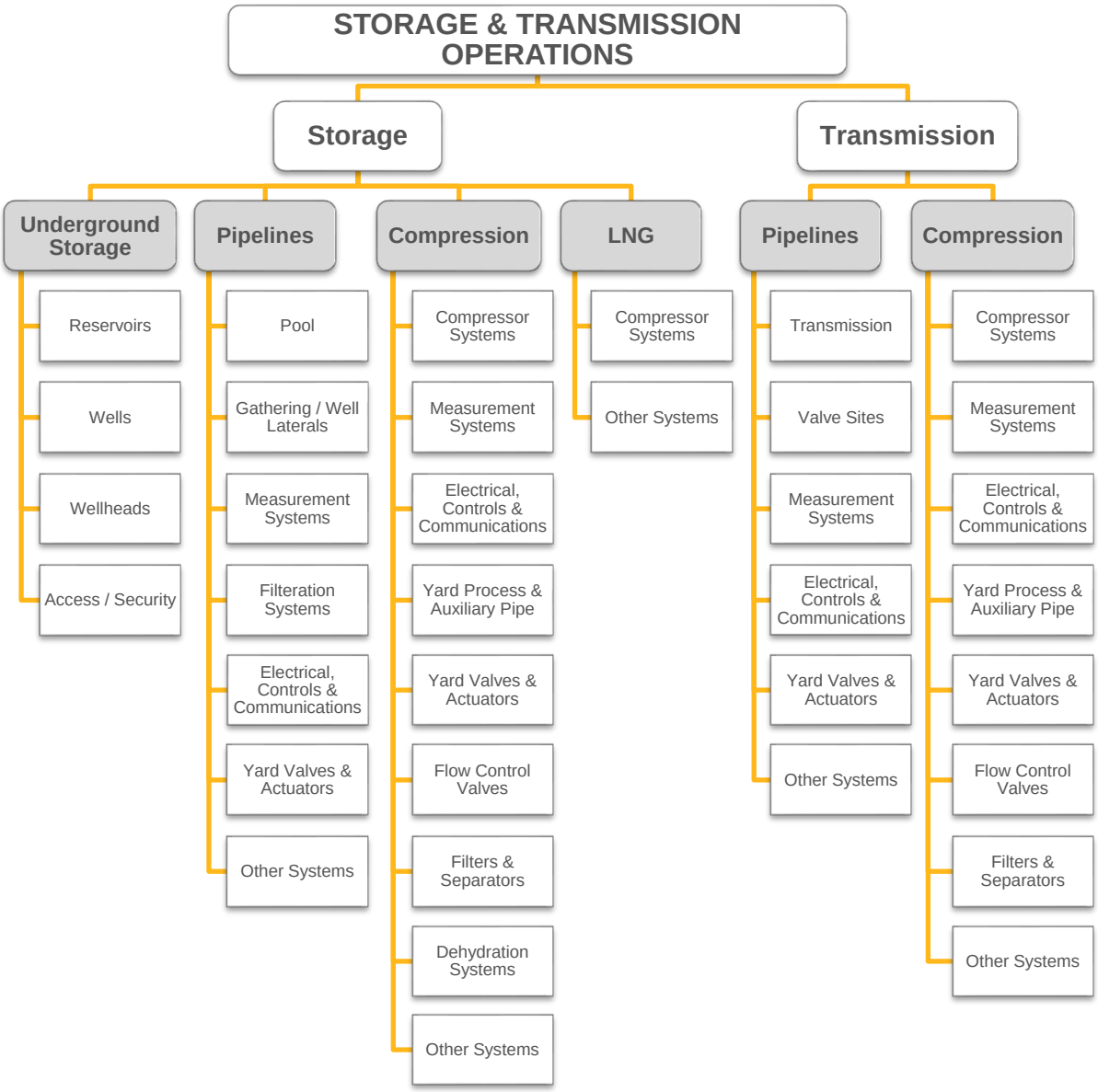


Figure 6.3-3: STO Hierarchy

[43] **Compressor systems** include engine assemblies, centrifugal and reciprocating compressor assemblies, gas aftercoolers, heating and cooling systems, and valve systems. **Other systems** consist of mechanical components (such as dehydration systems, filters, separators, heat exchangers, fans, flow meters, and pumps), electrical components (such as breakers, switchgear, motor control centres, and lighting) and safety and controls components (such as control valves, regulation, telemetry, programmable logic controllers [PLCs], instrumentation, relief valves, and fire and gas detection systems).

6.3.3 Storage and Transmission Asset Inventory

The asset inventory for STO is listed in **Table 6.3-4**.

Table 6.3-4: STO Asset Inventory[44]

Assets	Inventory
Pipelines (km)	1,537[45]
Transmission	1,480
Storage	57
Additional asset inventories (#)	
Dehydration Systems	4
Underground Storage (#)	
Reservoirs	35
Wells	362
Compression	44
LNG Compressors	3[46]

[44] Inventory as of December 2023.
[45] TIMP Pipe includes assets that are part of the Transmission Pipe and Underground Storage asset class and the Distribution Pipe asset class. For inventory that is included in the Distribution Pipe asset class, see **Table 6.2-2**.
[46] See **Table 6.2-2: Distribution Pipe Inventory**.

6.3.4 Storage and Transmission Operations Condition and Strategy Overview

Table 6.3-5: STO Operations Condition and Strategy Overview

Asset Subclass	Ave. Age (Year)	Condition	Risk / Opportunity	Strategy	Programs, Tactics, and Standards

Compression (Storage and Transmission) & LNG	30 to 56	Asset condition is primarily assessed based on a preventive maintenance (PM) program comprised of rigorous inspections.
		For engines and compressors, operating hours since the previous overhaul are the primary indicator of condition.
		Age is also considered as a condition indicator in terms of reliability and obsolescence.
			Operational Risk: Potential failure can lead to equipment damage and/or reliability concerns. Unplanned unit failures, especially during late season withdrawal can have a significant impact in meeting required demands and loss of service to customers.
			Employee and Contractor Health and Safety Risk / Public Health and Safety Risk: The safety risk related to loss of containment from the compressor units is considered. Safety systems reduce the chance of an escalation even further.
			Financial Risk: Compressor failures result in unexpected repair costs and frequently involve collateral damage, especially during late season withdrawal, which can negatively impact gas supply costs. Increased leak inspections required by federal methane regulations could reduce availability of compression equipment if additional leaks are identified and cannot be resolved promptly.
			Reputational Risk: Failure to comply with new or changing regulatory requirements could potentially limit the use of compression equipment until compliance is achieved. Restricted use of compression equipment could reduce deliverability and trigger the need to secure gas from alternate sources, at additional gas supply cost.
			Carbon Reduction Opportunity: EGI continues to evaluate and implement facility emission reduction opportunities contributing to EGI's carbon reduction targets. The enterprise-wide carbon reduction targets are based on the Pan-Canadian Framework on Clean Growth and Climate Change.
				Maintain	• Condition-Based Replacement Program
					  • Condition-based maintenance is used in many cases. A detailed inspection routine at set frequencies is established specific to a particular unit (components are replaced as required).
					• Condition monitoring of auxiliary equipment (pumps/motors) and control systems is ongoing.
					• Overhaul Program
					  • Overhauls recommended by SMAs based on condition findings
					  • Overhauls as recommended by the OEM (hour-based)
					• Preventive maintenance activities are scheduled on a set frequency to restore asset performance.
					• Risk- and compliance-driven replacement
					• Facilities Integrity Management Program (FIMP)
					• Emissions Reduction Program
					  • Federal Emissions Compliance
					• Corrosion Prevention Program
					  • High Performance Coating
					• Emergency Program

				Improve	• Land Purchase Program • Security Program • Energy Transition Program • Valve Actuator, Power Gas Conversion to Nitrogen
				Replace	• Planned obsolescence replacement based on design life, industry intelligence, and historical obsolescence (largely dependent on vendor equipment support) • Equipment Modernization Program • Time-Based Replacement Program • Risk- and compliance-driven replacement • Civil Replacements Program

Underground Storage	39	Well condition is assessed directly by the Storage Downhole Integrity Management Program (SDIMP) using casing inspection logs. Condition assessments for wells are based on abandonment criteria prescribed by *CSA Z341* and the *Oil, Gas and Salt Resources Act (OGSRA)*.
		Condition assessment is based on directly measured casing inspection data. Reliability modelling estimates well-wall loss growth rate by extrapolating historical measured growth rate and predicting when the wall loss will exceed tolerances.
			Employee and Contractor Health and Safety Risk / Public Health and Safety Risk: Loss of containment can pose a risk to public and worker safety.
			Environmental Risk: If unmitigated, surface blowouts due to lack of condition monitoring can result in environmental damage from the gas and reservoir fluids lost from the well over a period of time.
			Financial Risk: Wells represent significant financial risk to EGI and regulated customers. Unexpected well failures carry a large replacement cost and incur product loss, and reduced reservoir performance may drive up gas supply costs.
			Operational Risk: An unexpected well failure can be significant for regulated customers. Such a failure could cause a decrease in gas
				Maintain	• Monitor surface and downhole well conditions to ensure the continued integrity of the Storage Well System including the emergency shutdown valves (where applicable), master valve, wellhead, and casings. If a problem is identified, the well is repaired or abandoned.
					• Continue with transient pressure testing to identify wells that could benefit from acid stimulation to maintain deliverability.
					• Continue well inspection in accordance with *CSA Z341* and the *OGSRA.*
					• Risk and compliance-driven replacement
					• Well Testing and Acid Simulations Program
					• SDIMP
					  • Well Casing Inspection, Maintenance, and Replacements
					  • Well and Wellhead Upgrades

Asset Subclass	Ave. Age (Year)	Condition	Risk / Opportunity	Strategy	Programs, Tactics, and Standards

			supply impacting ability to meet customer demand. Consequences may be moderate because other reservoirs continue to operate if a single reservoir experiences an outage.
			Carbon Reduction Opportunity: EGI continues to evaluate and implement facility emission reduction opportunities contributing to EGI's carbon reduction targets. The enterprise-wide carbon reduction targets are based on the Pan-Canadian Framework on Clean Growth and Climate Change.
				Improve	• Land Purchase Program
					  • Well Accessibility
					• Operational Improvements Program
					  • Well Testing and Acid Simulations

				Replace	• Relining of wells based on condition findings • Drilling new wells with associated gathering piping to replace lost deliverability of abandoned wells • Wellhead and emergency shutdown valves replacement based on condition • Risk- and compliance-driven replacement
Pipelines	***NOTE:*** *The overview of asset condition and strategy for Transmission Pipe and Underground Storage Pipe is discussed in* ***Section 6.2.3.2****. The overview of strategy for transmission pipelines reinforcement is discussed in* ***Section 6.1.4****.*				

NOTE: *System needs and constraints will be subject to a binary screening through the Integrated Resource Planning (IRP) assessment process to determine if further evaluation is required. IRP, as prescribed by the OEB, requires alternatives to facility assets to be thoroughly examined, reviewed, and implemented where economically and technically feasible.*

6.3.5 Compression Stations

Compressors are used in both transmission and storage systems, along with the liquefied natural gas process. Compression in the transmission system supports the function of transmission pipelines which require high flow rates; while in underground storage compression, compression provides the high-pressure differential required.

To support the transmission systems, four critical compressor stations are strategically located along the Dawn to Parkway Transmission System: (1) Dawn, (2) Lobo, (3) Bright, and (4) Parkway (see **Figure 6.3-4**:). Multiple independent compressor units are located at each station and used in various combinations to manage seasonal and weather-dependent system flow demands. Within the Sudbury transmission system, the Hagar station provides compression during periods of high winter demand to meet customer requirements in the west Sudbury market; and in Northern Ontario, the Iroquois Falls compressor provides a pressure boost from TC Energy contract pressure to the contract pressure of the Iroquois Falls Generating Station.

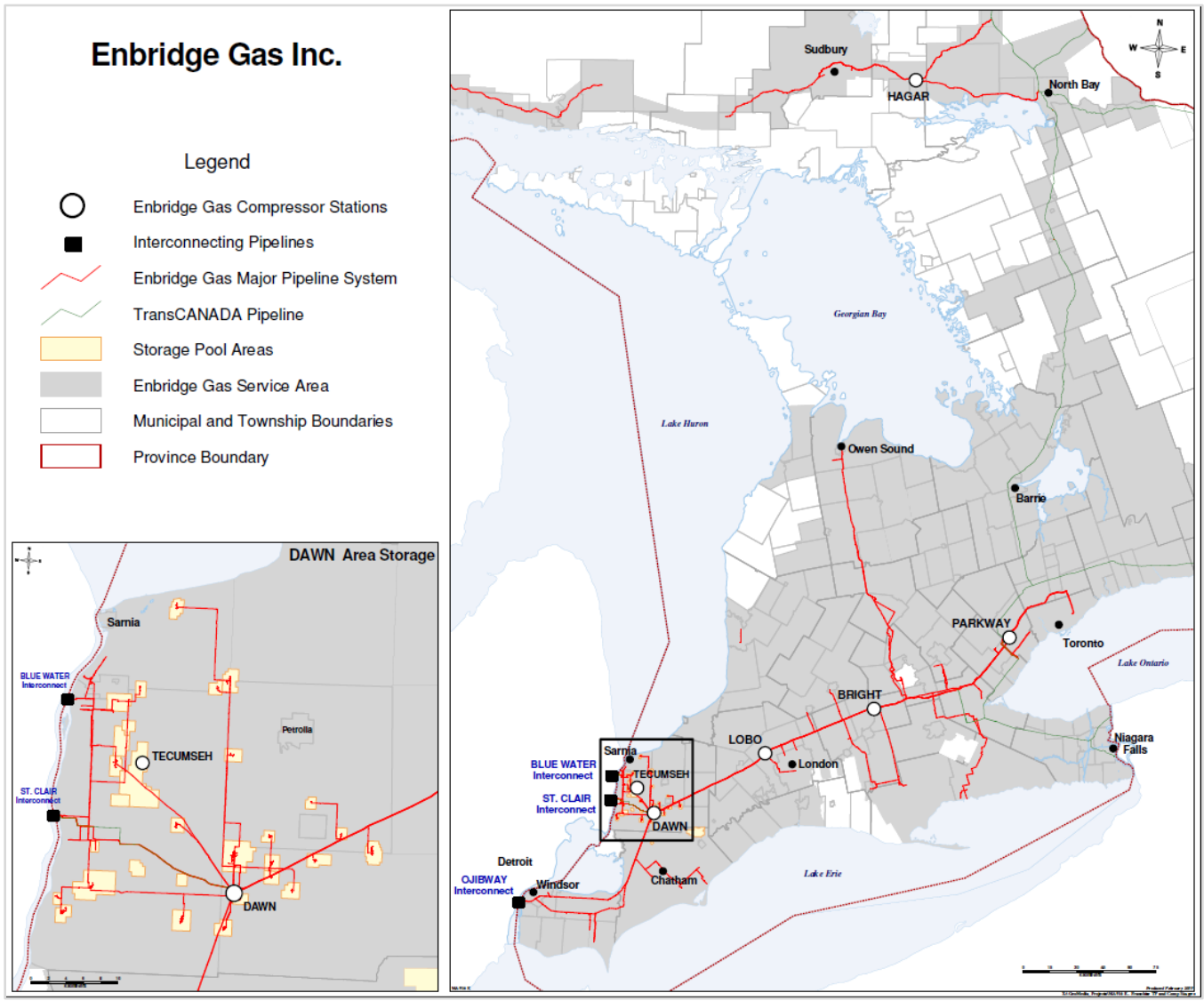


Figure 6.3-4: Compressor Stations in the Dawn to Parkway Transmission System

The hub-and-spoke style storage system consists of two primary hub locations containing multiple compressor units, with the majority of compression capacity at the Dawn compressor station.

EGI operates both production compressors and blowdown recovery compressors. The function of production compressors is to move gas in and out of storage and along EGI's transmission pipelines. The function of blowdown recovery compressors is to reduce emissions during construction and maintenance activities by recovering gas from pressurized piping and reinjecting it into the pressurized system. This significantly reduces the need to vent gas into the atmosphere in order to perform maintenance activities.

All EGI's production compressors are natural gas-fueled and are comprised of both centrifugal and reciprocating (both integral and separable model) compressors with each one designed to support a specific function. All EGI's blowdown recovery compressors are electric driven and are reciprocating (separable) compressors designed to draw down gas pressure in piping systems before performing maintenance activities. Compressors vary in horsepower and consist of different vintages, makes, and models. Gas compressors are designed for continuous operation but are operated based on daily fluctuating system demands. Failures are influenced by service conditions (operating hours) and the design life expectancy of components. Some key components are wear items which require regular inspection to establish wear tolerances. They are replaced as needed and generally cannot be repaired or restored.

Compressor systems are comprised of several subsystems, such as engine assemblies, compressor assemblies, valve and piping, heating and cooling, gas conditioning and ancillary equipment (such as lube oil, fuel supply, and electronic control systems) which are required for the compressor to operate. Compressor systems are located throughout EGI's operating regions, including major underground storage facilities and in remote geographic areas. **Table 6.3-6,** lists the inventory of production compressors at each compressor station. **Table 6.3-7** lists the inventory of blowdown recovery compressors at each compressor station.

Table 6.3-6: Production Compressor Inventory

Location	Number of Production Compressors	Notes
Dawn Compressor Station	8	Interconnects with pipelines from several other companies and EGI's storage system. Provides supply to the EGI transmission systems and loss of critical unit coverage for the Dawn Parkway System and the Panhandle System.
Lobo Compressor Station	5	Supports gas transmission from London towards Woodstock and provides loss of critical unit coverage for the Dawn Parkway System.
Bright Compressor Station	4	Supports gas transmission from Woodstock towards Toronto (Parkway) on the Dawn Parkway System.
Parkway Compressor Station	4	Provides required delivery pressure and acts as a custody transfer station to TC Energy Canadian Mainline as well as loss of critical unit coverage for the Dawn Parkway System.
Sandwich Compressor Station	1	Supports movement of gas from the Panhandle Eastern Pipeline System towards the Dawn Compressor Station.
Corunna Compressor Station	4	Supports storage injections and withdrawals. Daily winter flows are transported to market via the Dawn Parkway System. Gas is received from and delivered to Dawn and Vector pipeline systems.
Remote Storage Pool Compressor Stations	11	Supports storage injections and withdrawals. Daily winter flows are transported to market via the Dawn Parkway, Sarnia, and Panhandle Systems.
Hagar Liquefied Natural Gas Station	2	Supports the Sudbury Lateral System during peak period demand and provides additional compression as required to maintain system pressure.
Iroquois Falls Compressor Station	1	Supports required delivery pressure for an industrial plant in Iroquois Falls.

Table 6.3-7: Blowdown Recovery Compressors Inventory

Location	Number of Blowdown Recovery	Notes
Dawn Compressor Station	1	These units reduce the volumes of gas vented to atmosphere during planned compressor and yard blowdowns.
Lobo Compressor Station	1	
Bright Compressor Station	1	
Parkway Compressor Station	1	

6.3.5.1 Condition Methodology

Engine and compressor condition is primarily maintained through a preventive maintenance (PM) program comprised of rigorous inspections and renewals via overhauls based on manufacturer-recommended intervals. As it relates to compressors, **condition** refers to the ability of an asset to perform its intended function reliably and cost-effectively. Gas compressors are repairable assets; asset condition can be improved through component repair or replacement, restoring asset reliability.

Between overhaul intervals, an understanding of asset condition is obtained through an inspection and maintenance program. Compressors are high-speed, rotating or reciprocating equipment that require constant monitoring, based on rapid condition changes and failure occurrences. Online monitoring provides protection via control systems and is supported by plant control operators responsible for recognizing changing conditions and reacting in near real time. Activities in response to the component condition or operational performance are captured in the Work and Asset Management System. Component condition is determined using the experience and recommendations of SMAs. As asset condition and performance degrade, risks are raised through the risk management process.

For components managed via an overhaul program, condition is viewed as a sawtooth function (**see Figure 6.3-5**:). Condition degrades over the recommended overhaul interval and increases suddenly after an overhaul. **Figure 6.3-5**: is a simplified illustration of the degradation of asset condition over the course of each interval and the function of an overhaul to restore condition to 100%. Some degradation in condition occurs over the entire life of the asset that cannot be restored through overhaul activities.

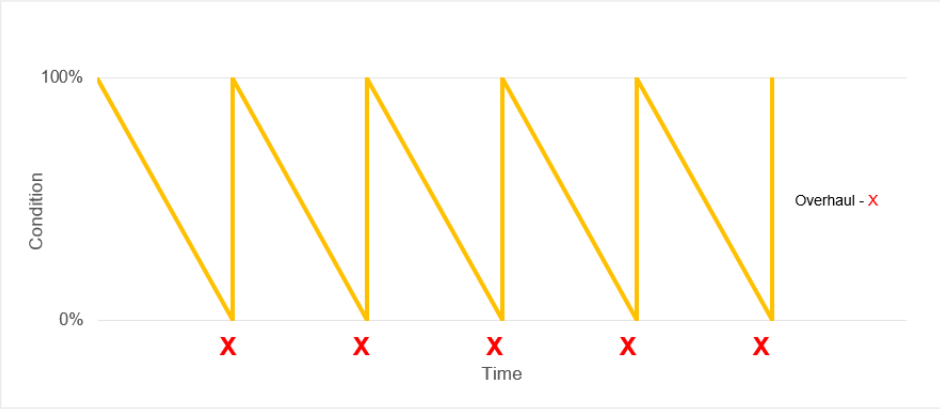


Figure 6.3-5: Condition Based on Overhauls

The overhaul schedule for compressors is based on operating hours, using the average annual usage to forecast the timing of the next maintenance activity. As weather is a factor for compression requirements during an operating season, the overhaul forecast is updated annually to reflect current operating hours and any changes to predicted annual usage. Operating hours

provide the basis for planning overhaul activities, but the results of inspections may lead to the advancement or delay of an overhaul.

6.3.5.2 Asset Health Reviews

The methodology used to quantify the condition of EGI's compressor assets is an Asset Health Review (AHR). The AHR quantifies failure metrics such as projected failure rates and meantime between failures. The AHR provides statistically based reliability metrics that describe the current condition of the compression assets and can be used to estimate the future condition. The output of the AHR is then used as a key input to a Reliability, Availability, and Maintainability (RAM) study. The RAM study generates a forecast of asset performance and aids in identifying plant bottlenecks and weak points. It provides a forecast of plant efficiency, availability, and production shortfall, which in turn is used to understand risk.

The AHR methodology begins by defining and assessing the compression equipment scope. A list of equipment that is deemed critical to the compressor's function is identified. **Critical equipment** is defined as any equipment, of which if a failure were to occur, would hinder the gas compressor's ability to perform the function of compressing gas for the purpose of storage or transmission, as defined in **Compression Stations**. This critical equipment list is defined as the **system**, whose scope can vary depending on the objective of the AHR (i.e., single compressor station, multiple compressor stations within the same facility, and multiple facilities, etc.). The equipment within the system is then broken down further into **subsystems**. These subsystems typically represent a group of equipment that works together to serve a single function within the greater system. For example, if considering an AHR of a single compressor station, the station would be defined as the system, and the gas turbine that mechanically drives the gas compressor would be considered a subsystem. The equipment can be further subdivided into **subassemblies** and, if required, to the individual component level. While recognizing the subsystems identified are all critical to the function of the system, they are categorized into functional and supporting groups, where the functional subsystems are equipment that is directly involved in the compression process of the natural gas. The supporting subsystems are not directly involved in the compression of natural gas but are critical to the operation of the functional subsystems.

With SMA input, the systems and subsystems are defined. The interaction and dependencies between subsystems are organized in a system boundary diagram (SBD). The SBD is a visual tool used to represent the equipment in the system, the equipment in the subsystems, and the interaction between subsystems.

Figure 6.3-6: is an example of a gas turbine-powered, centrifugal gas compressor station.

- Each colour denotes an individual functional subsystem.
- The blocks with a white background denote a supporting subsystem.
- The connectors (i.e., arrows) in between subsystems represent the type of interaction they share with each other.

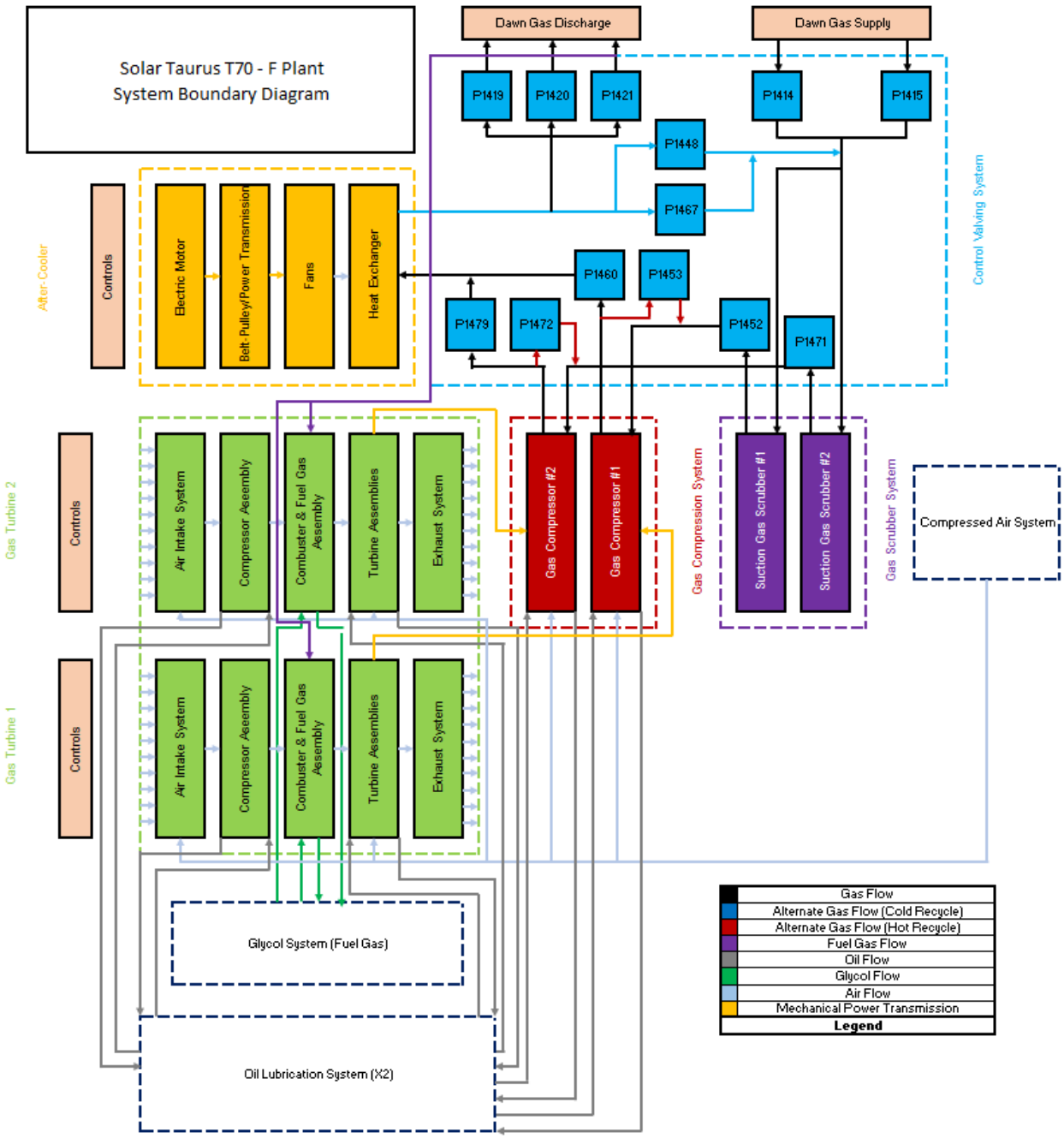


Figure 6.3-6: Example of System Boundary Diagram

Typically, functional subsystems include:

- **Driving equipment:** gas powered gas turbines reciprocating engines
- **Driven equipment:** centrifugal or reciprocating gas compressors
- **Gas-processing equipment:** gas scrubbers/filtration, valving, piping, and aftercooler units
- **Supporting equipment:** compressed air systems, glycol systems, and lubrication systems

Compressor stations include yard auxiliary systems to support the facility's primary function. Yard auxiliary systems include all piping elements (pipe, fittings, valves, regulators, boilers, and pumps) as they relate to systems like fuel gas, low point drains, atmospheric vents, compressed air, glycol supply/return, power gas, lube oil supply, potable water, and fire water. The condition of yard auxiliary systems is determined using the experience and recommendations of SMAs based on data collected through routine PM inspections as prescribed by the manufacturer, through internally developed standards, or through opportunistic inspections rather than through PM data. As asset condition and performance degrade, risks are raised through the risk management process.

Dehydration systems are subsystems within compression stations comprised of mechanical, rotating, electrical, and control system equipment like compression auxiliary equipment. The maintenance strategies for dehydration facilities are based on the same inspection methodologies as compression**.**

Instrumentation, controls, and electrical assets support many other sub-asset types and systems within compression facilities and are primarily affected by obsolescence. As condition assessment for many of these assets is not practical, the methodology for establishing condition is to consider the expected life cycle of equipment and systems and plans for proactive replacement.

With the equipment scope well defined, the next stage is to develop a full understanding of each piece of equipment's specific functional requirements, failure modes, and effects of failures. It is also critical to understand the preventive measures taken to maintain the equipment's condition, what corrective actions are taken for each failure mode, how the failures are detected, and their effect on the operability and availability of the unit. This is typically done by conducting an extensive Failure Modes and Effects Analysis (FMEA) and/or detailed Reliability-Centred Maintenance (RCM) workshops for all subsystems defined in the SBD. The FMEA/RCM is completed with SMA input being the primary source of information.

The execution of equipment inspections and corrective actions is critical to identifying condition concerns that could lead to equipment failures. In some cases, the observed condition requires an immediate intervention to restore the condition of a component to avoid a failure. Alternatively, some observations do not trigger the need for an immediate intervention. Observations, and preventive and corrective actions are recorded in the Work Management system to allow for analysis of all condition data. The results of FMEA/RCM are used to define which failure modes are critical and should be included when classifying failure data from the Emergency Response Plan (ERP) systems. The failure data is then extracted from the ERP system and classified by its failure mode, system, subsystem, and time of failure. Other metrics such as accumulated run time for each piece of equipment and historical usage times are recorded.

Using the failure data, a predictive model is developed at the subsystem level using a combination of classical theory of repairable systems, optimization methods, and various software techniques. The model outputs key characteristic, statistical-based reliability metrics that outline the current condition of the asset and can be used to project the condition into the future.

6.3.5.3 Facilities Integrity Management Program

EGI continues to enhance its understanding of the asset health and life cycle cost for compression facilities through the development of its Facilities Integrity Management Program (FIMP) and through the analysis of asset data captured in the Work and Asset Management System which informs future capital investment requirements. The FIMP is currently focused on the assessment of gas-carrying assets, including piping systems and pressure vessels, within compressor facilities, not inclusive of the compressors themselves along with supporting equipment such as compressed air systems, compressor lubrication systems, and other auxiliary equipment and piping that supports operations of the compressor. For further detail on FIMP, see **Section 6.2.4.6.1.6**.

6.3.5.4 Condition Findings

Overhauls are forecasted based on current run hours, annual usage forecast, and manufacturer recommended overhauls. However, as described previously, some overhauls can be triggered by wear or damage discovered during inspection. Asset age is considered as a condition indicator in terms of obsolescence. The age range for compressor units based on their date of installation from 2025 is shown in **Figure 6.3-7**: .

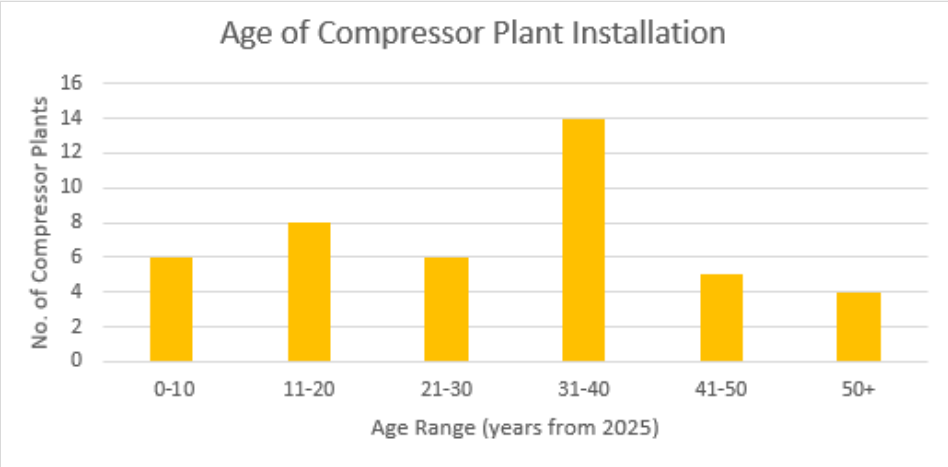


Figure 6.3-7: Age of Compressor Plant Installation

Asset age is used as a guideline to trigger detailed discussions with the OEM regarding their plan to support assets which is critical in understanding the risk associated with continued operation of aging machinery. Discussions with the OEM and aftermarket suppliers for compressor units have indicated the components for various models are becoming obsolete. As the global inventory of spare parts is depleted, failures will need to be addressed with custom manufactured components.

Waubuno Compressor

Several compressors may become exposed to obsolescence risk over the next 10 years. With nine compressor units exceeding 50 years of age within the next 10 years, the risk of declining reliability and parts availability issues that Waubuno compressor is experiencing today is increasing across parts of the fleet.

The findings of the AHR analysis are that the Engine, Compressor, Aftercooler, and Valving subsystems are experiencing critical failures at an increasing rate over the next 10 years.

The AHR 10-year forecast of cumulative failures is represented by gold columns, while the grey columns represent historical failures in **Figure 6.3-8**.

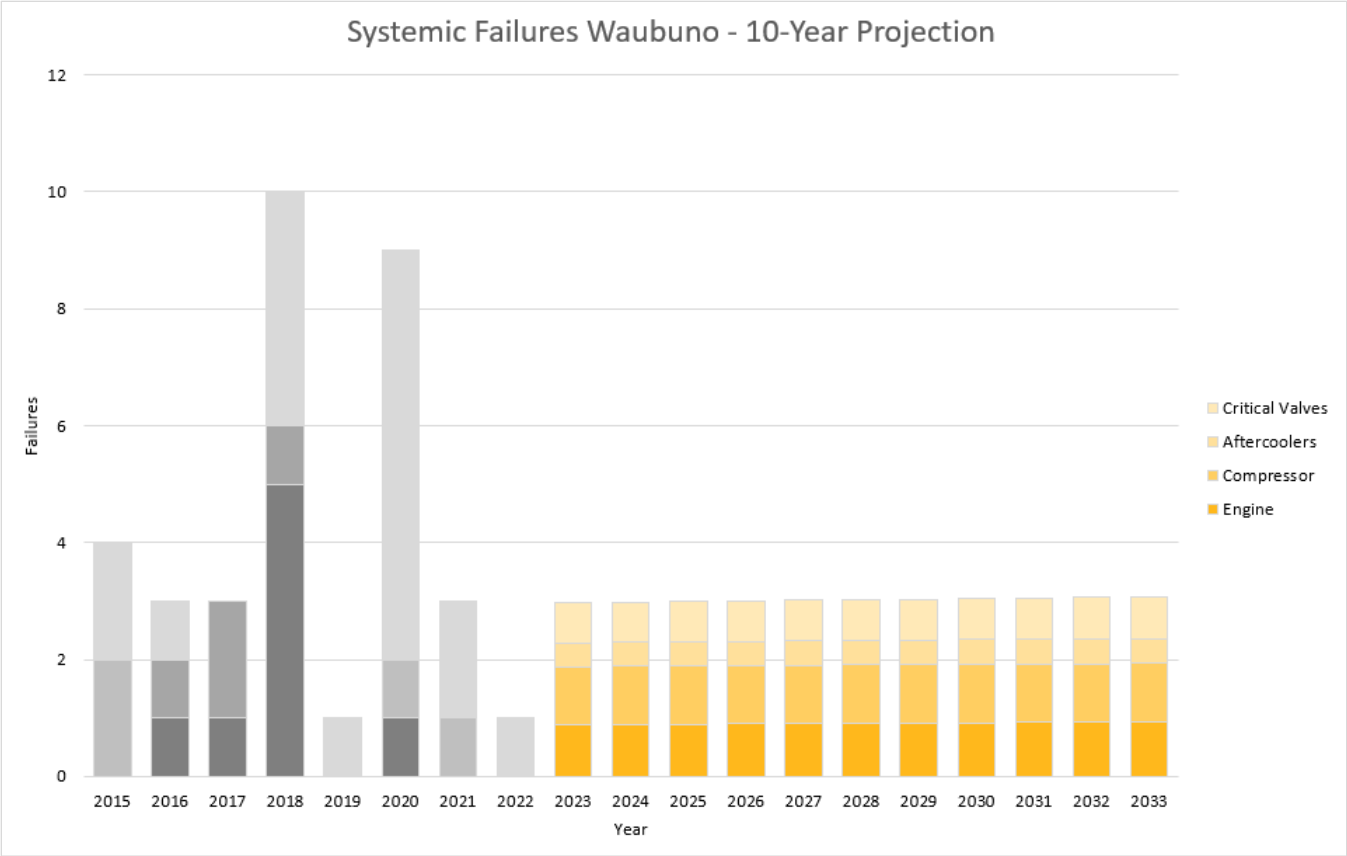


Figure 6.3-8: Systemic Failures Waubuno – 10-Year Projection

The overall systemic failure rate is predicted to increase by 3.37% over the next 10 years.

A sensitivity case was examined to help understand the impacts of increasing obsolescence on overall system performance. Obsolescence has a significant impact on the maintainability of the asset. Supply chain issues of certain equipment/ components critical to the operation of the Waubuno Compressor, namely extended procurement/fabrication delays (12 to 18 months) associated with major failures have a considerable impact on injection operations, with a decrease in performance of 6.09%. This level of impact can be attributed to the high utilization of the Waubuno Compressor, where once a major failure takes place, it has a likelihood of affecting more than one injection campaign. The impact of an increased shortfall based on obsolescence is an increased financial risk.

Dawn C Compressor

Dawn C is a critical compression facility used for storage and withdrawal of natural gas to and from the storage pool and the Dawn Hub. The gas turbine used to drive the gas compressors at the facility was installed in 1983. Given the turbine's age, the rapidly shrinking availability of replacement components, and dwindling support from licensed service vendors, there is a concern that Dawn C will become obsolete in the near term resulting in operational risks.

An Asset Health Review (AHR) and RAM study were completed for Dawn Plant C in 2023 to estimate the expected failure rates and availability of the plant to perform its intended function over a 10-year time horizon. The AHR 10-year forecast of cumulative failures is represented by coloured columns, while the grey columns represent historical failures in **Figure 6.3-9**: .

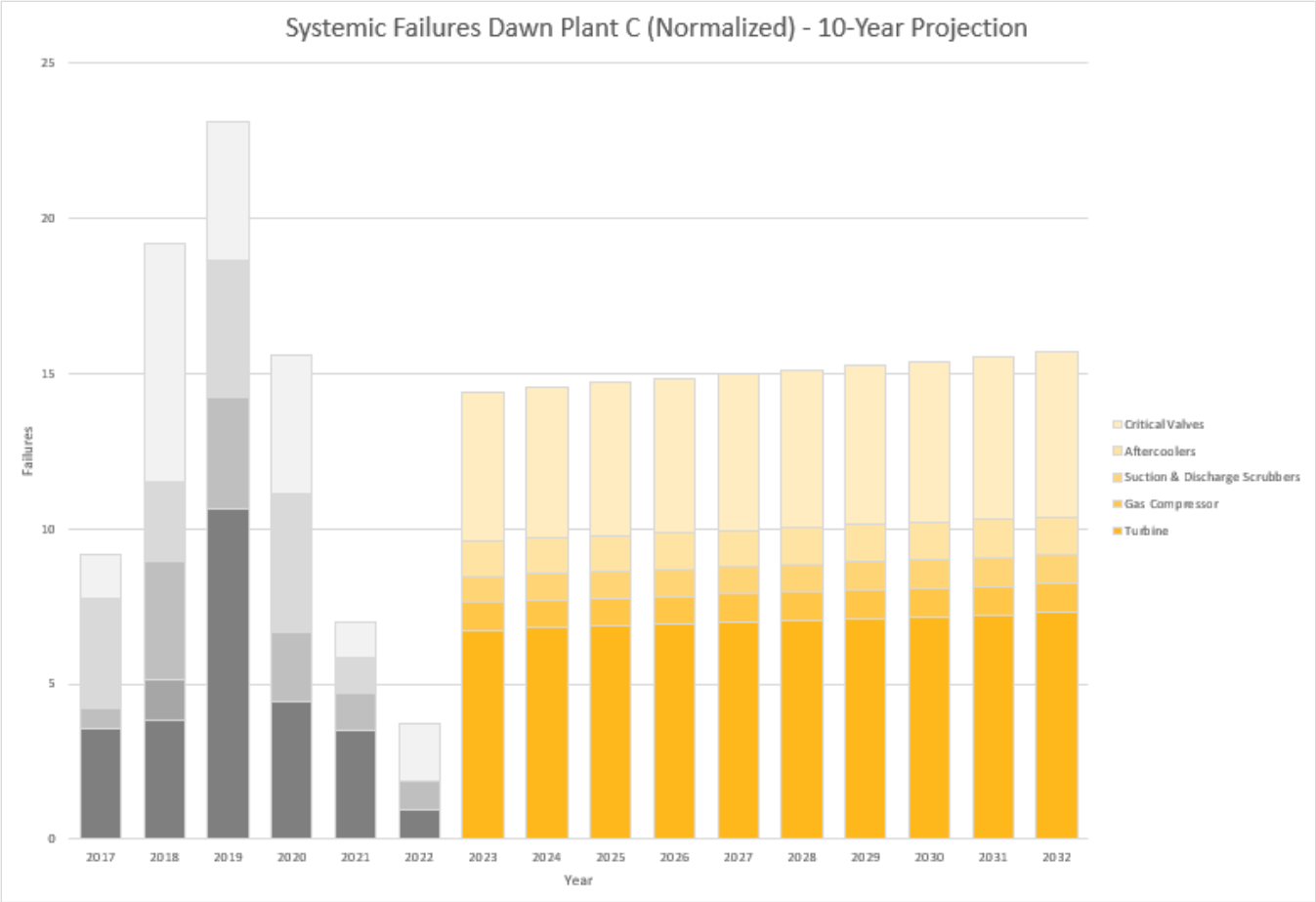


Figure 6.3-9: Systemic Failures Dawn Plant C (Normalized) – 10-Year Projection

The projected failures are determined using the methodology described in **Section 6.3.5.2**. The graph illustrates a clear increasing trend in the number of failures over the 10-year period. The graph also illustrates the significant contribution of the gas turbine to the total number of failures. Considering the expected number of failures, the study estimates that availability will decrease during the study period. Any decrease in availability directly translates to lost capacity and ability to meet demand. Moreover, most of the plant unavailability (about 64%) is attributed to the turbine. In addition to increasing failure rates, repair delays due to parts Bare and Unprotected Pipe are also important considerations. As the plant will be reaching 50 years in service towards the end of the study period, it is certain that this delay in acquiring replacement parts will become even more severe.

A comprehensive AHR and RAM study are currently being conducted for the Dawn Hub, inclusive of all compressor units as a system, to evaluate the critical role of Plant C within the larger Dawn Hub's operation. The study will indicate how the availability of Plant C will affect the overall operational capability of the Dawn Hub. The study is investigating reliability and availability of individual plants to assess the overall performance of the Dawn Hub for a full-year cycle (i.e., both withdrawal and injection seasons) considering the peak demand days. Both the deteriorating condition of Plant C along with current and anticipated obsolescence are being considered in this study. To determine the total shortfall in gas throughput at the Dawn Hub over the next 10 years, this study will consider multiple scenarios including system demand profile and varying parameters such as increasing delay in repair times. Results of the RAM model are anticipated to be available in 2024 to support solution alternatives analysis and detailed mitigation planning.

6.3.5.5 Risk and Opportunity

The risks and opportunities are considered in the Risk Categories relevant to EGI.

Operational Risk: The reliability of gas compressors is integral to managing operational risk and customer impact. Unplanned failures, especially during peak demand times, can have a significant impact in meeting required demands.

Gas compressor reliability risk changes continuously during annual inventory turnover. In the preliminary stages of the injection or withdrawal phases, compression is not always required to meet delivery requirements. The demand on units, both in terms of individual units as well as the aggregate, increases steadily and reaches a maximum during late injection or late withdrawal operations. There is a reduced probability in the shoulder seasons that a single, repairable compressor failure will yield a significant consequence. Individually, each compressor asset creates a moderate, operational reliability risk. In certain scenarios, compressor outages may be managed by securing gas from alternative sources at higher prices. The longer the outage, the greater the impact will be on customers. Long-term outages of multiple compressors during a harsh winter can incur higher costs to customers because of the inability to meet nominations and the resulting need to purchase gas at less-favourable market conditions. Short duration outages can happen regularly; however, long-term outages are much less frequent.

The inability to maintain an EGI obligation of 4 lb H20/MMscf under the *General Terms and Conditions* can impact firm service to all distribution customers, the Storage and Transmission system, and third-party storage providers. Through assessment of contractual moisture content obligations of interconnecting pipelines and modelled moisture content, if EGI experiences increased demand on the transmission system, incremental dehydration facilities may be required to ensure EGI is able to reliably serve firm customer demands. In meeting current supply obligations, the following is considered:

- EGI's ability to operationally blend multiple sources of supply from upstream pipelines and the storage system to ensure the safe and reliable delivery of natural gas and meet contractual obligations
- Assessment of contractual moisture content obligations of upstream supply sources to the Dawn Hub (e.g., DTE Energy, Bluewater, Panhandle Eastern Pipeline, Vector, and Great Lakes pipeline systems)
- Design day storage inventory levels by pool and the expected moisture content of the pools on design day

Environmental Risk: Compressors and some ancillary equipment within compressor stations depend on liquid lubricants, heat transfer mediums, and fuels to ensure safe and reliable operation. These fluids are contained within storage tanks and piping systems which convey them to and from the equipment they serve but could be hazardous to the environment in the event of an uncontrolled release. Containment and piping systems may experience failures resulting in spills if not properly maintained, inspected, and assessed for risk.

Employee and Contractor Health and Safety Risk / Public Health and Safety Risk: Employee health and safety is driven by the potential accidental release of natural gas at EGI's compressor stations and can be evaluated using Quantitative Risk Assessment (QRA) methodology. The greatest contributing scenarios typically include: (1) potential leaks from compressors and associated indoor piping finding a potential source of ignition and resulting in a potential flash fire or explosion and fatal accident, and (2) potential leaks from outdoor compressor header piping finding a potential source of ignition and resulting in a fire.

Financial Risk: Financial risk is significantly mitigated by regular inspections which then inform the necessary preventive maintenance (PM) work. A PM program reduces financial risk by decreasing the chance of unexpected failures. Compressor failures (unplanned outages) result in unexpected repair costs (both materials and labour) and frequently involve collateral damage. The likelihood for a compressor failure to cause an event affecting non-company property and experience commodity loss is low due to mitigations within a compressor building (i.e., gas/flame detection and emergency shutdown systems).

Compressor failure introduces the risk of price volatility as it may require EGI to buy more gas on the market, rather than drawing gas from its storage. Furthermore, in the case of failure, construction could take multiple years to complete, increasing the duration and magnitude of financial implications.

The inability to maintain EGI's obligation of 4 lb H20/MMscf under the *General Terms and Conditions* may result in financial consequences if the market supply needs to be replaced in a limited market or in the event of potential revenue loss, as well as damage claims from customers.

Reputational Risk: Failure to comply with new or changing regulatory requirements could potentially limit the use of compression equipment until compliance is achieved. Restricted use of compression equipment could reduce deliverability and trigger the need to secure gas from alternate sources, at additional gas supply cost. Examples of changing regulatory requirements include:

- Changing federal GHG emission regulations focused on methane reductions impose new restrictions on specified fugitive and vented emission sources within EGI's storage and transmission operations including, but not limited to, compressor stations. This will include repair timelines for leaks, limits on facility venting, compressor seals / rod packing, and pneumatic devices.
- Increasing pressure to further mitigate noise levels to meet permitting requirements, such as Environmental Compliance Approval (ECA), due to encroachment of new residential developments.

6.3.5.6 Compression Stations Asset Class Strategies and Program Outcomes

Detailed inspections at set frequencies, subsequent remedial activities, and constant condition monitoring help identify abnormal equipment conditions, reducing the likelihood of compressor failure and large-scale outages.

The renewal strategy for compression assets targets the overhaul of compressor components based on run time, inspection, condition, OEM recommendations, and SMA review. Full replacement is generally based on design life, historical obsolescence, and OEM equipment support.

6.3.5.6.1 EQUIPMENT MODERNIZATION PROGRAM (REPLACE)

As compressor units increase in age, the OEM may no longer support them, and the risk of not being able to find parts or expertise to repair the units increases significantly. If available, refurbished or custom parts can be used for repairs but may have reduced life expectancy. Custom components create a risk of the introduction of performance and functional issues when compared to those provided by the OEM if material composition or tolerances differ. Further, the cost of custom components can be more expensive and lead times for locating refurbished parts or machining custom pieces can lead to extensive increases in unit downtime and are reactive in nature.

The Equipment Modernization Program aims to identify the top-risk compressor units both from a likelihood of failure (how soon) and consequence (how significant an outage is) perspective. End of life, driven by the risk of obsolescence, has highlighted that several units of the same vintage, make, and model may become obsolete in a similar time frame. Widespread replacement of multiple compressors at multiple sites in a short duration is not feasible based on operational and resource requirements.

To pace capital expenditures, resources, and obsolescence risk over several years, EGI's approach is to stagger the related investments based on risk, location, model, and OEM support. Customers indicated they prefer the approach of spreading costs out over time for projects in the 2023 AMP Customer Engagement, which is also applied in this approach to manage compressor projects. Based on an assessment of age and discussions with OEMs regarding future equipment support, EGI has identified the following compressors for consideration in the 2025 to 2034 Equipment Modernization Program.

- The Joy Compressor (manufactured in 1985) was a used compressor package installed at Waubuno in 1988. The Joy Compressor Company changed ownership approximately 20 years ago whereupon OEM support for the compressor was discontinued. Although normal wear components are still available in the marketplace, replacement of critical items such as cylinders, crankshafts, and rods are no longer available.
- The recently abandoned reciprocating compressor unit at the Crowland Station was installed in 1970 and was comprised of a Waukesha engine and Ingersoll Rand compressor. The compression supported the Crowland Storage Pool on both injection and withdrawal. Due to the facility's age, the compressor station did not conform to modern design standards and code requirements. The antiquated site design introduced risks related to process safety and obsolescence, and there was limited ability to monitor and operate the site remotely.
- There are 19 Siemens gas turbine-driven compressor units in the Gas Distribution and Storage (GDS) Dawn to Parkway compressor fleet. By continuing to follow the OEM-recommended maintenance schedules, the units are expected to meet their seasonal operating requirements. Since the compressors are operated based on seasonal demand rather than a 24/7x365 continuous operation, they are expected to become obsolete before they come to end of life due to functional failure. Through discussions with the OEM, the engine models to consider for managing obsolescence are the Siemens RB211-24A, Siemens RB211-24C, and Siemens Avon:

    - **Siemens RB211 24A (1 unit)** – There is one remaining RB211-24A gas turbine located at Dawn installed in 1982. The OEM of the Dawn C unit has indicated that due to a limited number of the RB211-24A model remaining in their global fleet, they will not be developing a long-term strategy to support obsolete components. As the inventory of engine parts required to recover from a critical engine failure or to complete recommended overhauls is decreasing and has been depleted for some components, the recommendation from the OEM is replacement.
    - **Siemens RB211 24C (5 units)** – These units were installed over several years, starting in 1989 and are located at Dawn, Lobo, and Bright. EGI does not own a spare RB211 24C engine that can be employed in the event of an engine failure. As a result, a failed unit would have to be removed for offsite repair. In such cases, the use of the loss of critical unit (LCU) may be extended for more than the advised time frame posing increased reliability risk associated with the overall system demand. The OEM has communicated their recommendation to upgrade to a newer model via component replacements. Where possible, this upgrade will coincide with the next scheduled overhaul. The upgrade will replace obsolete components to avoid delays in future repairs or overhauls. The upgrades will also improve fuel efficiency, thereby reducing emissions.

- **Siemens Avon (3 units remain plus 1 spare)** – These units were installed over several years, starting in 1971 and are located at the Lobo and Parkway compressor stations. Lobo A1 and A2 were installed in 1971 and 1972. Bright A1 and A2 were installed in 1973 and 1975. Parkway A was installed in 1989. These units were interchanged between Lobo, Bright, and Parkway depending on the system requirements (import, export, and system load). As system loads grew, the output of an Avon plant (13.4 MW to 15.7 MW) was no longer adequate to support design day requirements and the Bright plants were chosen to be replaced by RB211 24G plants in 2008. At this time, a spare Avon engine was purchased and can be exchanged with any of the three remaining units in operation. During the repair of the most recent failure (2023), the cost to upgrade to the Avon 200 model was less costly and more expedient than replacing with like-for-like components. The Avon 200 upgrade includes upgrading many components in the turbine section of the engine, resulting in better fuel efficiency, reduced emissions, and reduced risk of high-cycle fatigue within the unit. Additionally, the overhaul interval is extended from 30,000 hours to 36,000 hours. Due to parts obsolescence or major components in the Avon 161, EGI is investigating the need to upgrade the remaining Avon units to Avon 200s.

The following investments have been identified for the Equipment Modernization Program fleet and address risks related to obsolescence, reliability, and process safety.

Waubuno Compression Life Cycle

The Waubuno compressor was manufactured by the Joy Manufacturing Company in 1985 and installed at Waubuno in 1988. This compressor is used to elevate the available pipeline pressure to the Waubuno Pool MOP. The compressor is operated approximately 57 days per year in late summer to early fall to fill the pool.

The Joy Manufacturing Company changed ownership approximately 20 years ago whereupon OEM support for the compressor was discontinued. Although normal wear components are still available in the marketplace, replacement of major compressor items such as cylinders, crankshafts, and rods required to support a critical failure are no longer available. In case of a critical failure, sourcing aftermarket custom machining services would be the only repair option. This was the case in 2007 when a discharge valve seat failed resulting in catastrophic damage to Cylinder 611. An extensive search across the used parts dealers was required to secure a viable used cylinder head. The other internal damage was repaired through custom machining services which led to an extended outage before the unit was put back into service.

In 2023, EGI had a third-party consultant perform a Reliability, Availability and Maintainability (RAM) analysis on the Waubuno compressor to predict the future performance while factoring in the obsolescence of spare parts and deterioration. The RAM study incorporates demand profile, reliability data from the EGI Asset Health Report (AHR) and the Offshore & Onshore Reliability Data (OREDA) database, and expert judgment. The RAM study results projected unavailability of the unit based on the projected typical running failures and major failures.

The results of the RAM study were translated to EGI's 7x7 operational risk matrix where the consequence of compressor failure is dominated by financial and operational impacts.

To meet the life cycle needs for the Waubuno storage facility and mitigate the financial and operational risks, it is recommended to construct a new pipeline from Waubuno to the Dawn to Corunna pipeline (~1.5 km). The new pipeline will eliminate the requirement for a remote compressor at Waubuno resulting in the abandonment of the compressor unit and supporting assets. The station modifications required for this solution include new control and measurement building, meter upgrades, new valves, and a filter/separator with a launcher and associated piping. The scope of the compressor abandonment includes removal of the compressor and associated equipment in the compressor building; removal of the NPS 8 compressor suction and discharge piping; removal of the aftercooler, filter and silencer; removal of all electrical wiring, control wiring, Supervisory Control and Data Acquisition (SCADA) communication wiring, and panels associated with the compressor. The compressor building and foundation will also be removed.

For additional detail on this investment, see **Appendix A**.

Dawn C Compression Life Cycle

Dawn C is a multi-cased unit and can operate in a series or single-case configuration. The unit is designed to allow for intermediate pressure lift in the single case configuration and high pressure lift in the series configuration. In the later part of the withdrawal season, Dawn C is primarily used in the series configuration to lift from low storage pressure levels to intermediate pressures. The intermediate pressure level is typically elevated further by other compressors to reach the desired Dawn outlet pressure. Dawn C and Dawn D have a suction pressure rating of 195 psig, the lowest rating of the compressor fleet at Dawn. Considering the other compressors at Dawn have higher minimum inlet rating, Dawn C and D become extremely critical when reservoir pressure falls below 400 psig as it typically does late in the operational season.

Siemens, the OEM of the Dawn C compressor, has indicated that due to a limited number of the RB211-24A model remaining in the global fleet, they will not be developing a long-term support strategy for obsolete components. The availability of components required to recover from a critical engine failure or to complete recommended overhauls is essential in managing

risk. Reliability risk is managed by following OEM-recommended preventive maintenance (PM) schedules and overhauls. It is controlled to moderate levels, but the risk increases gradually over the recommended 25,000-hour interval between overhauls.

Notably, the RB211-24A in Dawn C has dimensions which limit interchangeability with more modern editions of the RB211 without significant plant retrofits. The recommendation to address the obsolescence is replacement.

The recommended solution is to replace Dawn C with a combination of compressors with equivalent horsepower and operating range. This solution will resolve the obsolescence concern and will also support reductions in emissions and improvements in reliability. There are currently operational fit issues at Dawn in the winter and upsizing C-Plant will increase the problem. Based on the critical horsepower gap, the recommendation is to address operational flexibility while still meeting design day requirements with the installation of two smaller plants.

The Dawn C engine is due for an end-of-life overhaul in 2027. This overhaul would renew worn components, but parts would be refurbished or replaced with the current obsolete parts. The approximate cost of the end-of-life overhaul is +$3MM.

There are currently no options to upgrade this engine to a newer model without significant station modifications. Siemens does not offer an A-G conversion. The only option is to replace the 24A with a new 24G which will change the dimensions of the skid and raise the centreline of the engine. This will result in raising the elevation of the power turbine and both compressor cases and piping at considerable cost and effort. Once complete, the remaining major balance of plant components, such as the inlet scrubber, valves, gas aftercooler, lube oil skid, exhaust silencer, and inlet plenum, will still be near life cycle replacement age and will require assessment and replacement in the near term. Many of these components date from the original 1984 installation.

Regardless of a decision to replace the engine, the current Dawn C Plant will require upgrades to meet pending emission requirements, including conversion to dry gas seals on the compressor at a cost of +$2MM and a hydraulic starter upgrade to replace the current gas starter at a cost of +$1.5MM.

For additional detail on this investment, see **Appendix A**.

Obsolete Engine – RB211-24C Model

In 2021, Siemens was consulted, and it is expected that the global spare parts inventory will start to decline by 2026 making replacement parts increasingly harder to find. In the event of a failure to an RB211-24C unit, the engine would need to be removed from the berth for repair. The downtime of the unit is increased due to the lack of a spare engine. An outage extends the reliance on the LCU at the particular site for the duration of the repair.

The recommended solution is to modernize the engine at the time of scheduled overhaul where possible, to a model identified by the OEM that will be supported beyond the duration of the asset plan. This solution reduces the risk of extended downtime caused by a failure to a component that is no longer available. It reduces the obsolescence risk across the fleet by pacing the upgrades of the five RB211-24C units, improves system reliability, and supports reductions in emissions obtained via new technology.

Four of the five remaining RB211-24C units are not scheduled for their overhaul within the next 10 years. EGI will continue to engage with the OEM to understand the availability of components for the RB211-24C unit and the risk associated with obsolescence.

6.3.5.6.2 OVERHAUL PROGRAM (MAINTAIN)

These projects consist of the OEM-prescribed scheduled maintenance and overhauls for engines, power turbines, and compressors. These overhauls satisfy the OEM recommendations to maintain equipment reliability and ensure continued asset and system reliability. All projects include full internal inspections and replacement of wear items to maintain reliability and reduce the risk of failure. If OEM-recommended maintenance intervals are exceeded, the risk of reduced reliability and performance increases, as does the risk of more extensive and costly equipment damage. Regular scheduled inspections, preventive maintenance activities, and machine monitoring may identify the need to perform an overhaul before the OEM recommendation. Operating hours provide the basis for planning overhaul activities, but the results of inspections may lead to the advancement or delay of an overhaul.

6.3.5.6.3 CIVIL REPLACEMENTS PROGRAM (REPLACE)

Foundation Block Replacement

The foundation blocks for the reciprocating compressors require replacement due to age, operating hours, oil contamination, and condition (the engine block foundations are deteriorating). Without remediation, failing foundations will allow unit settlement creating bearing misalignments. As the frequency of bearing failures increases, the operational reliability of the unit decreases. There is also the potential for collateral crankshaft damage. There are no technically viable maintenance or repair

strategies that will sufficiently extend the lives of the foundations blocks indefinitely; and therefore, replacement is the only option to mitigate damage described above.

6.3.5.6.4 CONDITION-BASED REPLACEMENTS PROGRAM (MAINTAIN)

Maintenance and inspection routines are used to determine the condition of equipment and subassemblies and inform the need for intervention (timing and activity). Replacements are planned based on general asset groupings, failure characteristics, and the ability to determine the time of failure. Where inspection techniques are feasible and can provide indication in advance of functional failure, replacements are planned based on condition. Asset issues are raised through the Work Management system and risk processes, through which the appropriate treatment is determined and may result in a maintenance expenditure. Many of the discrete investments within the portfolio are identified and planned using this approach.

Valve Replacements

Leaking valve seals do not always lead to leaks to the atmosphere or pose a loss of containment threat. Leaking valve seals can allow gas to flow when in the closed position. This poses a process safety threat, a loss of system performance (by creating recycle loops), and a less safe work environment (reducing the ability to complete maintenance activities that require additional isolation procedures). These valves are sometimes used to separate piping with different MOPs. If these valve seals leak, there is an increased threat of an overpressure event in the lower-pressure system as gas bleeds through the valve from the higher-pressure system.

For some types of valves, in-situ repairs are possible and always attempted to resolve valves which are leaking or otherwise inoperable. Such repairs may involve the injection of lubricants and sealants. However, in cases where such repairs are not possible, removal of the valve from service and more extensive mechanical repairs may be attempted. These more extensive repairs are only possible in cases where EGI's operation can support extended outages; and they are not always successful in restoring the valve's function. In these scenarios, the total cost to repair will be nearly the same as a planned replacement of the valve due to the related removal and installation costs. Particularly where repairs are unsuccessful and replacement is deemed necessary after a repair is attempted, the total cost of the project can be close to double that of a planned replacement and will require longer duration or multiple outages to facilitate. Furthermore, some valve diameters and end configurations can take more than a year to procure, creating additional operational risk in cases where an attempted extensive repair is unsuccessful. Therefore, planned replacements are typically preferred over extensive repairs when an in-situ repair is unsuccessful.

At compressor stations, replacements are required for isolation valves which do not provide sufficient seal quality and cannot be repaired or are otherwise inoperative. These valves are typically remotely operable and are installed in various locations within the stations, providing key isolation during normal maintenance activities and/or emergency shutdown. Valves are identified for replacement based on operating performance or condition found during routine inspection. Replacement of associated actuators may be required and evaluated individually.

Run-to-Failure Programs

Several smaller program spend items are required to support operations and are planned based on historical expenditures. Equipment and subassemblies are identified during the year through regular inspection based on failures or indications that failure is imminent. Replacements are required to ensure site equipment reliability for the following:

- Lighting
- Instrumentation and electrical equipment
- Site security repairs
- Mechanical equipment

6.3.5.6.5 TIME-BASED REPLACEMENT PROGRAMS (REPLACE)

Time-based replacement is used when condition-based assessment is not comprehensive enough to identify the next failure interval. Time-based replacement is also used to proactively replace equipment and subassemblies prior to failure, based on historical obsolescence time frames. Targeted upgrades or replacements of control and communication equipment are required to mitigate obsolescence, ensure adequate redundancy of critical systems, and mitigate emerging process safety risks. Due to the number of devices within the Storage and Transmission system, replacements are planned based on device types and volume.

Time-based replacement strategies are volume driven and applied to the following groups based on obsolescence and expected failure frequency:

- Control systems – including Programmable Logic Controller (PLC), Distributed Control System (DCS), Supervisory Control and Data Acquisition (SCADA), and Human Machine Interface (HMI)

- Fire and gas detection instrumentation and detection systems
- Uninterruptible Power Supply (UPS), Motor Control Centres (MCCs), and Vibration and Health Monitoring Systems
- Industrial Communication Network Equipment
- UPS batteries

Siemens Valve Controller Replacement

As of July 2020, Siemens no longer supports valve controllers required in the start sequence of their compressors. Three controllers service three valves on each engine skid. Each valve/controller combination is unique in operation with no redundancy. If one controller fails, it must be replaced, rendering the entire unit unavailable until replacement and set up is complete. Similarly the fuel valve controllers, the oil scheduling valve, and the controller on the gas generator lube oil skid have been made obsolete. These valves and controllers have experienced several failures in recent years and cannot be rebuilt. The Replacement Program will replace valve controllers for two compressor plants per year through 2026.

6.3.5.6.6 CORROSION PREVENTION PROGRAM (MAINTAIN)

High Performance Coating

High performance coating (HPC) is required on above-grade piping to reduce the chance of external corrosion. HPC has an expected life of approximately 15 years while standard coatings typically last 5 to 8 years. This annual program is centrally managed to apply high performance paint to mitigate corrosion at remote sites, compressor facilities, and the Hagar LNG facility with above-grade piping. This program targets stations with deteriorating coating condition, ensuring safety and reliability by reducing the probability of leaks and piping/equipment failure due to significant corrosion.

6.3.5.6.7 EMISSION REDUCTIONS PROGRAM (MAINTAIN)

EGI continues to evaluate and implement facility emission reduction opportunities. Effort is given to ensure the initiatives effectively balance customer preferences, compliance obligations, anticipated future regulations, and other noteworthy benefits such as safety and operational reliability.

When evaluating system expansion alternatives, the cost of fuel and carbon is considered alongside operational requirements, and these opportunities are tracked through the GHG Scope 1 & 2 Working Group[47]. Significant investment has been made in the emission testing programs for both the Multi-Sector Air Pollutants Regulations (MSAPR) and the Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds (Upstream Oil and Gas Sector) (methane regulations), in addition to the capital investments outlined in this plan.

The asset class strategies contained in this asset plan are tied closely to EGI's efforts to reduce its environmental footprint. These efforts are summarized below.

Multi-Sector Air Pollutants Regulations

The *Multi-Sector Air Pollutants Regulations (MSAPR) (SOR/2016-151)* are a compliance requirement that came into effect in 2017. These regulations are enacted by Environment and Climate Change Canada (ECCC) and are dedicated to limiting nitrogen oxide (NOx) emissions from specific industries and equipment across Canada. Part 2 of the regulation focuses on stationary spark-ignition, gaseous fuel-fired engines greater than 250 kW (pre-existing), specifically impacting large stationary reciprocating engines at EGI. As of 2026, NOx emissions for all pre-existing, regular-use engines will need to meet 4 g/kWh. Modern engines greater than 75 kW (regular use) and greater than 100 kW (low use) manufactured after September 2016 must meet a limit of 2.7 g/kWh.

Methane Regulations

The federal methane regulations are a compliance requirement. The regulations came into effect on January 1, 2020 with the purpose of reducing methane emissions from the oil and gas industry through leak detection and repair (LDAR) requirements, venting limits, and equipment level emission limits. The regulation requires facilities to implement an LDAR program and for compressor seals and rod packing to meet equipment emissions limits.

Leak inspections must be completed at compressor stations, storage measurement stations, and transmission receipt/metering stations three times per year, with prescribed repair timelines. Annual direct measurement or continuous monitoring of compressor seal and rod-packing emissions is required, with prescribed timelines for corrective action if the venting exceeds the applicable emission limits. As of January 1, 2023, the methane regulation requires continuous bleed pneumatic devices to meet an equipment-specific emission limit of 0.17 standard m^3/h. An application for an exemption from

[47] For further detail on EGI's GHG emissions and targets, refer to EB-2022-0200 Exhibit 1, Tab 10, Schedule 1.

the limit may be made for individual pneumatic devices based on safety or operational needs. Additionally, facility venting limits apply to designated stations within the storage and transmission operations. Vented activities exempt from the facility venting limit include activities such as blowdowns, glycol dehydration, pneumatics, startups/shutdowns, and emergency venting.

6.3.5.6.8 ENERGY TRANSITION PROGRAM (IMPROVE)

Valve Actuator, Power Gas Conversion to Nitrogen

Compressor station yard valves are predominantly powered by natural gas and vent gas to the atmosphere when operated. EGI has undertaken an investigation to generate nitrogen (N2) on site using excess compressed air capacity and insert it into the Power Gas system to replace the usage of natural gas. This will reduce GHG emissions by eliminating the release of pure natural gas into the atmosphere when operating valves. The system will consist of an N2 generator, storage tank, and small booster compressor. The existing natural gas feeds will be kept in place to back up the N2 system if there is an outage. The benefit to using N2 instead of air is that since N2 is inert, it can be mixed with natural gas which makes the conversion to the natural gas backup seamless. These systems are expected to be deployed at the five major compressor stations (i.e., Corunna, Dawn, Lobo, Bright, and Parkway).

6.3.5.6.9 LAND PURCHASES PROGRAM (IMPROVE)

Properties in proximity to a compressor station have the potential to expose the public to risks in rare hazardous events. Noise and vibration are identified in the *Environmental Protection Act* as contaminants. Any industry emitting noise or other contaminants must obtain an Environmental Compliance Approval (ECA) from the Ontario Ministry of Environment, Conservation and Parks (MECP) to operate legally. The current approved ECA encompasses the entire gas storage and transmission network. If compressor stations with neighbouring lots are developed to host a noise-sensitive use, they could jeopardize the compliance status of the station with respect to the applicable MECP sound level limits. Acquiring land in proximity to compressor stations provides additional setback and buffer to ensure properties do not become noise-sensitive and reduce risk related to public safety and encroachment. Property may also be purchased to support expansion or provide ease of access.

6.3.5.7 Compressor Stations Capital Expenditure Summary

The average annual capital spend is forecast to be $46.7MM (EGI) as summarized in **Table 6.3-8**. Compressor Stations capital is further summarized as part of EGI's total 10-year capital plan in **Section 3**. For the status of the outcomes of the IRP assessment process, including the binary screen and the status evaluation of IRPAs, see **Appendix B**.

Table 6.3-8: Compressor Stations Capital Summary ($ Millions) – EGI

Asset Class Strategy	Program Name	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	10-Year Forecast
Maintain	Condition Based Replacements Program	20.0	8.5	1.2	8.2	17.2	3.7	6.5	4.6	4.0	1.0	74.9
	Corrosion Prevention Program	0.4	0.7	0.0	0.0	0.6	0.6	0.6	0.6	0.0	0.0	3.3
	Emissions Reductions Program	10.3	11.0	9.6	9.1	6.1	6.1	6.1	5.1	5.9	2.8	72.2
	Facilities Integrity Management Program	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.4
	Overhauls Program	0.9	14.7	17.7	13.0	5.5	10.3	0.4	0.0	3.1	7.1	72.8
Improve	Civil Replacements Program	0.2	0.2	0.1	0.2	0.2	0.0	0.2	0.2	0.2	0.2	1.6
Replace	Civil Replacements Program	3.7	1.1	2.2	1.8	0.3	0.2	5.8	3.5	2.4	0.1	21.1
	Equipment Modernization Program	5.2	26.8	49.2	86.3	14.0	0.0	0.0	0.0	0.0	0.0	181.5
	Overhauls Program	0.0	0.0	0.0	1.5	0.7	0.3	0.3	0.3	0.3	0.3	3.9
	Time-Based Replacement	4.5	5.8	4.7	5.4	2.4	3.1	4.3	2.0	1.9	1.6	35.5
Total		45.2	68.9	84.7	125.5	47.0	24.3	24.2	16.2	17.8	13.1	**467.1**

6.3.6 Transmission Pipe and Underground Storage

6.3.6.1 Underground Storage

The use of subsurface facilities for natural gas storage allows for increased efficiency in operations, conservation of produced natural gas, and more effective and economic delivery to markets. Natural gas is stored in depleted oil or natural gas fields sealed on the top by an impermeable cap rock.

Wells are used to inject into and withdraw natural gas from underground storage reservoirs and to monitor reservoir pressure. EGI well assets consist of 133 and 229 wells in the EGD and Union rate zones respectively. This includes natural gas storage wells and observation wells.

Underground Storage assets are connected to EGI's Transmission assets via gathering and well lateral lines which brings storage gas to dedicated stations where filtration, measurement, compression, flow control and other ancillary systems are located.

EGI's storage wells are located primarily in agricultural areas. **Figure 6.3-10** displays the ages of EGI well assets by drilling date (i.e., original well construction date). **Figure 6.3-11**: shows well age based on production casing (the innermost casing) age. A well's production casing age indicates a new casing was added to the well to improve its integrity, an effective method for extending its life.

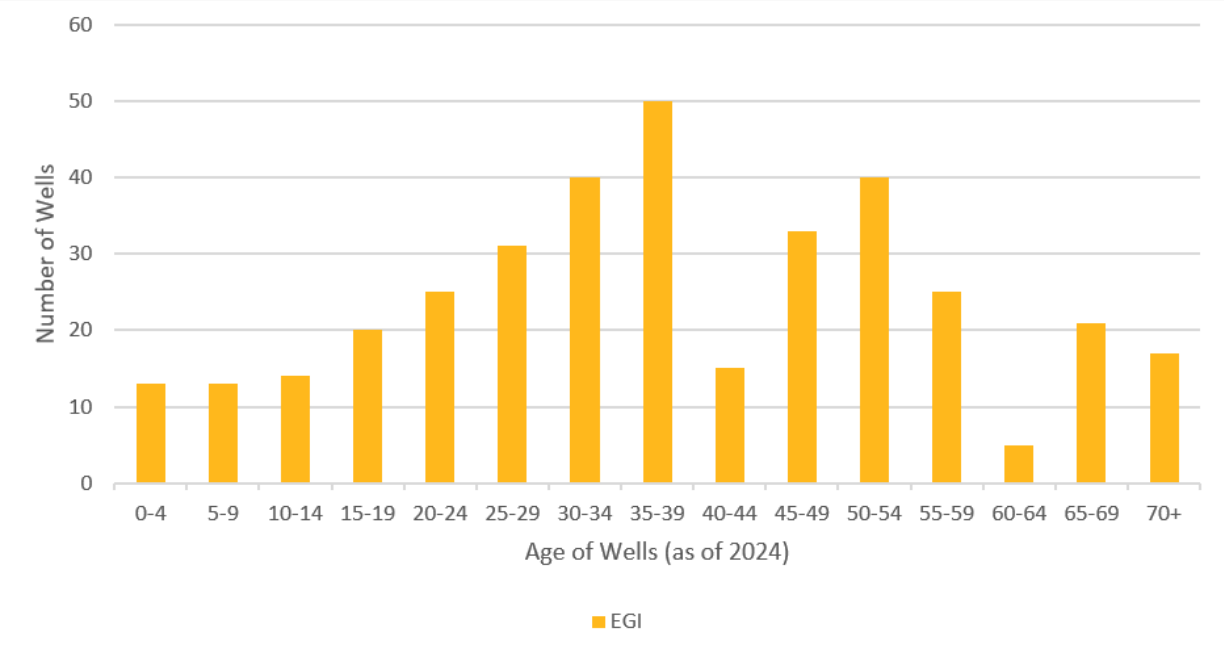


Figure 6.3-10: Age of Wells by Drilling Date

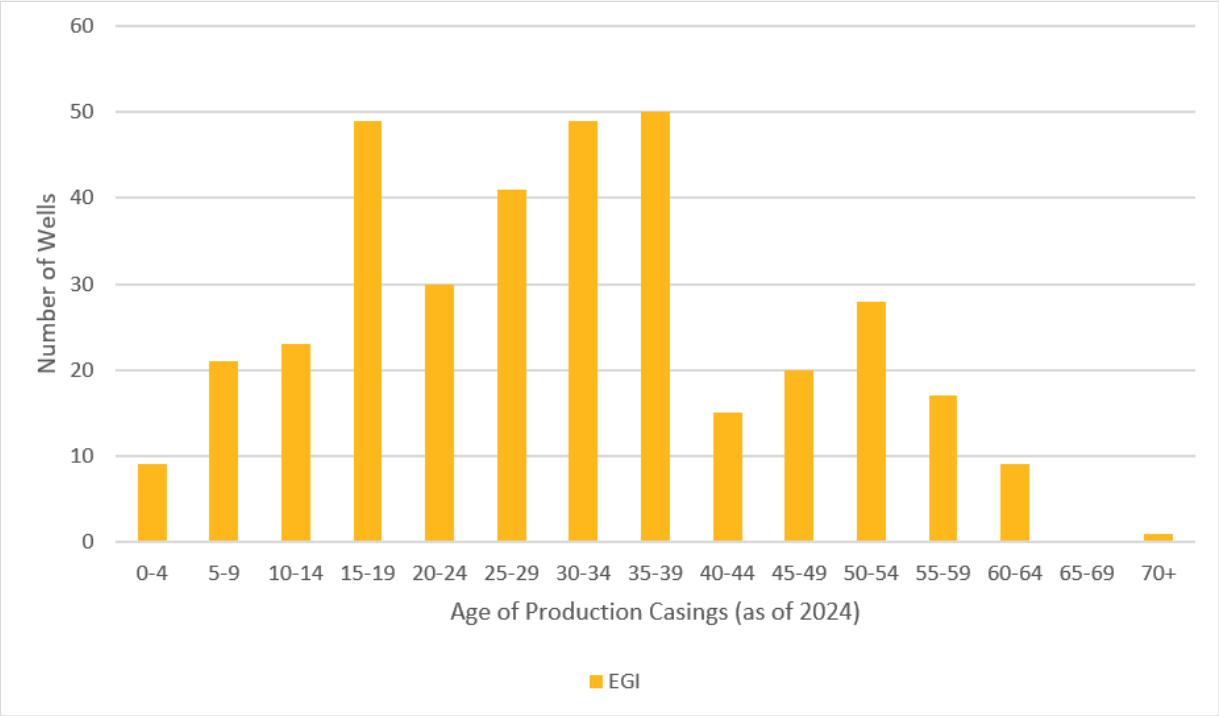


Figure 6.3-11: Age of Wells by Production Casing Age

Degradation of well assets is generally exhibited as casing wall loss. Wall loss can be internal or external and can be caused by factors such as mechanically induced damage during drilling operations or corrosion influenced by various geological layers and subsurface fluids. As wall loss progresses, previously insignificant defects become more pronounced. For newer wells, the number of well casing defects requiring action is expected to be low.

The top two joints of well casing (approximately the top 20 m from the surface) can be repaired. These repairs, known as casing backoffs, result in the removal of a short section of old casing and replacement with new casing, extending the well's life expectancy.

Replacement of casing below the first 20 m becomes difficult; primary options are relining or abandonment. Relining is performed by inserting a new smaller-diameter production casing inside the affected casing and filling the annular space with cement. Abandonment is performed by filling the wellbore with cement and removing it from service. Relining and abandonment may be followed by the drilling of new wells to restore lost deliverability.

6.3.6.1.1 CONDITION METHODOLOGY

Well condition is assessed by the Storage Downhole Integrity Management Program (SDIMP) using casing inspection logs (similar to in-line inspection tools used for pipelines). Well casing inspection logs are completed per *CSA Z341*. The logging tool is based on magnetic flux leakage (MFL) technology that infers changes in pipe wall thickness. According to code, a baseline casing inspection log is run on the production casing of all new wells drilled (and when a well is relined with a new production casing). *CSA Z341* stipulates that wells receive their second casing inspection log five years after the baseline log. Subsequent inspection frequencies depend on wall loss and the growth rate of metal loss features.

Following each casing inspection log, the minimum yield pressure of the production casing and the corrosion growth rate (i.e., the percentage of metal loss per year) are calculated based on the maximum wall loss detected by the casing inspection log. Based on calculation results, the next inspection date is required in 5 or 10 years. However, if the minimum yield pressure of the production casing is less than the MOP of the storage zone (or if a pressure test fails), the well will either be relined to continue its operation or removed from service. New wells would be required to restore the lost deliverability from the well abandonment.

6.3.6.1.2 CONDITION FINDINGS

A condition model has been developed to predict the end of life for each storage well as shown in **Figure 6.3-12**. Condition assessment is based on data collected from casing inspection logs. The model estimates the corrosion growth rate by extrapolating the historical measured growth rate and predicting when the corrosion will exceed an acceptable limit. The acceptable limit is defined by *CSA Z341* and will trigger remediation or abandonment to ensure well integrity.

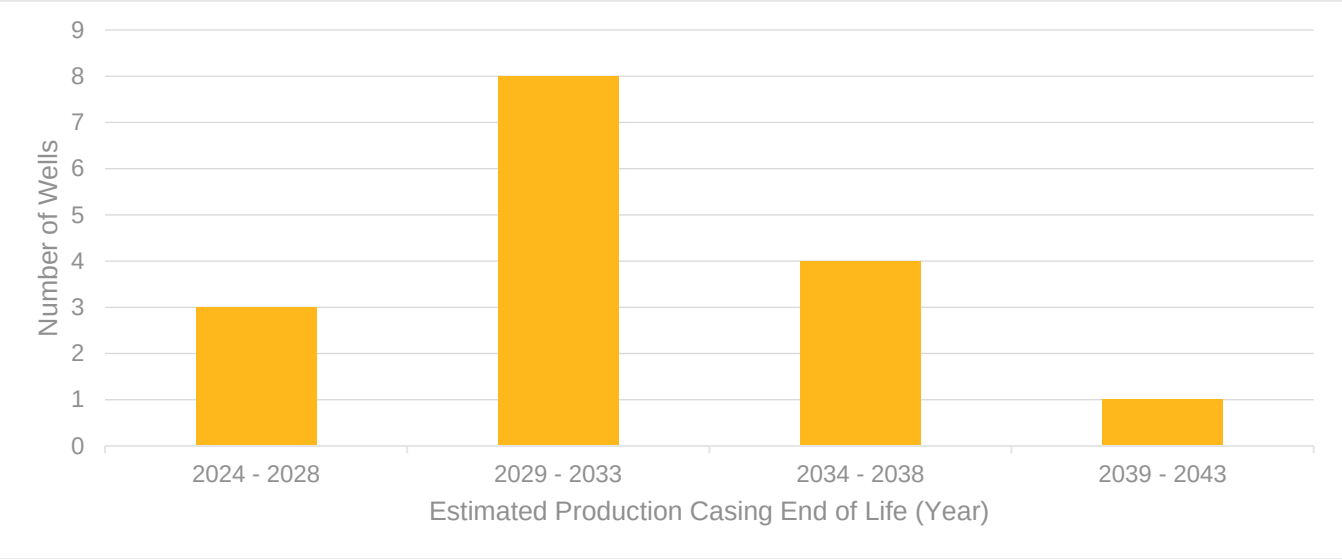


Figure 6.3-12: Estimated Production Casing End of Life for Wells

The condition model considers factors such as:

- Previous condition from the most recent casing inspection
- Rate of corrosion growth over multiple casing inspections
- Accuracy of casing inspection technology used during previous inspections. Note that inspection technology has become more accurate over time and may affect projections.

It should be noted that as more inspection data is obtained, these estimates are expected to change. EGI transitioned to high-resolution casing inspection log technology in 2009. The first high-resolution well logs showed that previously reported metal loss features were reduced in many instances. Furthermore, as technology evolves and more field data is obtained, data quality interpretations continue to improve and metal loss features may differ over repeated logs. As new data is modeled, end-of-life projections are expected to change. When a well's production casing reaches end of life, evaluations are conducted to determine whether the well should be relined or abandoned. Activities to restore lost system deliverability are also performed, which may include the drilling of a new natural gas storage well.

In addition to the above estimated casing mitigation actions, the following findings require investments that will support the safety and reliability expectations for underground storage assets.

Wellhead Upgrades

EGI inspects and evaluates the condition of its wellheads on an ongoing basis, including wells grandfathered under previous versions of *CSA Z341*. Through this work, wells and wellheads are identified to be updated based on CSA code changes and industry best practices. Since 2002, *CSA Z341* specifies that all connections above the casing bowl shall have flanged connections, as threaded connections are more prone to leaks and have a higher failure rate. In addition, *CSA Z341* no longer allows the pressure rating of the wellhead to be derated based on the pressure rating of the master valve. The process of upgrading the previously identified wellheads with threaded side-ports on the intermediate spool section is ongoing. Future projects may arise due to changes in code and industry standards.

Well Testing

The deliverability of natural gas storage wells declines over time, associated with the normal operation of the storage pools. Deliverability and transient pressure testing are conducted annually at selected storage wells to assess well deliverability,

identify any decline in deliverability, and to assess the likelihood of whether well stimulation can recover any deliverability losses.

Well deliverability and pressure transient testing is conducted on selected wells following the fall and spring stabilization period. Wells are individually tested over 72 hours with fixed flow rate and shut-in periods. Well pressures and flow rates are recorded, and the data is used to determine reservoir properties, wellbore damage, and well performance. Well performance is compared with previous tests to quantify any deliverability loss. Wells are then also selected for acid stimulations. Retesting occurs approximately every 20 years depending on pool operational demands and maintenance requirements.

Well Security and Accessibility

Approximately 20% of wells are in areas where personnel access is limited. These wells are often in the middle of an agricultural field; and at the request of the landowner, laneways were not installed. During normal maintenance activities, personnel are required to access these wells, exposing them to difficult physical conditions. Working with landowners, investments are required to install laneways and facilitate personnel access to these wells for essential maintenance activities.

The largest risk to storage wellheads is farm traffic. Each wellhead is surrounded by a chain link or metal post fenced area. Based on the results of a risk assessment, EGI is installing four precast concrete blocks around each fenced area to reduce or eliminate any impact to the wellhead by farm equipment. This program will install precast concrete blocks around all wellheads in agricultural areas where practical.

Cathodic Protection

Wells in the Union rate zones have cathodic protection (CP) installed at each storage field for protection; wells in the EGD rate zone are not similarly protected. In 2021, EGI completed a study to determine if there were appreciable benefits of adding CP to cathodically unprotected wells. The study evaluated the external corrosion data and associated remedial actions in the Union wells in comparison to the EGD wells. The study determined that implementing a CP solution, as used in Union wells, limits external corrosion (EC) and extends the service life of the well.

Crowland Storage Pool

The Crowland Storage Pool in the Niagara region is used to balance natural gas demands in the local market. The pool has 16 natural gas storage wells and eight observation wells for pressure monitoring. Since amalgamation, the flow capability of the pool has been assessed through deliverability testing. Additionally, evaluations have been completed on local market options with the aim of simplifying the operation of the pool. The outcome of these evaluations resulted in the recommendation to eliminate compression. An integrity assessment for each well has also been completed to determine if existing wells can be upgraded or will need to be abandoned. The findings of this assessment resulted in the requirement to replace eight observation wells and three storage wells as they do not meet standards and cannot be upgraded. EGI drilled a stratigraphic well in 2023 to acquire cores and formation evaluation well log data to characterize the rock properties of the storage zone and the geological formations above and below the storage zone. The process of testing the acquired cores to perform an integrity study is ongoing.

A1 Observation Wells

Observation wells are used to monitor the pressure in natural gas storage pools and do not cycle gas in and out of the reservoir. Each pool has an official Guelph observation well that monitors the pressure of the Guelph reef formation where gas is stored. However, many pools have a tighter secondary formation where gas can migrate, known as the A1 Carbonate formation. A1 observation wells are used to monitor the movement of gas in and out of the A1 Carbonate formation. The gas in the formation is contained within the reservoir but may not be accessible working gas that can be cycled on an annual basis. As gas is less accessible in this formation and requires the pool pressure to be lowered before migrating back to the Guelph reef, observation wells are required to be incorporated into the storage facility in accordance with *CSA Z341*.

The A1 observation wells are used as a tool in storage pool material balance studies. Biannually, storage pools are stabilized, and the Guelph pressure is used to calculate an inventory based on pressure. This is then compared with the pool's metered inventory and variances above a certain threshold are investigated. In some instances, gas movement into the A1 Carbonate formation contributes to these variances. An A1 observation well can confirm this issue and assist with explanations and potential adjustments to pool size and inventory. For effective inventory management, one or more A1 observation wells are required to monitor the gas in the A1 Carbonate formation. Pools that do not have A1 Carbonate wells will be targeted for the addition of an observation well.

6.3.6.1.3 RISK AND OPPORTUNITY

Currently, measured condition data is obtained through the Storage Downhole Integrity Management Program (SDIMP), which currently indicates that well abandonments will be required over the duration of the program.

Employee and Contractor Health and Safety Risk / Public Health and Safety Risk: If unmitigated, risks related to safety are generally expected to increase slowly due to continued corrosion. Wells exceeding corrosion tolerances will be abandoned

as prescribed by code, proactively reducing significant safety risks. Risk modelling considers the possibility of injury to the public and personnel, as these assets have a major influence on public and employee safety risk. Wells have the potential to cause injury during a loss of containment event.

Environmental Risk: If unmitigated, surface blowouts due to lack of condition monitoring can result in environmental damages from the gas and reservoir fluids lost from the well over a period of time.

Financial Risk: If unmitigated, loss of containment risk is generally expected to increase slowly due to continued corrosion. Risk modelling considers loss of containment and damage to infrastructure. However, the probability of failure is generally extremely low. Wells represent significant financial risk to EGI and regulated customers. Unexpected well failures carry a large cost of replacement, lost product, and may drive up gas supply costs.

Well abandonment is a safety and financial risk mitigation of the existing wells. However, once an existing well is abandoned, the flow capacity of the associated reservoir is reduced. Reduced reservoir flow capacity may reduce storage deliverability, which could require that gas supply be obtained from other potentially more expensive sources. Risk reduction is achieved by drilling new wells to replace those that have been abandoned. Well failures, especially during late season withdrawal, can have a highly disproportionate impact on gas supply, requiring gas to be obtained from other potentially more expensive sources. A single well failure can shut down an entire reservoir for a long duration.

Operational Risk: The operational reliability consequences of an unexpected well failure can be significant for regulated customers. Such a failure could cause a decrease in gas supply, requiring gas to be obtained from other potentially more expensive sources, as a portion of required gas would need to be sourced from the market for the entire duration of the event. Consequences may be moderate because other reservoirs continue to operate if a single reservoir experiences an outage.

Well-related activities are targeted to reduce or explain unaccounted for gas (UFG). UFG is a contributor to gas supply costs to regulated customers. Activities intended to reduce UFG provide a positive benefit to EGI's customers.

6.3.6.2 Transmission Pipelines

Pipeline assets are a critical component of the storage and transmission operations and transport gas between custody transfer points, distribution networks, and storage gathering systems. Pipelines are categorized in three asset subclasses:

1. **Transmission pipelines** connect compressor stations to custody transfer points or other transmission pipelines and distribution networks and generally operate at or above 30% specified minimum yield strength (SMYS).
2. **Pool/Gathering pipelines** connect compressor stations to reservoirs. Multiple reservoirs can be connected to a single compressor station by individual pool pipelines. The central collection lines that interconnect wells within a reservoir, gathering lines, are generally larger diameter pipe matching the size of the associated pool pipeline to collect and distribute gas to smaller well laterals.
3. **Laterals** connect individual wells to a gathering pipeline. In some cases, more than one well is connected to a single branch connection extending from the gathering pipeline.

The largest operational threat to the storage pipeline system is internal corrosion/erosion due to entrained reservoir liquids and solids. Third-party damage is also a significant threat due to annual installation of agricultural drain tile by landowners.

Pipelines are inspected regularly for leaks, depth of cover, and effectiveness of the cathodic protection system. Aerial inspections are also performed. The system is monitored for changes in area class location due to encroachment.

For information on Transmission System Reinforcement as described in the Growth asset class, see **Section 6.1.8.4**.

6.3.6.2.1 CONDITION METHODOLOGY

For the condition methodology of Pipe assets, see **Section 6.2.4.4.1**.

6.3.6.2.2 CONDITION FINDINGS

For the condition findings of Pipe assets, see **Section 6.2.4.4.2**. Specific findings for the following asset are also noted:

Panhandle Line – Risk Mitigation

The two NPS 12 pipelines known as the "Detroit River Crossing" were built in 1947 and connect the NPS 16 Panhandle Line at Ojibway to Energy Transfer's Panhandle Eastern Pipeline System ("Panhandle Eastern" or "PEPL") at the international border.

A Threat Assessment Report prepared by a third-party consultant in November 2021 concluded that while most of the threats evaluated were classified as **low** severity, the threats of external and internal corrosion were classified as **moderate** and **considerable** respectively.

Due to the design and construction practices at the time of their installation, an inspection using commercially available free swimming in-line inspection (ILI) technology is not feasible for these pipelines.

EGI is actively working with its technology partner on developing a new crawler ILI tool that can carry out this inspection, but the age of the pipe and operating history infers that the pipe condition may be degrading.

For additional detail on this investment, see **Appendix A**.

6.3.6.2.3 RISK AND OPPORTUNITY

For risks and opportunities of Pipe assets, see **Section 6.2.4.4.3**. Specific risks and opportunities for the following asset are also noted:

Panhandle Line – Risk Mitigation

The principal risk is the lack of ILI data needed to inform effective decision-making to prevent a potential loss of pipeline containment (i.e., leak). Threats considered in the Threat Assessment Report have the potential to cause a complete outage of one pipeline along with a curtailment in the other following the discovery of a large defect.

The successful development and deployment of a new ILI technology that can carry out this inspection would address the uncertainty arising from lack of condition data and better inform decisions on the pipeline condition and its remaining life.

Alternatively, the replacement of the river-crossing pipelines with a new pipeline, designed, manufactured, and constructed to current standards, that is ILI-capable, would eliminate this risk.

The Panhandle Transmission System relies on the river-crossing pipelines to meet firm customer needs on design day. The loss of both lines or the restricted use of one line would impact the ability to serve firm customer demands.

For additional detail on this investment, see **Appendix A**.

6.3.6.3 Transmission Pipe and Underground Storage Asset Class Strategies and Program Outcomes

6.3.6.3.1 CONDITION-BASED REPLACEMENTS PROGRAM (MAINTAIN)

Maintenance and inspection routines are used to determine the condition of equipment and subassemblies and inform the need for intervention (timing and activity). Replacements are planned based on general asset groupings, failure characteristics, and the ability to determine the time of failure. Where inspection techniques are feasible and can provide indication in advance of functional failure, replacements are planned based on condition. Asset issues are raised through the Work Management system and risk processes, through which the appropriate treatment is determined and may result in a maintenance expenditure. Smaller program spend items are required to support operations and are planned based on historical expenditures. Equipment and subassemblies are identified during the year through regular inspection based on failures or indications that failure is imminent.

6.3.6.3.2 STORAGE DOWNHOLE INTEGRITY MANAGEMENT PROGRAM (MAINTAIN)

Well Casing Inspection, Maintenance, and Replacements

As part of the life cycle management strategy, well condition is continually assessed to determine condition and develop mitigation plans, in accordance with *CSA Z341* and the *Oil, Gas and Salt Resources (OGSR) Act.* Projections of well life expectancy are updated as new inspections are completed and additional operational data is obtained. Remediation is performed on wells on a case-by-case basis through either relining or abandonment to ensure the safe and reliable operation of EGI's underground storage systems. This is aligned with the 2024 Rate Rebasing Customer Engagement results where customers are supportive of investing to maintain current levels of safety and reliability.

Wellhead Upgrades

A multi-year plan has been developed to replace wellheads with threaded connections and wellheads that have been derated based on their master valve rating. EGI is also planning to install emergency shutdown valves on all storage wells, a long-term goal supported through capital investment.

Crowland (PCRW) Wells Upgrade

The current scope of the Crowland Wells Upgrade project includes the abandonment of eight observation and three storage wells. The abandoned wells will be replaced by drilling one storage and four observation wells. Upgrades to the remaining storage wells will include conversion of one existing storage well to an observation well and the installation of new wellheads and master valves.

A1 Observation Wells

The Oil City and Black Creek, Heritage, and Oil Springs East storage pools do not currently have A1 observation wells. The Bluewater and Mandaumin A1 observation wells are expected to be completed in 2024. Regional geology and past studies suggest there is a potential for gas to be migrating into the A1 Carbonate formation at these storage pools. A new A1 observation well will be drilled to confirm the movement of gas into the A1 and used to support inventory material balance studies in the future. This may result in adjustments to pool inventory or size.

EGI continues to enhance its understanding of asset health and life cycle cost for wells, which will inform future capital investment requirements.

Kimball Replacement Wells

The *CSA Z341* states that a minimum of two casings should be set across all corrosive zones. There are eight wells in the Kimball pool that only have a single casing across the corrosive zone. The scope of this project covers the abandonment of the identified eight wells and the drilling of eight replacement wells in the Kimball pool over four years. The abandonment of the eight wells will diminish the flow capacity of the Kimball reservoir. Hence, the drilling of the replacement wells is designed to replace lost deliverability.

Waubuno Replacement Wells

The deliverability of the Waubuno pool has declined due to the relines of the injection withdrawal wells UI20, UM20, UI22, and UI25, and the abandonment of well UI30. The well UI20 is in a flood plain which is inaccessible during the spring months. Any response to a well incident would be severely impacted by the condition of the well and access to the well. The proposed abandonment of well UI20 will reduce deliverability. This project includes the abandonment of one well (UI20) and the drilling of two new wells. The two new wells will offset the reduction of deliverability due to the relines and abandonments.

Dow Moore Replacement Wells

These projects include drilling and commissioning two new wells (TD30 and TD31) in the Dow pool. Flow capacity of the Dow reservoir has diminished due to abandonment and relining of leaking wells, and this capacity needs to be restored to ensure adequate deliverability during peak demands. The drilling of the two proposed wells, TD30 and TD31, is designed to recover the remaining lost deliverability.

6.3.6.3.3 OPERATIONAL IMPROVEMENTS PROGRAM (IMPROVE)

Based on the results of the annual Well Testing Program, wells are stimulated with acid to mitigate lost deliverability. Well testing can confirm the magnitude of lost deliverability and whether acid stimulation can recover deliverability.

An activity testing and stimulation program for wells has been in place for the Union rate zones. Historically, most wells in the EGD rate zone were not stimulated and tested; hence, a program was initiated to align the strategy on stimulation and well testing. The program will continue to conduct acid stimulations and well testing for wells in the EGD and Union rate zones. It is expected there will be more opportunity for acid stimulation and well testing in the EGD rate zone.

6.3.6.3.4 LAND PURCHASE PROGRAM (IMPROVE)

Where EGI is able to come to an agreement with landowners, laneways will be constructed to improve access to wells that currently do not have laneways. Capital will be required to install proper laneways on these wells.

6.3.6.3.5 CORROSION PREVENTION PROGRAM (MAINTAIN)

A benefit analysis study, completed in 2021, determined that implementing a cathodic protection (CP) solution, as used in Union wells, limits external corrosion (EC) and extends the service life of the well. Overall, the results show that due to the relatively low cost of CP compared to well replacement, there is a cost benefit to installing CP at any stage of the well's service life. Based on the report, the recommendation is to install CP on wells that do not currently have CP.

6.3.6.3.6 TRANSMISSION INTEGRITY MANAGEMENT PROGRAM (MAINTAIN)

For more details on the Transmission Integrity Management Program (TIMP) strategy for pipe assets including Inspection Program, Integrity Retrofits and Digs, Depth of Cover Program, and Class Location Program, see **Section 6.2.3.6.1**.

For the Transmission System Reinforcement System Growth strategy outcomes, see **Section 6.2.3.6**.

The **Panhandle Line – Risk Mitigation** project is also noted. For additional detail on this investment, see **Appendix A**.

6.3.6.4 Transmission Pipe and Underground Storage Capital Expenditure Summary

The average annual capital spend is forecast to be $121.4MM (EGI) as summarized in **Table 6.3-9**. Transmission Pipe and Underground Storage capital is further summarized as part of EGI's total 10-year capital plan in **Section 3**. For the status of the outcomes of the IRP assessment process, including the binary screen and the status evaluation of IRPAs, see **Appendix B**.

Table 6.3-9: Transmission Pipe and Underground Storage Capital Summary ($ Millions) – EGI

Asset Class Strategy	Program Name	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	10-Year Forecast
Create	Transmission System Reinforcement (*EBO 134*) Program	53.3	21.9	42.3	195.0	105.6	180.2	96.5	7.6	21.3	64.6	788.3
Maintain	Civil Replacements Program	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.6
	Class Location Program	5.6	7.3	5.1	5.4	5.3	5.3	5.3	5.3	5.3	5.3	55.2
	Condition Based Replacements Program	1.7	3.2	0.6	0.8	0.0	0.7	2.1	2.5	3.4	2.6	17.7
	Corrosion Prevention Program	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	2.8
	Storage Downhole Integrity Management Program	7.5	7.3	7.1	11.1	12.6	8.8	10.3	4.8	4.0	4.8	78.2
	Transmission Integrity Management Program	36.4	22.8	28.7	39.2	18.9	18.9	16.9	16.4	15.7	15.8	229.8
Improve	Independent Asset Integrity Review IAIR Program	6.7	0.9	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.9
	Land Purchase Program	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.7
	Operational Improvements Program	1.8	3.3	5.3	1.8	0.6	3.8	0.3	0.3	0.3	0.3	17.5

Asset Class Strategy	Program Name	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	10-Year Forecast
Replace	Civil Replacements Program	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
	Condition Based Replacements Program	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3
	Time-Based Replacement	0.3	1.4	0.9	0.1	0.8	0.4	0.4	0.1	0.2	0.6	5.3
	Tools Replacement Program	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.3
Total		113.9	68.7	98.8	254.2	144.3	218.6	132.3	37.5	50.8	94.5	**1,213.7**

6.3.7 Liquefied Natural Gas (LNG)

Hagar Station is EGI's liquefied natural gas (LNG) storage facility, located near Sudbury (see **Figure 6.3-13**:). The station serves to provide reserve capacity and balance operational loads during peak periods throughout the storage, transmission, and distribution systems, ensuring gas supply reliability for customers served by the Sudbury Lateral System during peak demand periods, supply shortfall, low system pressures, pipeline outages, and providing operational flexibility when required.

Figure 6.3-13: Hagar LNG Station Location

6.3.7.1 Condition Methodology

LNG system condition is determined primarily based on a preventive maintenance (PM) program comprised of rigorous inspections and renewals through component repair or replacement to improve system reliability.

Online monitoring provides protection via control systems and is supported by control room operators responsible for recognizing changing conditions and reacting in near real time. Activities, such as corrective maintenance in response to component condition or operational performance, are captured in the Work and Asset Management system. Component condition is determined using the experience and recommendations of both internal and external SMAs. As asset condition and performance degrade, risks are raised and assessed through the risk management process.

Aside from scheduled PM programs, age is also considered as a condition indicator for reliability and obsolescence, although it is generally insufficient on its own to use for replacement project decisions. As the asset ages, vendor support declines until the risk related to an extended outage becomes intolerable. Obsolescence poses a risk as repairs become progressively more challenging to complete. As service providers reduce support for products reaching end of life, the duration of an equipment

outage may become extended. Asset failure under these circumstances may be unrepairable, which could pose a significant operational challenge to fulfil facility requirements.

To support its primary function, the LNG facility includes mechanical systems such as compressors, vaporizers, a cold box (a series of heat exchangers), pumps, a cryogenic tank, generators, pipe, fittings, valves, regulators, boilers, and air compressors (see **Figure 6.3-14**:). The refrigeration system uses a mixed refrigerant consisting of methane, ethane, propane, butane, and pentane. The condition of mechanical systems is assessed through routine PM inspections as prescribed by the manufacturer, through internally developed standards or through opportunistic inspections presented during construction activities.

Instrumentation, controls, and electrical systems support many other asset types and systems within the LNG facility and are primarily affected by obsolescence. As condition assessment for many of these assets is not practical, the methodology for establishing condition is to consider the expected life cycle of equipment and systems and plan to proactively replace them.

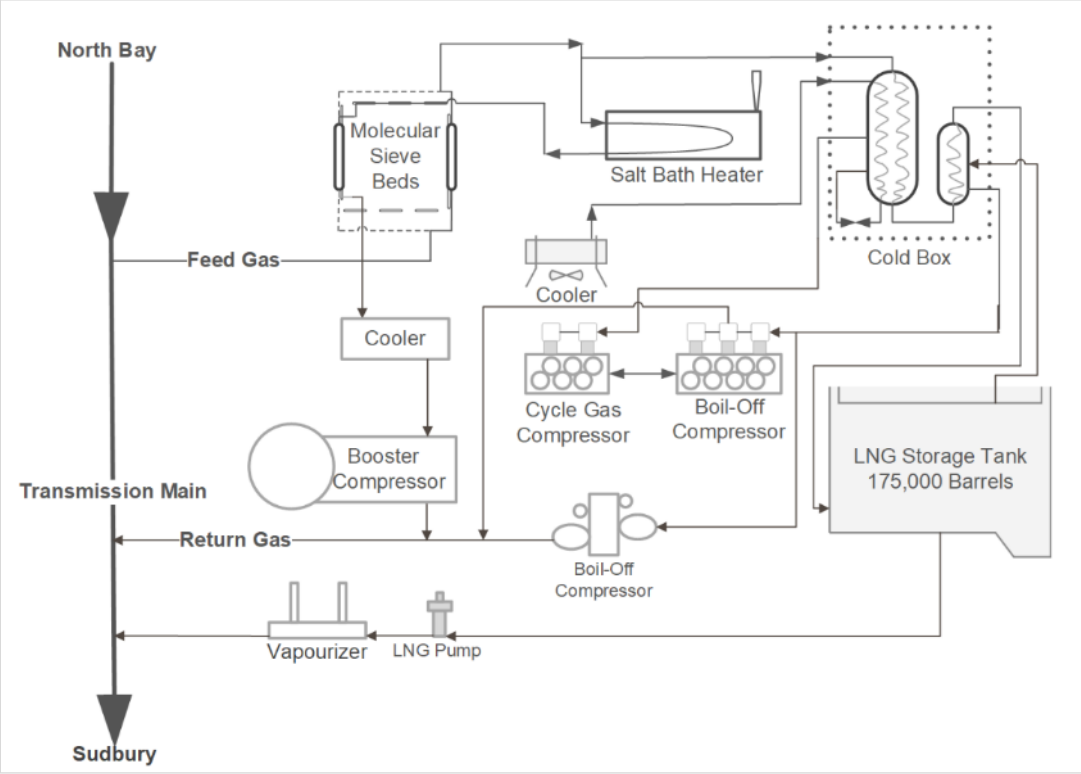


Figure 6.3-14: LNG Station

6.3.7.2 Condition Findings

EGI hired a third-party consultant to provide a condition assessment report for the Hagar LNG plant in 2017. The assessment focused on process performance limitations and equipment condition that could affect reliability and potentially lead to unplanned shutdowns. The report indicated that the Hagar boil-off gas (BOG) compressor has far exceeded its design life as the unit has approximately 40 years of operational hours. The BOG's original equipment has been in place since plant installation in 1968. A BOG compressor is a key LNG station component, and the typical lifespan is 20 years based on industry data and external SMA input. The report also indicated the cycle gas compressor has ~140,000 hours and the liquefaction system (composed of a cold box, cycle gas compressor, mixed refrigerant, and auxiliary equipment) is approaching end of life.

Operating life is only one measure of plant condition, other factors to consider include plant cycling frequency (On/Off) and plant age (regardless of operation). On/Off operation, particularly in unplanned shutdowns or quick startups, can result in thermal stress leading to material fatigue, cracking, and pump cavitation. Time-dependent failure modes include corrosion, embrittlement, and stress corrosion cracking.

The cold box was observed to have wall ice formations and minor foundation cracks. The condition assessment report also suggested insulation has been degrading; frequent stops and starts accelerated crack growth and should be minimized. The

cold box has also undergone a considerable number of thermal cycles over its 50-year operating life. Thermal cycling induces stress on piping and heat exchangers.

SMAs have confirmed the BOG and cycle gas compressors are no longer supported by the manufacturer, and custom machining is required for parts other than typical wear items rendering the equipment obsolete. A major concern is damage to the engine or compressor block due to a crankshaft, connecting rod, or piston rod failure. Replacement components would need to be cast, cured, and machined.

The areas around the LNG tank, near the LNG pipe supports and the LNG building, suffer from water pooling which can cause foundation unsettling. Differential settling between the tank and piping can cause stress in the piping and connections. Relative movement between the pipe, LNG pump, and tank support foundations could result in internal tank nozzle loading and potential cracking.

In addition to the condition report, to better understand risk associated with the facility, a Reliability, Availability and Maintainability (RAM) study was completed to inform operational risk, and a Quantitative Risk Assessment (QRA) was completed to help understand Employee and Contractor Health and Safety Risk / Public Health and Safety Risk.

An analysis was conducted to understand the operational risk of Hagar LNG plant failing to supply vaporized LNG to Sudbury market which is its primary purpose. The RAM study was conducted by external consultants and provided availability and likelihood of failure for the main systems in the plant that would result in Hagar's inability to supply vaporized LNG. Further, an internal Fault Tree Analysis (FTA) was conducted to determine the likelihood of Hagar being called to supply vaporized LNG due to weather conditions and demand. These analyses were used to determine the likelihood of the top event – Hagar unable to supply vaporized LNG to Sudbury market when called to do so. EGI performed network modelling to determine the consequence of the top event. The consequence is highly dependent on delivery pressure at Marten River Station from TC Energy Canadian Mainline. Therefore, two scenarios of contractual pressure of 580 psig and historical pressure of 800 psig were considered. The results are described in **Section 6.3.7.3**

As a result of the QRA done at Corunna Compressor which revealed high risk (Region 1) for worker safety event due to loss of containment, EGI assessed the Hagar facility as it shares a similar layout and characteristics as Corunna Compressor (i.e., multiple compressors in a single building). External consultants conducted a QRA at Hagar to analyze the Health & Safety Individual Specific Individual Risk (ISIR) and Societal Risk (SR). The QRA is based on design and industry data for many different leak sizes and outcomes to evaluate process safety risk for public and worker and compares against targets. All risks identified were medium (Region 2).[48]

In 2023, a failure of the KVGR compressor was identified early to prevent a major breakdown; however, the unit was taken out of service to conduct a rebuild of the foundation block and compressor. This work rendered the unit out of service for a significant time and the inability to produce LNG. As a result of this failure, EGI has initiated a reliability improvement project that involves two major components:

1. Conduct a Reliability-Centred Maintenance (RCM) assessment to review and enhance the site maintenance program and drive improved reliability.
2. Complete an Asset Health Review (AHR) to be used as the input to an enhanced RAM study to forecast future performance and aid in identifying weak points in the processes and plan for future investment needs.

6.3.7.3 Risk and Opportunity

The Hagar LNG plant provides security of supply to the Sudbury industrial and distribution markets. In addition to security of supply, the plant has also been placed in service on occasion over the years to manage system demand. The consequence of LNG system failure is dominated by supply impacts to customers. System risk associated with failure is heavily influenced by the time of year, weather severity, and time to mitigate the failure.

Operational Risk: The reliability and availability of the LNG system is integral to managing operational risk and customer impact. Unplanned failures especially during peak periods, supply shortfalls, and unplanned pressure drops or outages can have a significant impact on the security of supply for the Sudbury area. If Hagar is required and cannot fulfil its function, the operational impact is significant (7 on EGI's 7x7 Operational Risk Matrix). Based on the expected shortfall results for the liquefaction, vaporization, and compression modes from the RAM study combined with the historical weather demand, the likelihood of this event is low leading to an overall evaluation of the Operational Reliability Risk as a Medium. The Hagar facility is essential in supplying the Sudbury system with operational flexibility to deliver gas while safely mitigating anomalies found through ILI activities.

[48]For risk region definitions, see **Figure 5.3-3: EGI Risk Evaluation Framework**.

Concerns related to obsolescence and the market availability of components for critical assets within the liquefaction process (BOG compressor, KVGR cycle gas compressor, and cold box) can translate to customer impacts if the failure is unrepairable. An unrepairable failure is likely to result in extended downtime as other assets in the process may require replacement or modification for compatibility reasons.

Employee and Contractor Health and Safety Risk / Public Health and Safety Risk: The following conclusions can be drawn from the QRA of the Hagar LNG facility. According to EGI's risk evaluation criteria described in **Section 5.3.2**, it was found that none of the workers on the Hagar LNG site experience Individual Specific Individual Risk (ISIR) levels that fall within Region 1. However, all the worker groups have ISIR levels that fall in Region 2, where risk mitigation measures should be considered.

The ISIR levels for all off-site occupied areas fall within Region 3. No additional risk mitigation measures need to be considered for off-site ISIR, providing those existing protective measures are kept in place and the risk is monitored.

Financial Risk: Financial risk is significantly mitigated by regular inspections, which then inform the necessary preventive maintenance work. A preventive maintenance program mitigates financial risk by reducing the chance of unexpected failures. Unplanned outages result in unexpected repair costs.

GHG Emissions Reduction Opportunity: EGI continues to evaluate and implement facility emission reduction opportunities. Effort is given to ensure the initiatives effectively balance customer preferences, compliance obligations, anticipated future regulations, and safety and operational reliability.

6.3.7.4 LNG Asset Class Strategies and Program Outcomes

Detailed inspections at set frequencies, subsequent remedial activities, and control room condition monitoring help identify suspect equipment condition reducing the likelihood of failure and large-scale outages. As identified in the RAM study, ongoing maintenance is critical to ensuring the sustained reliability and availability of the facility.

The replacement strategy for the LNG asset subclass is proactive replacement that targets equipment based on condition and obsolescence and is generally dependent on OEM support. This strategy aims to proactively replace or rebuild station components before end of life to reduce risk and maintain a safe and reliable LNG system. To inform the remaining life of assets, there is a need to gather more condition and performance information to continue to enhance understanding of risk and inform timing of intervention.

It would be difficult and impractical to replace any one major component in isolation due to compatibility issues with the existing plant. In the liquefaction process, the replacement of any major component (i.e., cold box or compressor) would require significant modifications to the new asset to make it compatible with the existing equipment.

EGI will continue to re-evaluate new technology to support a holistic plan that considers the future demand and requirements for the distribution system, efficient production of LNG, and environmental impacts.

The asset class strategies that apply to both the LNG and the Compression Stations asset classes are outlined in **Section 6.3.5.6**.

6.3.7.4.1 EQUIPMENT MODERNIZATION PROGRAM (REPLACE)

JVG Boil-Off Gas Compressor Replacement

This project involves replacement of the boil-off gas (BOG) compressor to mitigate the risk of a system failure due to an unrepairable, critical compressor part. The BOG compressor is one of the two compressors used to power the refrigerant process which cools the natural gas feedstock to -160°C (at which point the natural gas turns into a liquid). Over its 50+ years of operation, the 240-horsepower Ingersoll Rand BOG compressor has amassed 325,000 operational hours and is deemed to be at the end of its design life. Although normal wear components are still available, core compressor replacement parts such as cylinders, crankshafts, and pistons required to support a critical failure are no longer manufactured. In a critical failure, securing used parts (which are rare) or aftermarket custom machining services are the only options for repair. If custom machining services cannot repair the part, a custom-designed aftermarket casting option or complete replacement of the compressor will be required, rendering the LNG plant out of service for at least one operational season.

Due to the recent failure of the KVGR compressor (2023), the JVG replacement strategy is being reassessed to ensure all options are given proper consideration and thorough evaluation from both life cycle replacement and improved functionality perspective.

For additional detail on this investment, see **Appendix A**.

Cold Box Replacement

This project involves replacement of the cold box to address anticipated leaks that will impair the plant's ability to produce LNG. The cold box is a series of several heat exchangers used to cool natural gas, turning it into a liquid. Over its 50 years of operation, the cold box has amassed 140,000 operational hours. Significant failure modes include gas or refrigerant leaks out of the piping into the interior of the cold box shell and heat exchanger cross leaks that reduce refrigeration effectiveness. Both failure modes impair LNG production, leading to the plant missing its annual production requirements. Troubleshooting and repair of these failure modes is extremely difficult and time-consuming, as cold box internal components are encased in very densely packed insulation and clad in an outer steel jacket. Considering the repair or replacement complexity, reactively responding to internal leakage will halt the liquefaction process, which could lead to customer outages.

For additional detail on this investment, see **Appendix A**.

6.3.7.4.2 CONDITION-BASED REPLACEMENTS PROGRAM (MAINTAIN)

Maintenance and inspection routines are used to determine the condition of equipment and subassemblies and inform the need for intervention (timing and activity). Replacements are planned based on general asset groupings, failure characteristics, and the ability to determine the time of failure. Where inspection techniques are feasible and can provide indication in advance of functional failure, replacements are planned based on condition. Asset issues are raised through the Work Management system and risk processes, through which the appropriate treatment is determined and may result in a maintenance expenditure. Smaller program spend items are required to support operations and are planned based on historical expenditures. Equipment and subassemblies are identified during the year through regular inspection based on failures or indications that failure is imminent.

6.3.7.4.3 CIVIL REPLACEMENTS PROGRAM (MAINTAIN)

Foundation Block Replacements

The foundation blocks for the reciprocating compressors require replacement due to age, operating hours, oil contamination, and condition (the engine block foundations are deteriorating). Without remediation, failing foundations will allow unit settlement, creating bearing misalignments. As the frequency of bearing failures increases, the operational reliability of the unit decreases. There is also the potential for collateral crankshaft damage. There are no technically viable maintenance or repair strategies that will sufficiently extend the lives of the foundations' blocks indefinitely; and therefore, replacement is the only option to mitigate damage described above.

6.3.7.4.4 ENERGY TRANSITION PROGRAM (IMPROVE)

Hagar LNG Tank Modifications and Boil-Off Gas Recovery System

During sudden atmospheric pressure changes, BOG venting from the LNG storage tank vents occurs frequently. The current BOG compressor and upstream piping and tank connections are undersized for Hagar. The solution proposed is to add a BOG compressor with its main function to compress the excess BOG and return it to the transmission line. The compressor would also be used as an alternate compressor to the Arial BOG compressor in the event of maintenance or breakdown. The scope of work for this project includes installation of a 450 HP compressor with electric motor drive (EMD), hydro service upgrade with generator backup, NPS 6 pipe from the tank relief valves, heat exchanger, flare system, miscellaneous cable trays, foundations, and piping.

In preparation for the installation of the properly sized BOG compressor, LNG tank modifications require installation of a larger nozzle and a larger diameter BOG line as current nozzle connections are not sized properly to mitigate the emissions. The solution proposed involves tank modifications to install larger BOG nozzle and associated piping, pressure relief valve (PRV); stairway/platform, and redundant PRV capabilities in advance of installing a new larger BOG compressor.

6.3.7.5 LNG Capital Expenditure Summary

The average annual capital spend is forecast to be $8 million as summarized in **Table 6.3-10**. LNG capital is further summarized as part of EGI's total 10-year capital plan in **Section 3**. For the status of the outcomes of the IRP assessment process, including the binary screen and the status evaluation of IRPAs, see **Appendix B**.

Table 6.3-10: Liquefied Natural Gas Capital Summary ($ Millions) – EGI

Asset Class Strategy	Program Name	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	10-Year Forecast
Maintain	Condition Based Replacements Program	0.2	0.4	0.3	0.5	0.3	0.3	0.3	0.3	0.3	0.3	3.2
	Emissions Reductions Program	3.1	1.1	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.0
Replace	Civil Replacements Program	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
	Equipment Modernization Program	0.0	0.0	0.0	1.1	1.5	14.7	13.3	8.6	1.5	17.7	58.4
	Time-Based Replacement	0.4	0.0	0.0	0.7	0.9	0.7	0.9	0.0	0.0	0.0	3.4
Total		4.1	1.4	10.2	2.2	2.7	15.6	14.5	8.9	1.8	18.0	**79.4**

6.4 Real Estate and Workplace Services

The Real Estate and Workplace Services (REWS) asset class includes properties (buildings and land) and furnishings. Properties are categorized into regional operations and administrative centres, operations depots, land, operations micro-depots, and head office. The requirements for these properties are primarily based on function and headcount.

6.4.1 Real Estate and Workplace Services Objectives

The objectives of the Real Estate and Workplace Services asset class are listed in **Table 6.4-1**.

Table 6.4-1: REWS Asset Class Objectives

Asset Class Objectives		Asset Health Performance Measure
Create and support safe, efficient and collaborative environments across EGI	Sustain the integrity and adequacy of all facilities for safe and reliable use.	• Physical Assessment: Facility Condition Index (FCI) • Functional Assessment: Adequacy Index (AI) • Cost per square foot (lease and building operating expenditures) • Utilization rate
	Continuously evolve the understanding of condition and risk associated with real estate assets and use risk, cost, and performance information to drive asset-related decisions.	

To achieve the Real Estate and Workplace Services asset class objectives listed in **Table 6.4-1**, asset investment decisions are governed by the life cycle management strategies outlined in **Section 5.2.3**.

6.4.2 Real Estate and Workplace Services Hierarchy

The asset class hierarchy for REWS is shown in **Figure 6.4-1**.

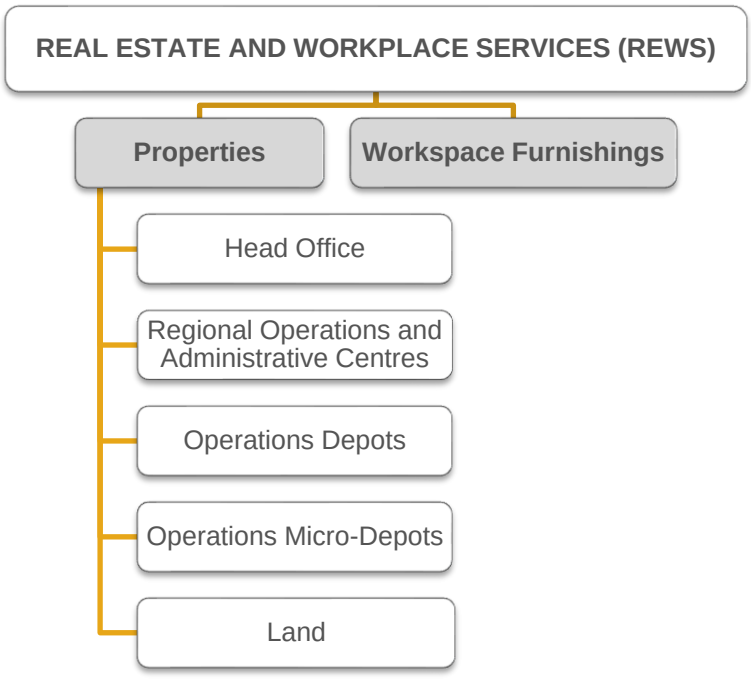


Figure 6.4-1: Real Estate and Workplace Services Hierarchy

6.4.3 Real Estate and Workplace Services Inventory

The inventory for REWS assets is shown in **Table 6.4-2**. The total building footprint for EGI is 1.8 million sq. ft.

Table 6.4-2: Real Estate and Workplace Services Asset Class Inventory[49]

Asset Subclass	Inventory
Properties (Buildings/Land)	91
Head Office	1
Regional Operations and Administrative Centres	11
Operations Depots	54
Operations Micro-Depots	18
Land	7
Workspace Furniture	~5,600

[49] As of February 12, 2024.

6.4.4 Real Estate and Workplace Services Condition and Strategy Overview

Table 6.4-3: REWS Condition and Strategy Overview

Asset Subclass	Ownership	Condition	Risk/Opportunity	Asset Class Strategies	Programs, Tactics, and Standards
Properties (Buildings/Land)	Owned and leased	Facility assessments were conducted on EGI properties, based on a defined set of standards representing industry best practices relating to various elements of the facility, including its mechanical, electrical, plumbing, and structural systems, as well as its overall layout and organization. The assessments use both physical and functional criteria. The Functional Obsolescence or Adequacy Index (AI) is a condition index tool used to illustrate the functional condition of the asset. The Facility Condition Index (FCI), an industry standard asset management benchmarking tool, is also used. All EGI properties were inspected for the purpose of calculating an FCI/AI in alignment with operational need to create a long-term capital plan. For the condition findings for each property, see **Table 6.4-4**.	**Employee and Contractor Health and Safety Risk:** Facilities with operational deficiencies pose a safety risk to employees and hinder execution of tasks. Some facilities have inadequate operations yard and administrative parking. The mix of industrial and employee vehicles is a potential contributor to motor vehicle incidents. Best practices dictate keeping industrial vehicles away from administration parking areas. **Financial Risk:** EGI faces financial risk if properties are not maintained, hindering operations and administrative functions. Some facilities use more energy than a comparable renovated facility (utilizing current Ontario Building Code [OBC] and energy standards). Inadequate site configuration and lack of office and support areas hinder operations and administrative functions. **Environmental Opportunity:** Older buildings have high greenhouse gas (GHG) emissions and use more energy than comparable new construction.	Create	Build new facilities that align with business requirements and the Ontario Building Code.
				Maintain	A preventive maintenance strategy is in place to ensure asset performance and to reduce the risk of failure or degradation of performance in support of occupants.
				Improve	Renovate existing facilities to correct deficiencies and improve productivity.
				Replace	Rebuild on existing site or relocate to a new site according to business requirements and the Ontario Building Code.
				Dispose	Sell or dismantle existing facilities.
Workplace Furnishings	Owned	Workspaces at each site consist of workstations and office furniture. These furnishings are either considered current (meeting industry best practices or legacy (not meeting industry best practices). Current best practices provide: • Ergonomic support • Daylight and views for building occupants through the use of mid-height panel systems • Task seating to address a range of body types • Consistent workstation configuration • Lower operating costs by contributing to fixed environments that allow a broad range of administrative requirements without change • Efficiency	**Employee and Contractor Health and Safety Risk:** Legacy furnishings do not meet current ergonomics standards; therefore, employees are more likely to suffer from repetitive strain injuries and other ailments stemming from the inability to adjust workstation configurations and decreased access to light. **Financial Risk:** Legacy furnishings past 30 years old result in productivity reductions and increased maintenance costs.	Create	N/A
				Maintain	The integrity of the existing furnishings is ensured using proactive/reactive maintenance practices.
				Improve	Ergonomic modifications and tools are issued as recommended to prevent repetitive strain injuries and accommodate return to work for employees.
				Replace	Legacy office, meeting room, and ancillary furnishings are replaced with current standard systems as building life cycle renewal is executed.
				Dispose	Legacy furnishings are appropriately recycled, donated, or reused in an environmentally appropriate way if possible.
Building Systems Program	N/A	A third-party engineering consulting company was employed by EGI to analyze factors such as age of equipment, maintenance records, repair cost, building standards and compliance issues to determine overall risks and the replacement timing of heating, ventilation, air conditioning (HVAC) equipment; plumbing; electrical systems; building envelope; facilities equipment and exterior site improvements.	**Financial Risk:** If building systems are not properly maintained, there is financial risk to EGI as the failure of these systems increases substantially, which can potentially lead to loss of use and decreased staff productivity. **Environmental Opportunity:** Older buildings have high GHG emissions and use more energy than a comparable new construction.	Maintain	The integrity of the existing building systems is ensured using proactive and reactive maintenance practices to extend the useful life of the assets.
				Replace	Maximize equipment's useful life and replace building systems before failure, including the replacement of the building envelope and HVAC and electrical systems to current environmental standards, ensuring interior comfort and overall security.
GHG Energy Reduction Program	N/A	EGI completed a third-party study on energy efficiency and emissions for its office buildings. The study identified potential		Create	The range of implementation costs and energy/GHG savings will include operational and capital improvements.

Asset Subclass	Ownership	Condition	Risk/Opportunity	Asset Class Strategies	Programs, Tactics, and Standards
		opportunities for improvement to reduce GHG emissions and improve energy efficiencies.	Existing facilities use more energy than a comparable new or renovated facility (using current Ontario Building Code (OBC) and energy standards). **Energy Efficiency Opportunity:** Reduction in operating costs and GHG emissions.	Improve	Existing building GHG reduction strategies at locations not planned for improvements or replacement in the 10-year plan will be addressed with a mix of measures.
Micro-Operations Depot Revitalization Program	Owned and leased	There are 18 micro-operations depots located in the Northern region that are on average over 50 years old, consisting of 17 owned and 1 leased property. The sites are in aging physical condition and do not meet required functionality.	**Financial Risk:** Risks include the financial impact of low utilization or functionally and physically deficient assets. **Employee and Contractor Health and Safety Risk:** Current physical conditions pose a hazard to employee safety. **Environmental Opportunity:** Legacy buildings with obsolete systems have high GHG emissions and use more energy than a comparable new construction.	Improve	Renovations will include the building envelope and HVAC and electrical systems. Compliance to environmental standards, building codes, accessibility, and overall security are major considerations to ensure safe and reliable operation.
				Replace	Rebuild on existing site or relocate to a new site according to business requirements and the Ontario Building Code.
				Dispose	Dismantle existing facilities in line with business requirements and local regulations.
Security Program	Owned	EGI is a high-value Canadian organization with a significant operational technology footprint that is deeply integrated within the larger critical infrastructure domain, making it an attractive and viable target for various adversaries. Recent security intrusions have prompted a proactive strategy to mitigate potential future incursions.	**Financial Risk:** Should a legacy security system experience a catastrophic failure, there is potential financial impact of an unplanned one-time investment pressure. **Environmental Risk:** Failure of physical security systems that protect the safety, reliability, and integrity of pipeline industrial controls systems and other critical assets will delay, deter, and detect potential tampering and compromise of these critical systems. Failing to protect critical systems impacts the safety and reliability of operations within critical facilities, resulting in increased environmental impact. **Threat Environment Risk:** Energy security instability has increased risks to safety, reliability, and integrity due to persistent cybersecurity threats. Current intelligence mainly focuses on network attacks but may overlook other cybersecurity concerns. EGI, having a significant operational technology footprint, is a potential target for adversaries due to its integration within the critical infrastructure domain. This necessitates physical security investments to protect critical assets. Traditional funding has not kept up with the growing threat environment, requiring sustained financial investments for additional security measures and replacement of outdated systems.	Improve	The baseline physical security measures are associated to an assigned Asset Security Rating (ASR) that is both risk-informed and applies key security strategies based on the gravity of the assessed risk. Physical security assets adhere to key regulations and legislative requirements and are generally categorized as follows: • Perimeter protection • Intrusion detection and alarm systems • Lighting • Access control • Video surveillance

6.4.5 Properties

6.4.5.1 Office Utilization

EGI values in-person collaboration and is leveraging the learnings acquired during the COVID-19 pandemic to pursue options supporting workplace flexibility. Working differently during the pandemic provided insights about the positive aspects and challenges experienced by employees and the business without day-to-day interaction. These lessons guide EGI to provide the best possible working experience for employees, while continuing to serve EGI's customers. EGI continues to evaluate options to leverage flexibility, while sustaining the importance of in-person collaboration. EGI is actively monitoring and measuring utilization while also watching the marketplace for broadly adopted practices to inform EGI's future of workplace strategies. This ensures a pragmatic and cost-effective transition of the real estate footprint.

6.4.5.1.1 CONDITION METHODOLOGY

For the Properties (buildings/land) asset subclasses, a Facility Assessment is used to:

- Assess the physical condition of each facility
- Assess the operational functionality of each facility
- Identify potential gaps in service area coverage
- Create a long-term real estate portfolio strategy
- Create quality indoor environments with access to natural light and views which result in increased productivity, decreased absenteeism, and improved morale

Facility Condition Assessments (FCAs) are comprehensive evaluations of the physical state of a building or infrastructure system. The basis of an FCA typically involves a detailed examination of various elements of the facility, including its mechanical, electrical, plumbing, and structural systems, as well as its overall layout and organization. The National Research Council of Canada (NRC) *Protocols for Building Condition Assessment* published by The Institute for Research in Construction (IRC), and the ASTM E 2018-01 *Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process* are real estate industry standards used to inform EGI's standard. This process is one used by many municipalities in establishing the conditions of assets when determining capital planning needs. A component of the assessment is the Adequacy Index (AI) which is determined based on a set of program criteria that EGI established to ensure functional operations. These items include barrier-free accessibility, program needs to ensure safe operating conditions for staff (i.e., dedicated welding spaces if welding is taking place), and functional needs to support the workforce located at the facility. Based on industry standard metrics, scores between 0% and 49% are considered good and scores of 50% and above are considered poor/critical. The AI is calculated as shown in **Section 6.4.5.1.1.1**.

6.4.5.1.1.1 Adequacy Index Calculation

$$\mathbf{AI} = \frac{\mathbf{Functional\ Upgrade\ Costs}}{\mathbf{Cost\ to\ Replace\ the\ Building\ with\ its\ Functional\ Equivalent}}$$

An asset's physical condition is assessed based on the Facility Condition Index (FCI). The FCI is an industry standard asset management benchmarking tool. It is a scoring mechanism comparing the relative physical condition of the existing components of a group of facilities. All EGI properties have been inspected for the purpose of calculating an FCI and creating a long-term capital plan. The FCI is calculated as shown in **Section 6.4.5.1.1.2**.

6.4.5.1.1.2 Facility Condition Index Calculation

$$\mathbf{FCI} = \frac{\mathbf{Cost\ to\ Remediate\ Immediate\ or\ Short\text{–}Term\ Maintenance\ Deficiencies}}{\mathbf{Current\ Replacement\ Value\ of\ Facility}}$$

Site functionality and utilization are based on critical functional criteria (yard size, access, sufficient office area, and tracked utilization) and are scored as Good, Challenged, or Obsolete.

Properties are assessed based on multiple parameters such as site and building functional obsolescence, physical obsolescence, Ontario Building Code (OBC) compliance, and renewal/replacement strategy costs. Each property is assigned a priority rank from highest to lowest. To attain this rank, building functional obsolescence (i.e., AI), physical obsolescence index (i.e., FCI), site functional obsolescence index, and the recommended strategy for correcting the deficiencies are considered. Higher priority is given to the facilities posing larger and more immediate financial and/or safety risk to the organization.

Compliance to current OBC requirements is factored, depending on the part, group, and division each property falls under. These include, but are not limited to, barrier-free path of travel, and barrier-free and universal washroom facilities. Furthermore, compliance with fire code regulations on load-bearing structures, fire resistance ratings, sprinkler systems, and combustible/noncombustible construction are also considered. It is important to note that major renovations to a structure may require that area to be brought up to current OBC compliance standards, potentially requiring a substantial investment.

6.4.5.1.2 CONDITION FINDINGS

The facility assessment results for all EGI properties and the summary strategy for each property are shown in **Table 6.4-4**. Based on industry standard metrics, FCI scores between 0% and 5% are considered good, 5% to 10% are fair, 10% to 30% are poor, and greater than 30% are critical. AI scores between 0% and 49% are considered good and scores of 50% and above are considered poor/critical. Site functionality and utilization are based on critical functional criteria (yard size, access, sufficient office area and tracked utilization) and are scored as Good, Challenged, or Obsolete.

Table 6.4-4: EGI Facility Assessment Results

Property Name	Age (Years)	Physical Obsolescence (FCI)	Functional Obsolescence: Building (AI)	Functional Obsolescence: Site	Summary Strategy
50 Keil Drive	59	12.91%	45%	Obsolete	Renovation
555 Riverview Operations Centre	51	10.03%	24%	Good	Renovation
Arnprior Operations Centre	53	3.82%	58%	Obsolete	Renovation
Atikokan Micro-Operations Centre	56	11.37%	61%	Good	Maintenance
Barrie Operations Centre	18	1.61%	58%	Obsolete	Disposition
Black River Micro-Operations Centre	55	36.09%	46%	Good	Maintenance
Bloomfield Administration Centre	31	0.47%	0%	Good	Maintenance
Bracebridge Micro-Operations Centre	56	19.41%	32%	Good	Maintenance
Brampton Operations Centre	25	11.02%	49%	Obsolete	Expansion and renovation
Brantford Regional Operations Centre	28	2.77%	17%	Obsolete	Renovation
Brockville Operations Centre	53	7.53%	84%	Obsolete	New build on new site
Burlington Operations Centre	15	1.77%	11%	Obsolete	Renovation
Cambridge Operations Centre	61	11.76%	16%	Obsolete	Disposition
Cochrane Micro-Operations Centre	57	15.28%	50%	Good	Maintenance

Property Name	Age (Years)	Physical Obsolescence (FCI)	Functional Obsolescence: Building (AI)	Functional Obsolescence: Site	Summary Strategy
Dawn Hub Operations Centre	53	16.95%	28%	Obsolete	New build on existing site
Dryden Operations Centre	44	11.33%	87%	Obsolete	New build on new site
Ear Falls Micro-Operations Centre	9	6.82%	56%	Good	Maintenance
Elliot Lake Micro-Operations Centre	44	29.09%	13%	Good	Maintenance
Engelhart Micro-Operations Centre	Unknown	25.42%	83%	Good	Maintenance
Geraldton Micro-Operations Centre	59	12.09%	68%	Good	Maintenance
Guelph Operations Centre	66	14.97%	46%	Obsolete	Disposition
Haileybury Micro-Operations Centre	58	22.60%	18%	Good	Maintenance
Hamilton Operations Centre (Park Street)	63	26.86%	100%	Obsolete	Disposition
Hamilton Operations Centre (Pritchard Road)	16	7.91%	21%	Obsolete	Renovation
Hearst Micro-Operations Centre	50	6.76%	79%	Good	Maintenance
Huntsville Micro-Operations Centre	54	24.34%	52%	Good	Maintenance
Huron Park Micro-Operations Centre	83	42.40%	22%	Good	Disposition
Iroquois Falls Micro-Operations Centre	57	28.84%	16%	Good	Maintenance
Kapuskasing Micro-Operations Centre	33	7.156%	61%	Good	Maintenance
Kelfield Operations Centre	63	10.47%	71%	Obsolete	New build on new site
Kennedy Road Operations Centre	63	6.51%	95%	Obsolete	New build on new site
Kingston Operations Centre	14	0.32%	15%	Good	Maintenance

Property Name	Age (Years)	Physical Obsolescence (FCI)	Functional Obsolescence: Building (AI)	Functional Obsolescence: Site	Summary Strategy
Kirkland Lake Micro-Operations Centre	59	11.38%	69%	Good	Maintenance
Lancaster Operations Centre	31	8.88%	63%	Obsolete	Expansion and renovation
Leamington Operations Centre	62	9.85%	65%	Good	Renovation
London Operations Centre	55	6.48%	14%	Good	Disposition
Milton Operations Centre	29	14.09%	63%	Obsolete	Disposition
Nipigon Micro-Operations Centre	60	10.27%	57%	Good	Maintenance
North Bay Operations Centre	59	16.87%	8%	Good	New build on new site
Orillia Operations Centre	49	18.07%	15%	Obsolete	Disposition
Oshawa Operations Centre	34	14.92%	30%	Obsolete	Renovation
Ottawa Regional Operations and Admin. Centre	0	0%	0%	Good	Maintenance
Owen Sound Operations Centre	17	4.52%	32%	Obsolete	Expansion and renovation
Palmerston Micro-Operations Centre	Unknown	9.56%	89%	Good	Maintenance
Parry Sound Micro-Operations Centre	10	3.75%	19%	Good	Maintenance
Peterborough Operations Centre	42	10.38%	32%	Obsolete	Disposition
Sault Ste. Marie Operations Centre	45	13.90%	24%	Good	Renovation
Simcoe Operations Centre	67	8.42%	100%	Good	New build on existing site
St. Thomas Operations Centre	44	12.59%	22%	Obsolete	Disposition
Station B Operations Centre	55	12.28%	49%	Obsolete	New build on existing site
Stratford Operations Centre	56	11.96%	22%	Good	Expansion of warehouse

Property Name	Age (Years)	Physical Obsolescence (FCI)	Functional Obsolescence: Building (AI)	Functional Obsolescence: Site	Summary Strategy
Sudbury Operations Centre	39	8.49%	13%	Obsolete	Renovation
Tecumseh (Engineering)	14	0.28%	0%	Good	Maintenance
Tecumseh (Gas Storage)	7	0.81%	0%	Good	Maintenance
Thorold Regional Operations and Admin. Centre	31	3.09%	59%	Obsolete	Renovation
Thunder Bay Regional Operations Centre	27	2.57%	41%	Obsolete	Renovation
Timmins Operations Centre	64	2.88%	25%	Good	Renovation
TOC Regional Operations and Admin. Centre	12	0.08%	5%	Good	Expansion
VPC Head Office	55	5.59%	11%	Good	Renovation
Woodstock Operations Centre	41	13.87%	26%	Obsolete	Renovation

6.4.5.1.3 RISK AND OPPORTUNITY

Examples of deficiencies observed at EGI sites were as follows:

- Inadequate building or yard size leads to unfulfilled operational requirements.
- Buildings do not conform to current OBC life safety, barrier-free, and universal design standards.
- Site area constraints hinder vehicular circulation and increase the probability of motor vehicle incidents.
- Configuration of site functions and circulation is inefficient.

These deficiencies pose the following risks:

Employee and Contractor Health and Safety Risk: Facilities with operational deficiencies pose a health and safety risk to employees and hinder execution of tasks. Aging physical security measures are a risk to employees, assets, and customers. Some facilities have inadequate operations yard and administrative parking. The mix of industrial and employee vehicles is a potential contributor to motor vehicle incidents. Best practices dictate keeping industrial vehicles away from administration parking areas.

Financial Risk: EGI faces financial risk if properties are not maintained, hindering operations and administrative functions. Inadequate site configuration and lack of office and support areas hinder operations and administrative functions. Furthermore, the streamlined operations resulting from amalgamation contribute to operational efficiency.

Environmental Opportunity: Some facilities use more energy than a comparable renovated facility (utilizing current OBC and applicable municipal energy standards). Older buildings have high greenhouse gas (GHG) emissions and use more energy than comparable new construction.

6.4.5.2 Workplace Furnishings

6.4.5.2.1 CONDITION METHODOLOGY

Workspaces at each site consist of workstations and office furniture. These furnishings are either meeting or not meeting (legacy) industry best practices. Current industry best practices entail:

- Ergonomic support
- Day lighting and views for building occupants through use of mid-height workspace systems and perimeter placement
- Task seating required to address a range of body types
- Consistent workstation configuration, contributing to lower operating costs by creating fixed environments and allowing a broad range of administrative requirements without change
- Designs using materials and features reducing the cubicle feel
- Designs supporting power and network wiring

Legacy furniture is comprised of a mixture of furniture systems purchased in the mid-1980s when the concept of systems furniture was first implemented and in the mid-2010s when the concept of open-collaborative office space was still in its infancy. Office environment and related standards have significantly evolved over the past 30 years. The systems still in use are high-paneled, impeding daylight into the office environments. Legacy furniture has surpassed its 10-year warranty period (the anticipated use length) and is past 30 years of age.

In addition, ergonomic requirements have changed to support industry best practices, regulatory policy, as well as EGI's goal of zero injuries in the office. Current standard workstations allow for adjustable height work surfaces, allowing employees to adjust their work surface to the appropriate height or to stand if desired.

Ancillary furnishings refer to all support furnishings including, but not limited to, guest seating, informal and collaborative areas, conference room and common space furniture, filing cabinets, and bookcases. The condition of ancillary furnishings is based on an assessment of age, physical condition, and utilization and is also evaluated as either meeting or not meeting current industry best practices.

6.4.5.2.2 CONDITION FINDINGS

The facility assessment results for all EGI properties included an assessment of workplace furnishings. Results indicate that except for the Victoria Park Centre (VPC), Technology and Operations Centre (TOC) properties, and 50 Keil Drive, all other

EGI's workplace furnishings are rated as legacy based on industry best practices. This translates into ~10% current standard and 90% legacy furnishings.

6.4.5.2.3 RISK AND OPPORTUNITY

Without adequate furniture and ergonomics in place, there is financial risk as productivity can potentially suffer due to inefficient space allocation and unnecessary workstation reconfiguration costs. Improper ergonomics support can pose a safety risk as lack of task seating that addresses a range of body types can potentially cause repetitive strain injuries.

The risks and opportunities are described in **Table 6.4-3**.

6.4.6 REWS Asset Class Strategies and Outcomes

6.4.6.1 Property Maintenance Strategy

6.4.6.1.1 CONTINUING MAINTENANCE OF THE CURRENT SITE

Commercial buildings require annual preventive maintenance which encompasses a multifaceted approach to sustain their functionality and safety. Systems such as HVAC require a comprehensive inspection. This involves cleaning or replacing air filters, calibrating thermostats, and lubricating moving parts to optimize performance. Roof and exterior systems are inspected for leaks, gutter and downspout cleaning, and repairs to siding or window seals. Plumbing systems are inspected for leaks, water heater sediment removal, and checks on emergency shutoff valves. Electrical systems require inspections of panels, circuit breakers, and wiring integrity. Fire safety systems including alarms, sprinklers, and emergency exits are tested and updated. Elevators undergo professional inspections and lubrication of moving parts. Pest control measures are implemented to deter infestations, and a structural assessment is conducted to detect signs of deterioration. Additionally, an energy efficiency audit is performed to identify opportunities for improvement.

Beyond the physical infrastructure, the preventive maintenance strategy also includes periodic reviews of safety protocols and emergency response plans. Regular drills and training sessions for staff ensure everyone is familiar with evacuation procedures and emergency exits. This holistic approach not only addresses immediate structural and systems concerns but also reinforces the building's operational readiness.

6.4.6.2 Property Upgrade Strategy

The strategies for the Properties asset subclass were developed to align with business requirements and the OBC as well as correct deficiencies on site:

- Renovating existing facilities
- Building new facilities
- Disposing of current site and relocating to a new site

Choosing the appropriate strategy is based on a combination of business requirements and physical/functional assessments described in **Section 6.4.5.1.1** and support of the business strategy.

Major investments for this asset class were identified through a facility assessment of the properties' physical condition and operational function and gaps in service area coverage to allow for a standardized look and feel to all EGI administrative facilities. Major projects included in the Property Upgrade Strategy are:

- Kelfield Operations Centre – Land Purchase
- VPC Core and Shell
- Station B New Building
- Thorold Operations Centre – New Building
- GTA West – New Build – Halton Hills
- New London Site

For additional detail on these investments, see **Appendix A**.

6.4.6.3 Building Systems Program

A third-party engineering consultant analyzed factors such as age of equipment, maintenance records, repair cost, building standards, and compliance issues to determine overall risks and timing of replacement for HVAC equipment, plumbing, electrical equipment, and exterior site improvement. The property assessment report identifies equipment at end of life and recommends a replacement plan over a 25-year span. The report focused on the design, installation, operation, and monitoring of building systems required for a safe, comfortable, and environmentally friendly environment for employees. Unplanned failures occur occasionally which require immediate action. A review of each cost determines the decision to repair or replace the defective equipment. The service life of new assets is 15 to 20 years. If building systems are not properly maintained, there is a financial risk to EGI as failure of these systems increase substantially year over year, which can potentially lead to loss of productivity.

The strategy for building systems assets is to maximize the equipment's useful life and replace systems before failure can cause business interruptions. The replacement of equipment is targeted but not solely specific to the building envelope, HVAC, and electrical systems. Compliance to environmental standards, interior comfort, and overall security are major considerations to ensure safe and reliable operations. The annual program for these initiatives is determined based on historical spend as well as building assessments and condition analysis.

6.4.6.4 Emission Reductions Program

EGI has begun work on energy efficiency and emissions from office buildings. These improvements ensure current building systems are operated in an efficient manner that reduces carbon fuel use. The strategy on energy efficiency and emissions from office buildings identifies natural gas air-sourced heat pumps and other opportunities as a potential abatement opportunity at EGI's office facilities. The majority of customers shared their preference for emission reductions from its buildings in the 2023 AMP Customer Engagement by indicating that EGI should exceed current standards and build to the Net Zero Standard for one of its new build projects.

Some existing EGI facilities use more energy than a comparable new or renovated facility (utilizing current OBC and energy standards), increasing operating costs. This program will offer EGI the opportunity to reduce these costs by implementing energy efficiency measures in its office buildings, reducing GHG emissions. Where work is not already a part of the 10-year plan, improvements will still be reviewed to see if they can be accommodated, leading to further reduction in GHG emissions and energy usage. The process will identify a mix of measures with a range of implementation costs and energy/GHG savings. On completion, measures, findings, and an action plan to measure energy conservation implementation will be developed, as well as verification and ongoing commissioning, which will include operational and capital improvements. Lessons learned from each activity will be implemented on future initiatives. This is a recurring yearly program for 10 years, based on building assessments and condition analysis.

6.4.6.5 Security Program

EGI is an integral member of the larger integrated critical infrastructure environment where safety and reliability remain rooted in everyday operations. Physical security strategies for real estate portfolios are based on the premise that security risks should be managed using risk- and performance-based management processes that meet or exceed regulatory requirements and remain sustainable as a larger component of workplace safety and business continuity. Enterprise Security implements minimum physical security requirements based on how a business unit characterizes and identifies critical assets within their operational framework. The baseline physical security measures are associated to an assigned Asset Security Rating (ASR) that is both risk-informed and applies key security strategies based on the gravity of the assessed risk. Physical security assets adhere to key regulations and legislative requirements and are generally categorized as follows:

- Perimeter protection
- Intrusion detection and alarm systems
- Lighting
- Access control
- Video surveillance

Regulatory Requirements: EGI's Enterprise Security Management Program is committed to the enhancement of security practices that match emerging risks. It acts as a business enabler by using a collaborative, risk-led, and fit-for-business approach to protect people, the environment, assets, and reputation of the business. The Security Management Program provides an integrated and uniformed approach to security management within EGI to ensure that the business remains compliant with the following regulatory requirements that have an impact on physical security assets:

- Transportation Security Administration (TSA) Pipeline Security Guidelines
- *CSA Z246.1*, *Security management for petroleum and natural gas industry systems* (specific regulations are found in Table 6.4-5 below)
- *CSA Z662 – Oil and Gas Pipeline Systems* (specific regulations are found in **Table 6.4-5**)
- Canada Energy Regulator Onshore Pipeline Regulations

Table 6.4-5: Consolidated Physical Security Regulations Impacting Asset Management

Regulation	Citation	Regulation Wording
CSA Z662-23	3.1.2, f) viii)	The safety and loss management system shall cover the life cycle of the pipeline system and shall include…f) controls for viii) security management.
CSA Z662-23	10.2.5	Conditions that can adversely affect the security of the pipeline system shall be corrected.
CSA Z246.1	5.3.2, c) d)	Asset characterization should:…c) identify any critical interdependencies, and d) be harmonized with the operator's business continuity program and disaster recovery plan.
CSA Z246.1	5.7.1	Risk Mitigation: The operator shall develop and implement security measures based on findings in the security risk management process.
CSA Z246.1	7.2.2 h) i)	Cybersecurity Considerations:…h) access to the IT and ICS networks is controlled by means that prevent unauthorized access; i) intrusion prevention and detection methods are installed and monitored on both IT and ICS networks. ***NOTE:*** *The above considerations are interpreted in both a network and physical security environment.*
CSA Z246.1	8.2	Protection of personnel: Security measures shall be implemented and maintained to minimize the likelihood of a security threat against employees and onsite personnel engaged in company business.
CSA Z246.1	9.1	Physical Security measures shall reflect…the assets that require protection…as well as political and social factors in the region. Risks to people, the environment, assets, or economic stability shall be considered when determining the degree of physical security measures that are required.
CSA Z246.1	9.3.5	Intrusion detection and alarm systems are fit for purpose, tested, and maintained in good working order.
CSA Z246.1	9.3.7	Access control for office and field site locations shall provide a level of security to prevent unauthorized access…
CAS Z246.1	9.3.9	Video surveillance system is fit for purpose and maintained in good working order.
CSA Z246.1	10.1	Security Incident management addresses the capability of the operator to respond to security-related threats and incidents…monitoring, reporting and recovery.

Security Technology and Alignment

EGI is moving to a **one badge** program to optimize access control management, improve intrusion detection capabilities, and increase visibility to over 96 facilities across the business unit. EGI currently maintains five separate and very mature security systems that control and monitor access to EGI facilities where systems have been installed; it should be noted that this does not include several critical and remote operational sites where additional physical measures are deficient. Each system is segregated and monitored independently from the other, and they have unique and bespoke alarm management strategies in place that are reflective of the various municipal requirements in those regions. The average life span of these systems has far surpassed end-of-service life expectation, as they have operated more than 10 years beyond traditional life cycle expectancy and industry standards. Aging systems will inevitably require additional maintenance and oversight to ensure that they remain sustainable until replaced. EGI is working to align these systems under one modern, robust, and industry-leading security management system within a five-year investment period that will optimize access control, intrusion detection, and remote

video surveillance management. This alignment strategy will have a direct impact on improving alarm management and response while aligning with the larger enterprise security management program. It is intended to reduce associated monitoring costs and the number of third-party service providers, thereby retaining positive control over EGI's critical assets. In summary, EGI will utilize sound technological investments to offset expenses for additional personnel and third-party services providers and retain positive control of the alarm response process from inception to resolution.

Cybersecurity (Physical Assets)

Cybersecurity measures shall reflect the characterization of the information technology and industrial controls systems assets that require protection, as well as the associated risks. Consideration shall be given to the nature and function of the systems, as well as the potential impact to the asset. Physical cyber assets such as data centres, nodes, network connectivity, and critical industrial control systems that manage pipeline operations and integrity must be protected by fit-for-purpose physical security equipment to prevent tampering and unauthorized access. Therefore, industrial control systems located within remote operational sites, local facility control rooms, and data centres require appropriate intrusion detection and video surveillance systems that reflect both the criticality of the asset/facility and the associated risk. The importance of this requirement cannot be emphasized enough, as EGI maintains 32 critical facilities where 22 facilities require a sustainable three-year investment to protect critical industrial control systems.

Risk Management of Workplace and Community Safety: Security measures shall be implemented to minimize the likelihood of a security threat against employees and onsite personnel engaged in company business. As a key member of the energy sector, EGI often finds itself in the direct spotlight of several sociopolitical issues such as activism, crime, polarization of climate issues, and far-reaching geopolitical issues that have a direct impact on workplace safety and the surrounding communities. The key premise and root cause of most security-related incidents are a result of unauthorized access. Physical security assets are crucial in protecting onsite personnel and ensuring that safe operating conditions are maintained, thereby protecting EGI's surrounding communities. Enhancement to physical security measures go beyond simply controlling unauthorized access; such assets act as force multipliers for health and safety by improving remote triage, incident management capabilities, and additional coverage for lone worker procedures. They add value by reducing response times and improving coordination, assessment, and situational awareness to first responders. Therefore, investments to implement and improve fit-for-purpose video surveillance coverage and intrusion detection of critical operational sites – where such systems are lacking – will ensure regulatory compliance is met and will minimize risk to workplace and community safety.

Financial Risk: Incorporating physical security assets within the larger REWS asset management strategy will ensure sustainable long-term funding, minimize long-term operating costs, and strengthen the asset balance sheet through sound capital investments. Aligning and integrating security systems under a greater enterprise system within a phased implementation period will reduce short-term maintenance costs while building resiliency within the business continuity. These sustained investments will minimize the risk of regulatory noncompliance and reduce exposure to significant security vulnerabilities, should a legacy security system experience a catastrophic failure. A five-year investment strategy will ensure timely and measured treatment while reducing the associated financial risk and the potential impact of an unplanned one-time investment pressure.

Environmental Risk: The Security Management Plan governs a larger security strategy that strives to reduce the overall impact from environmental risk based on routine security vulnerability assessments and assurance inspections of critical assets. Additional investments into physical security systems that protect the safety, reliability, and integrity of pipeline industrial controls systems and other critical assets will delay, deter, and detect potential tampering and compromise of these critical systems. Failing to protect critical systems impacts the safety and reliability of operations within critical facilities, resulting in increased environmental impact.

Threat Risk Environment: Instability in the energy security domain has directly elevated the risks associated with the safety, reliability, and integrity of operations based on persistent threats to cybersecurity, facilities, and insider threat. Current cybersecurity intelligence reporting by various industry interlocutors have primarily focused on network facilitated attacks based on the frequency and overall effectiveness; however, reports categorized as vandalism, mischief, or damage within traditional reporting may not adequately nuance additional cybersecurity concerns. EGI is a high-value Canadian organization with a significant operational technology footprint that is deeply integrated within the larger critical infrastructure domain, making it an attractive and viable target for various adversaries. This further characterizes various threats that can directly elevate current risks and consequences, requiring appropriate and measured physical security investments to protect EGI's most business-critical assets. Traditional funding support has not kept pace with the growing threat environment. Sustained financial investments to implement additional physical security measures at critical facilities, while replacing several legacy and end-of-life security systems currently in use, is required.

6.4.6.6 Micro-Operations Depot Revitalization Program

This program covers the renovation or replacement of micro-operations depots located in the Northern region that are on average over 50 years old. The sites are in aging physical condition and do not meet required functionality. Risks include the financial impact of low utilization or functionally and physically deficient assets. Current physical conditions pose a hazard to

employee and contractor health and safety. Legacy buildings with obsolete systems have high GHG emissions and use more energy than comparable new construction.

The strategy is to renovate or replace the micro-operations depots. Renovations or replacement will include the building envelope, HVAC, and electrical systems. Compliance with environmental standards, building codes, accessibility, and overall security are major considerations to ensure safe and reliable operations.

6.4.6.7 Workplace Furnishings Replacement Program

For detail on the Workplace Furnishings Replacement Program, see **Section 6.4.5.2.1**.

6.4.7 Real Estate and Workplace Services Capital Expenditure Summary

The average annual capital spend is forecast to be $29MM (EGI) as summarized in **Table 6.4-6**. REWS capital is further summarized as part of EGI's total 10-year capital plan in **Section 3**.

Table 6.4-6: REWS Capital Summary ($ Millions) – EGI

Asset Class Strategy	Program Name	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	10-Year Forecast
Create	New Build Program	0.6	6.6	16.1	0.0	0.3	0.2	20.2	15.0	0.0	0.0	59.0
Maintain	Building Systems Program	7.0	6.8	6.6	6.4	6.3	6.4	0.1	6.7	0.0	0.0	46.4
	Emissions Reductions Program	0.8	0.8	0.8	0.7	0.7	0.7	0.0	0.7	0.0	0.0	5.3
Improve	Property Upgrades Program	23.1	3.8	14.3	4.9	41.7	15.9	31.5	28.1	6.3	0.5	170.1
Replace	Workplace Furnishings Replacement Program	0.6	0.6	0.6	0.6	0.6	0.6	0.0	0.6	0.0	0.0	4.0
Total		32.3	18.6	38.3	12.7	49.5	23.8	51.9	51.1	6.3	0.5	**284.7**

6.5 Fleet and Equipment

The Fleet and Equipment asset class provides EGI with the necessary vehicles, equipment, and tools to run regulated business operations safely and efficiently. EGI sustains the integrity of the fleet through a strong maintenance program and uses risk, cost, and performance information to drive asset-related decisions.

The Fleet and Equipment asset class consists of three asset subclasses: (1) Fleet, (2) Heavy Equipment, and (3) Tools. Fleet includes light-duty vehicles (LDVs), medium-duty vehicles (MDVs), and heavy-duty vehicles (HDVs). LDVs include cars, vans, and pickup trucks. MDVs include vehicles which range from utility service trucks to mini dump trucks capable of towing smaller equipment. Heavy-duty vehicles are comprised of large vehicles with a Gross Vehicular Weight (GVW) between 26,001 lb. to 150,000 lb. Heavy equipment assets consist of backhoes, trailers, compressors, forklifts, welders, and boring equipment. The Tools asset subclass consists of all tools that support EGI's business operations, ranging from gas surveyors and concrete saws to fusion machines, pipe squeeze-off tools, stop/tap tooling equipment, and Mobile Compression Systems and pipeline flaring tools which reduce greenhouse gas (GHG) emissions during construction and maintenance work.

The Fleet and Equipment asset class supports the organization's energy transition priority through the diversification of EGI's fleet fuels. Built into EGI's strategy is the continued pursuit of natural gas, electric, hydrogen, and renewable-fueled vehicles as they become available in the market.

6.5.1 Fleet and Equipment Objectives

Table 6.5-1 describes the asset class objectives for Fleet and Equipment.

Table 6.5-1: Fleet and Equipment Asset Class Objectives

Asset Class Objectives	Description
Supportability	Provide the business with the necessary vehicles, equipment, and tools to run regulated business operations safely and efficiently, based on fit-for-purpose analysis.
Integrity and Reliability	Sustain the safety and reliability of all vehicles, equipment, and tools.
	Combine risk, life cycle costs, and performance information to drive asset-related decisions.
Energy Transition	Support the organization's energy transition by sourcing vehicles with lower carbon fuels and investing in tools and equipment that will help reduce GHGs generated during construction and maintenance activities.

The performance measures for the Fleet and Equipment asset class are:

- Preventive maintenance activities completed on schedule
- Fleet Management system reporting and qualitative reviews completed

To achieve Fleet and Equipment asset class objectives listed in **Table 6.5-1**, asset investment decisions are governed by the life cycle management strategies outlined in **Section 5.2.3**. For this asset class, specific life cycle activities include:

- Convert LDVs where applicable to operate on other fuel sources including, but not limited to, natural gas, hydrogen and electric, reducing overall GHG emissions.
- Optimize natural gas and electricity as fuel sources for LDVs to reduce overall GHG emissions.
- Install auxiliary power units (APUs) on HDVs. An APU is an anti-idling device that reduces overall GHG emissions and prevents premature engine wear and tear, providing power to the truck where required.
- Install telematics / Global Positioning System (GPS) technology to optimize asset utilization.
- Use telematics/GPS technology to create a proactive approach to vehicle maintenance and reduce downtime.

6.5.2 Fleet and Equipment Hierarchy

The asset subclass breakdown for the Fleet and Equipment asset class is illustrated in **Figure 6.5-1**: .

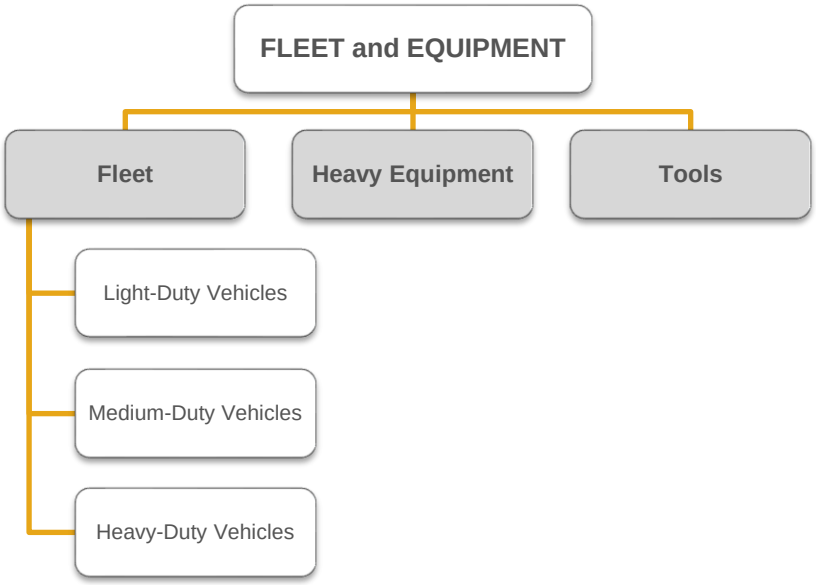


Figure 6.5-1: Fleet and Equipment Asset Class Hierarchy

6.5.3 Fleet and Equipment Inventory

The Fleet and Equipment asset class inventory is shown in **Table 6.5-2**.

Table 6.5-2: Fleet and Equipment Inventory

Asset Subclass	Inventory
Fleet	1,585
Light-Duty Vehicles	1,220
Medium-Duty Vehicles	161
Heavy-Duty Vehicles	204
Heavy Equipment	1,191
Tools	~11,000

6.5.4 Fleet and Equipment Condition and Strategy Overview

Table 6.5-3: Fleet and Equipment Condition and Strategy Overview

Asset Subclass		Max. Age (Years)	Current Condition	Risk / Opportunity	Asset Class Strategies	Programs, Tactics, and Standards
Fleet	Light-Duty Vehicles (LDVs)	16	Analysis indicates that average maintenance costs exceed the market value of an LDV at approximately 6 years old or 145,000 km, depending on the vehicle's weight class.	**Financial Risk:** Aging fleet vehicles primarily pose a financial risk to EGI if they are not maintained or replaced as needed. Maintenance costs increase beyond the vehicle value and productivity may be impacted due to increased downtime because of more frequent unplanned maintenance activities. **Opportunity:** Increased capital spending on new replacement of the fleet will reduce the Operations & Maintenance (O&M), as older assets with high annual O&M costs are replaced with new assets with low annual O&M costs.	Create	Purchasing of low and zero-emission vehicles to promote the reduction in emissions. A strategy and plan will be created to support operational requirements and emission reductions.
					Maintain	Vehicle maintenance is every six months (i.e., every 8,000 kms). Each LDV has an assigned preventive maintenance schedule based on engine type, utilization, and weight.
					Improve	All LDVs are upfitted when purchased with improved features to support safety and operational effectiveness for employees driving and working from them. Examples of features are telematic device, all-weather tires, safety lights, first aid kits, fire extinguishers, backup cameras, EGI decals, and telescopic laptop mounts, etc.
					Replace	**LDV Replacement:** This proactive program replaces vehicles based on weight class, mileage, and assessed condition. The average replacement age for LDVs is six years.
					Dispose	When LDVs are at the end of their life, they are remarketed through two channels: (1) auction, and (2) third-party retailer. These two strategies provide optimal value for EGI's assets. Factors such as geography, condition, logistics, and market trends are used to determine the strategy to utilize.
	Medium-Duty Vehicles (MDVs)	15	Analysis indicates that average maintenance costs exceed the market value of a medium-duty vehicle at approximately 12 years old or 175,000 km, depending on the vehicle's weight class.		Maintain	Vehicle maintenance is every six months (i.e., every 6,000 kms or 500 engine hours). Each MDV has an assigned preventive maintenance schedule.
					Improve	All MDVs are upfitted when purchased with improved features to support safety and operational effectiveness for employees driving and working from them. Examples of features are telematic devices, safety lights, first aid kits, fire extinguishers, backup cameras, and EGI decals, etc. Medium-duty utility trucks are also upfitted with extra lights, anti-idling devices, and ergonomic storage for the cargo space.
					Replace	**MDV Replacement:** This proactive program replaces vehicles based on weight class, mileage, and assessed condition. The average replacement age for MDVs is 12 years.
					Dispose	When MDVs are at the end of their life, they are remarketed through two channels: (1) auction, and (2) third-party retailer. These two strategies provide optimal value for EGI's assets. Factors such as geography, condition, logistics, and market trends are used to determine the strategy to utilize.
	Heavy-Duty Vehicles (HDVs)	21	Analysis indicates that average maintenance costs exceed the market value of a heavy-duty vehicle at 12 years old or 350,000 km, depending on the vehicle's weight class.		Maintain	Vehicle maintenance is every six months (i.e., every 6,000 kms or 500 engine hours). Each HDV has an assigned preventive maintenance schedule.
					Improve	All HDVs are upfitted when purchased with improved features to support safety and operational effectiveness for employees driving and working from them. Examples of features are telematic devices, safety lights, first aid kits, fire extinguishers, backup cameras, EGI decals, and ergonomic workspace if applicable, etc. Heavy-duty utility trucks are also upfitted with extra lights, anti-idling devices, and ergonomic storage for the cargo space.
					Replace	**HDV Replacement:** This proactive program replaces vehicles based on weight class, mileage, and assessed condition. The average replacement age for HDVs is 12 years.
					Dispose	When HDVs are at the end of their life, they are remarketed through two channels: (1) auction, and (2) third-party retailer. These two strategies provide optimal value for EGI's assets. Factors such as geography, condition, logistics, and market trends are used to determine the strategy to utilize.

Asset Subclass		Max. Age (Years)	Current Condition	Risk / Opportunity	Asset Class Strategies	Programs, Tactics, and Standards
	Heavy Equipment	30	Analysis indicates that average maintenance costs exceed the market value of heavy equipment at approximately 12 years old.	**Financial Risk:** Aging fleet vehicles primarily pose a financial risk to EGI if they are not maintained or replaced as needed. Maintenance costs increase beyond the vehicle value and productivity may be impacted due to increased downtime because of more frequent unplanned maintenance activities. **Opportunity:** Increased capital spending on new replacement of the fleet will reduce the O&M as older assets with high annual O&M costs are replaced with new assets with low annual O&M costs.	Create	Heavy Equipment investments support energy transition such as the GoVac mobile compression trailer to reduce methane released into the environment and GHG emissions.
					Maintain	Heavy Equipment preventive maintenance is conducted on a scheduled basis ranging from 6 to 12 months. Regular maintenance is performed to reduce the probability of costly repairs on equipment.
					Replace	**Heavy Equipment Program:** This proactive program is based on average historical spending and is driven by: • Proactively replacing assets based on a detailed physical condition assessment • Acquiring net new equipment based on business needs
					Dispose	When heavy equipment is at end of life, it is remarketed through two channels: (1) auction, and (2) third-party retailer to provide optimal value. Factors such as geography, condition, logistics, and market trends are used to determine the strategy to utilize.
Tools	N/A	N/A	The general condition and functionality of tools are assessed by the operator prior to use and during scheduled inspections and calibrations.	**Financial Risk:** Increased maintenance costs and lower productivity. **Employee and Contractor Health and Safety Risk / Public Health and Safety Risk:** Increased employee, contractor and customer safety, and health risks if tools are not in good condition. **Operational Risk:** Service and/or emergency response reliability. **Environmental Risk:** Increased methane emissions when tools designed to limit gas venting during construction and maintenance operations are not available.	Create	Tool investments that support the reduction of GHG emissions, such as flaring incinerator tool, provide reduced carbon during pipeline operations.
					Maintain	Prescribed tools have regular scheduled inspection monthly or annually depending on calibration requirements and the utilization part of the **Tool Inspection Program**.
					Replace	**Tools Replacement Program:** This reactive program is in place to address tools that are: • Showing signs of wear and tear, broken and/or unrepairable • Stolen or lost • Declared obsolete by the manufacturer or supplier • No longer approved for use due to updated engineering standards and practices • Needed and requested by EGI operating departments to perform their business functions

6.5.5 Fleet

6.5.5.1 Condition Methodology

EGI continues to harmonize and optimize its Fleet and Equipment processes and procedures. In 2020, fleet data was migrated to an enterprise-wide fleet management service provider to leverage fleet management software (i.e., Element). This system stores asset records and analyzes vehicle condition over its life cycle, including all maintenance costs, fuel consumption, mileage, age, and hours of use. These records provide reports to Fleet to assist with analysis on O&M costs compared to industry averages, fuel efficiency and utilization, and approval costs of repairs and maintenance with vendors to ensure cost prudency. Fleet also has internal processes to review work orders to ensure O&M spending aligns with replacement plans and operations requirements for the asset.

Fleet management software provides data to analyze a vehicle's cumulative maintenance cost against the asset class's average cost and the asset condition. An asset is assessed and considered for replacement once the average maintenance cost surpasses market value, unless there are conditions observed that justify shortening or prolonging asset life. If a vehicle exhibits higher maintenance costs than average, the vehicle is considered for earlier replacement. On the other hand, if a vehicle exhibits lower maintenance costs and is assessed to be in good condition, it is considered for later replacement. This approach is guided by risk analysis, operating expense, and asset performance to sustain asset integrity.

Retaining vehicles and heavy equipment for longer than optimal periods increases O&M costs. Furthermore, retiring these assets too early results in the partial loss of their useful life, impacting capital replacement requirements. For vehicles, the population's average point at which maintenance costs exceed the market value of the vehicle is used as a guide as it helps identify vehicles approaching end of life. These vehicles require a detailed condition assessment to determine their fitness for service which consists of appraising vehicle attributes such as engine, transmission, body, and interior condition. For heavy equipment, the standard used to determine the optimal replacement point is when maintenance costs begin to exceed the market value of the asset.

In addition to reports, detailed condition assessments are conducted on vehicles and heavy equipment assets every three to six months. This assessment includes a physical and visual evaluation of the asset's physical and functional condition, a comparison of hours of service, and an assessment of the maintenance history of the asset relative to its class. If the asset is assessed to be in good working condition, it is kept in service and refurbished to extend its useful life. If the asset is assessed to be in poor condition and not fit for continued service, it is replaced.

To understand how company vehicles are being used, fleet vehicles are equipped with GPS/telematics tracking devices managed by fleet management software (i.e., Geotab). The Geotab system also provides real-time vehicle diagnostics, giving EGI the ability to be proactive with fleet vehicle assessments and repairs.

6.5.5.2 Condition Findings

Figure 6.5-2 shows the average age for fleet assets across EGI.

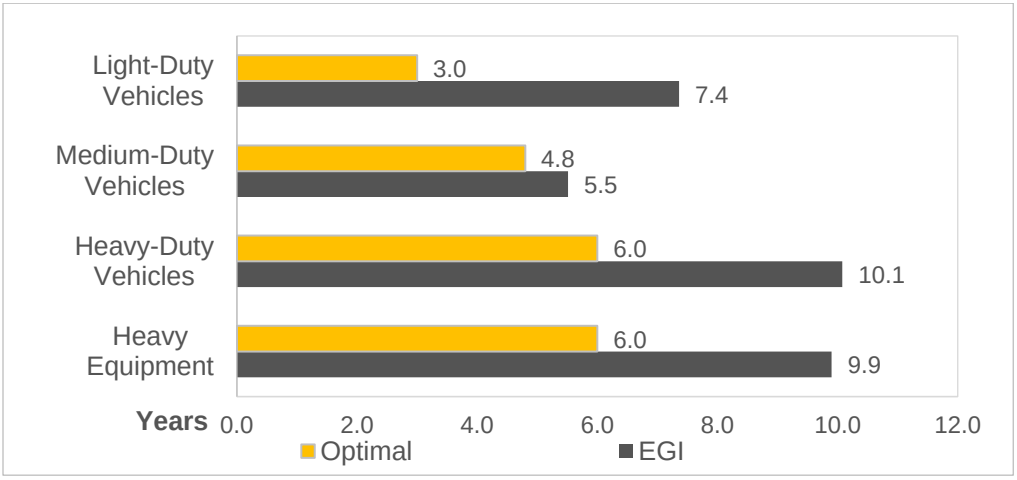


Figure 6.5-2: EGI Current Average Vehicle Age (Years)

As **Figure 6.5-2**: shows, the current average age of fleet assets is higher than what would be ideal based on the condition methodology (see **Section 6.5.5.1**). This highlights the need for increased investments to ensure that fleet replacements continue to occur as per the replacement strategy. **Figures Figure** 6.5-3 toFigure 6.5-6 show the fleet's current unit age for each vehicle classification. **Figure 6.5-7** to **Figure** 6.5-9 show the fleet's current age versus mileage for each vehicle's classification. These figures help represent the fleet's current condition.

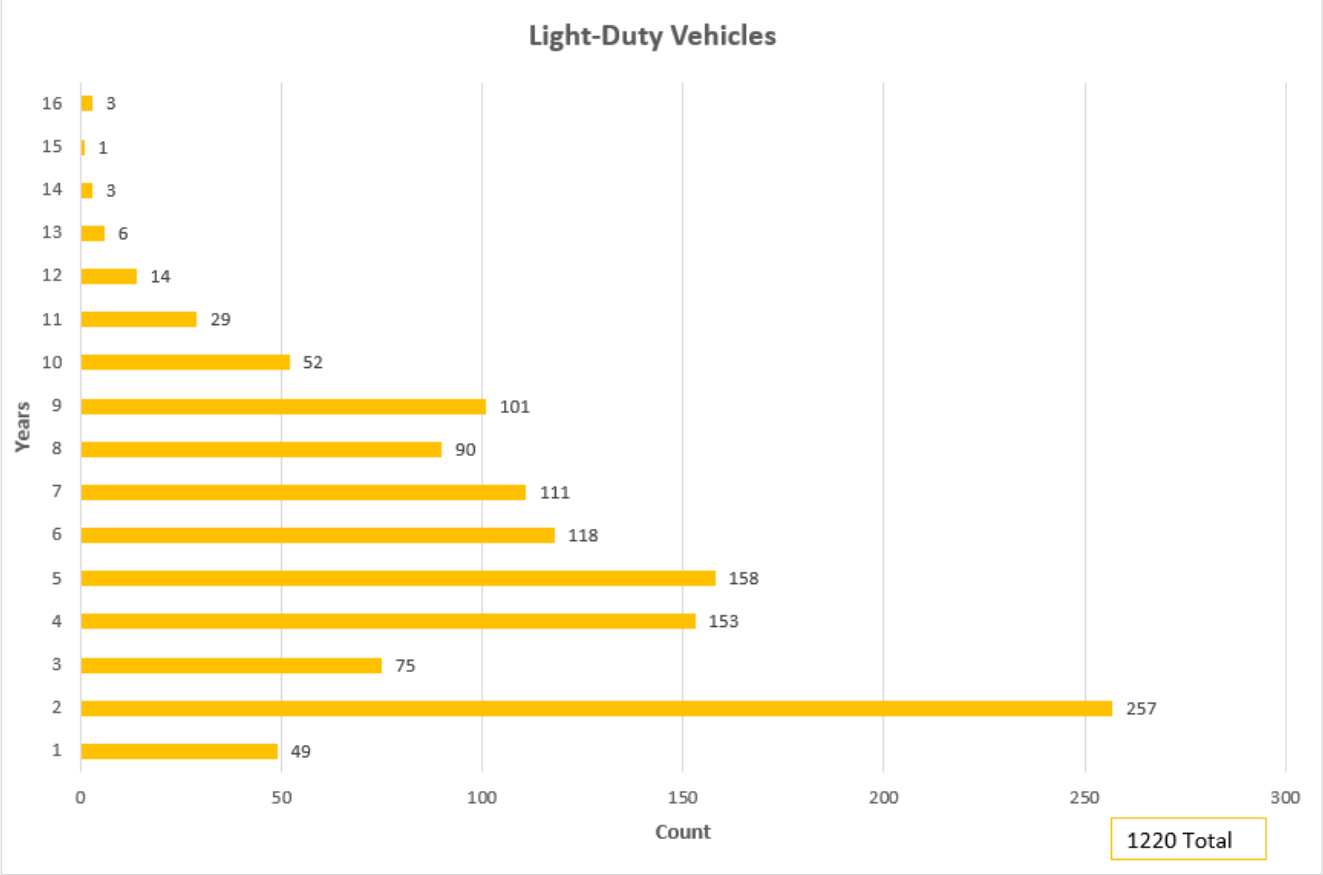


Figure 6.5-3: Light-Duty Vehicles Current Age

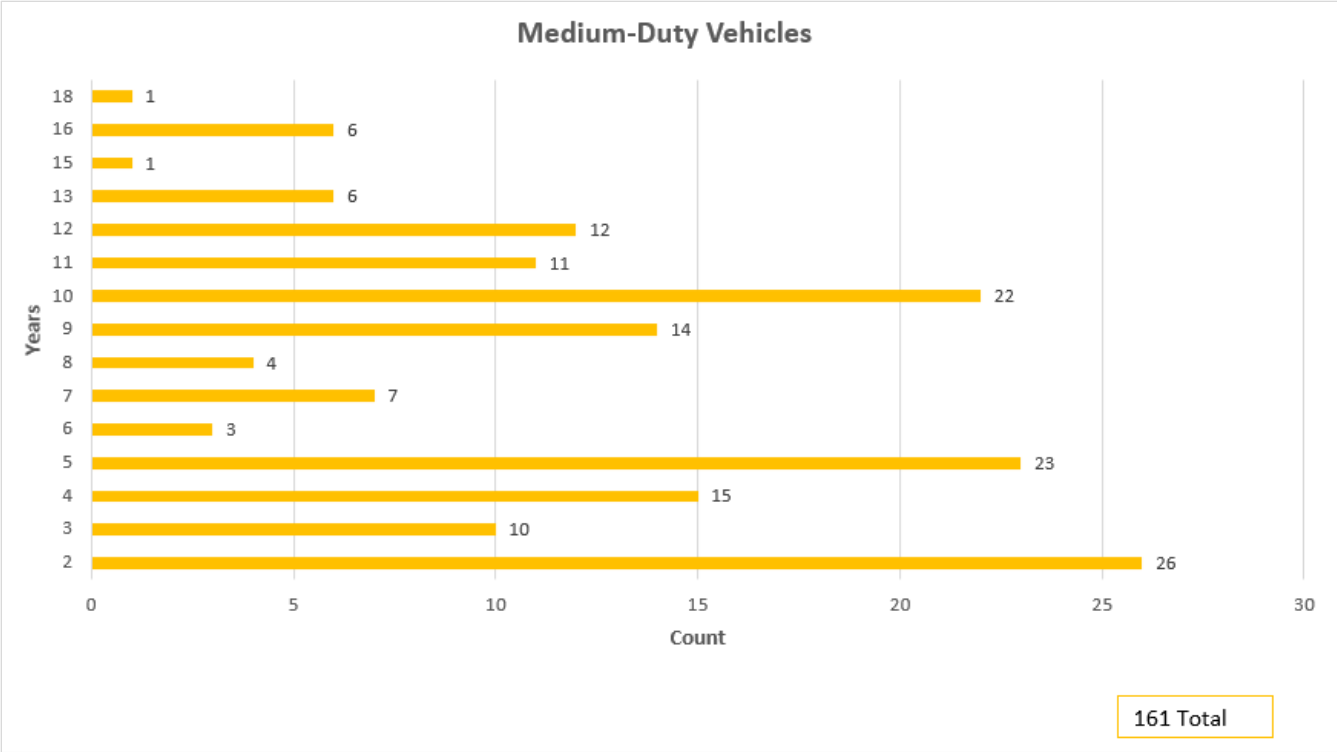


Figure 6.5-4: Medium-Duty Vehicles Current Age

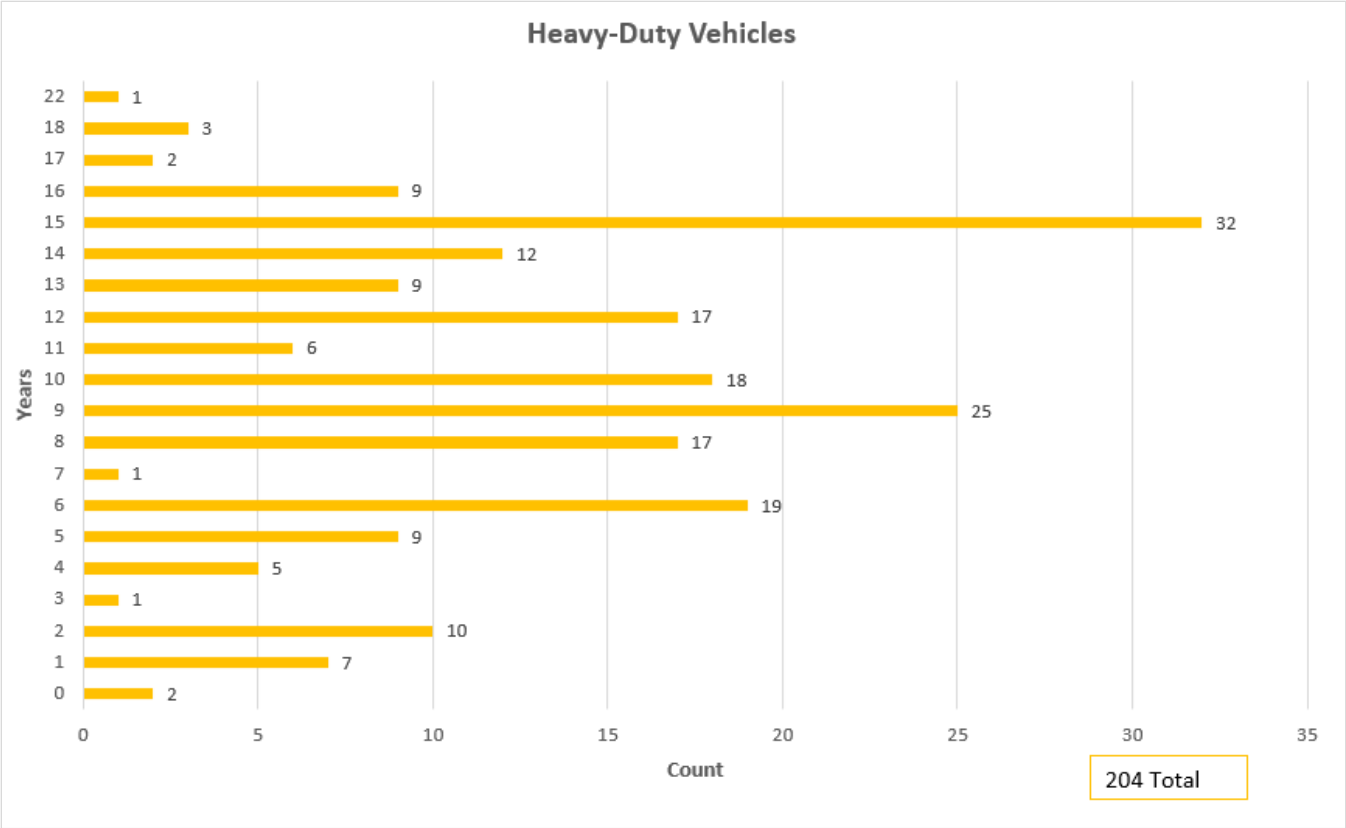


Figure 6.5-5: Heavy-Duty Vehicles Current Age

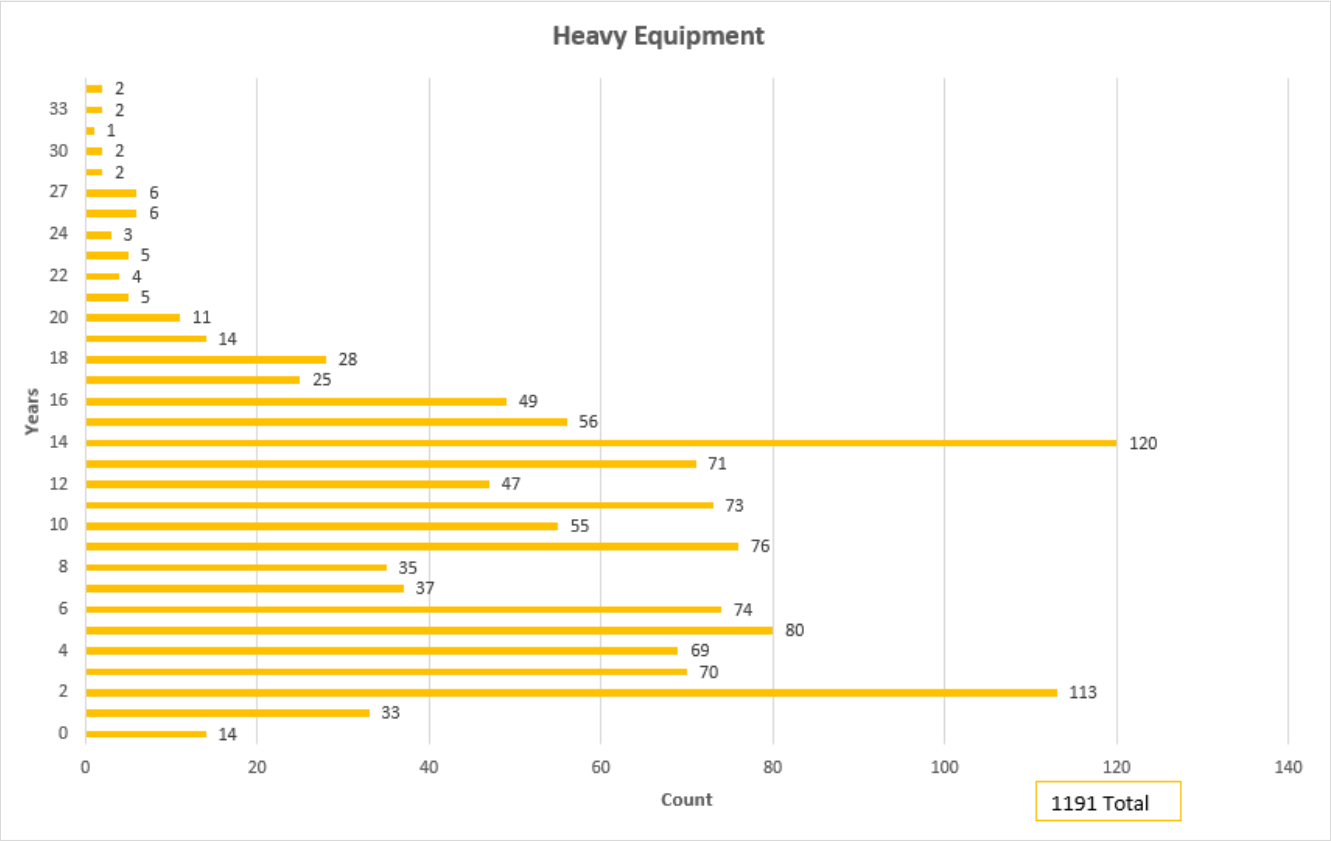


Figure 6.5-6: Heavy Equipment Current Age

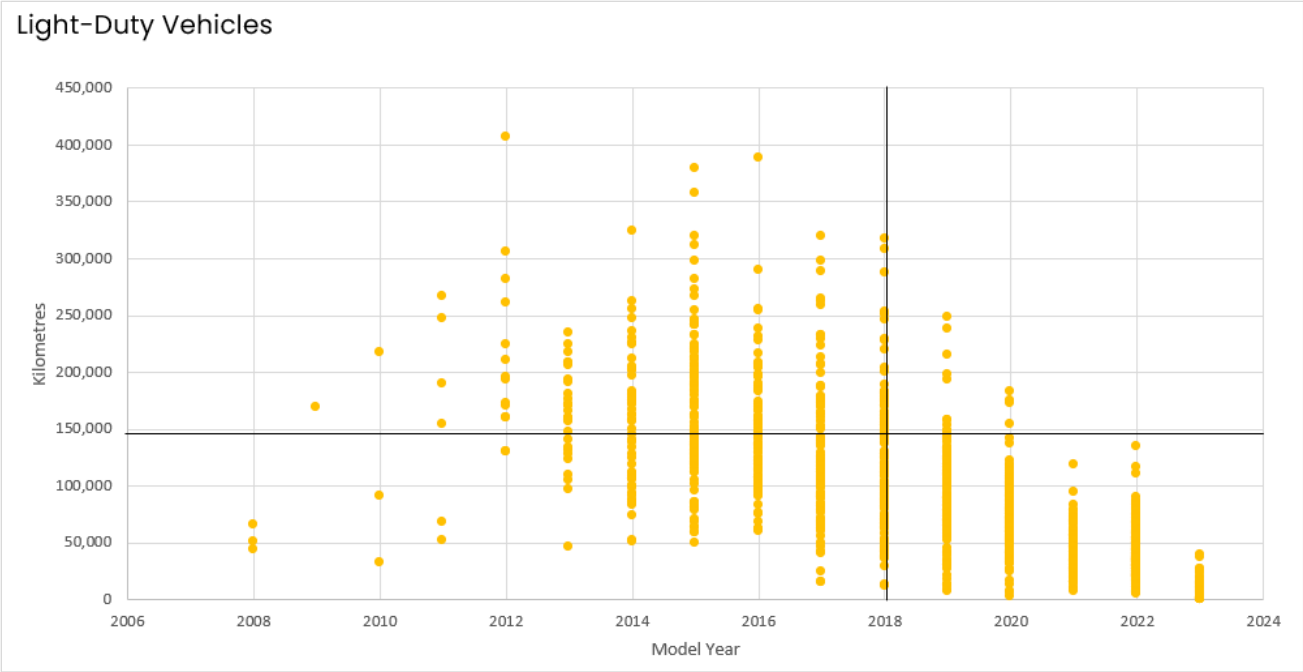


Figure 6.5-7: Light-Duty Vehicles (Kilometres vs Model Year)

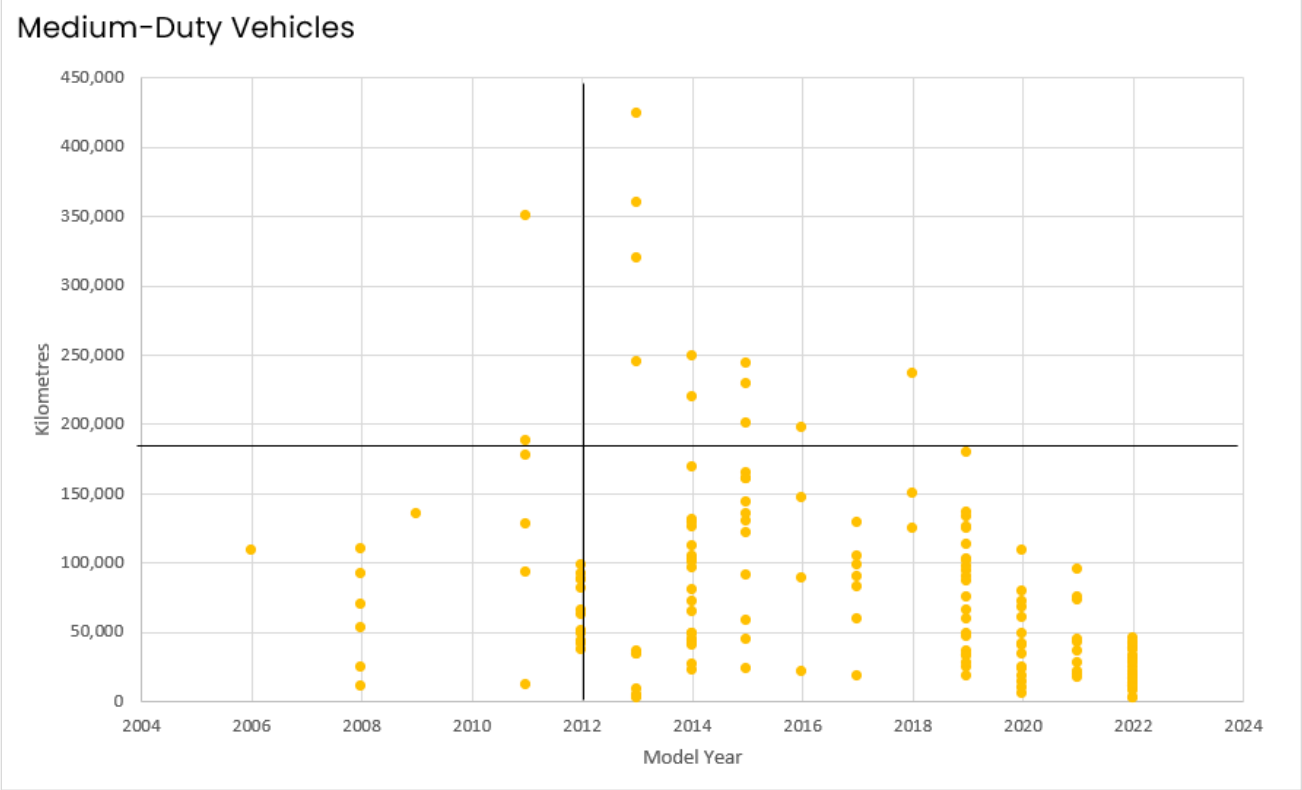


Figure 6.5-8: Medium-Duty Vehicles (Kilometres vs Model Year)

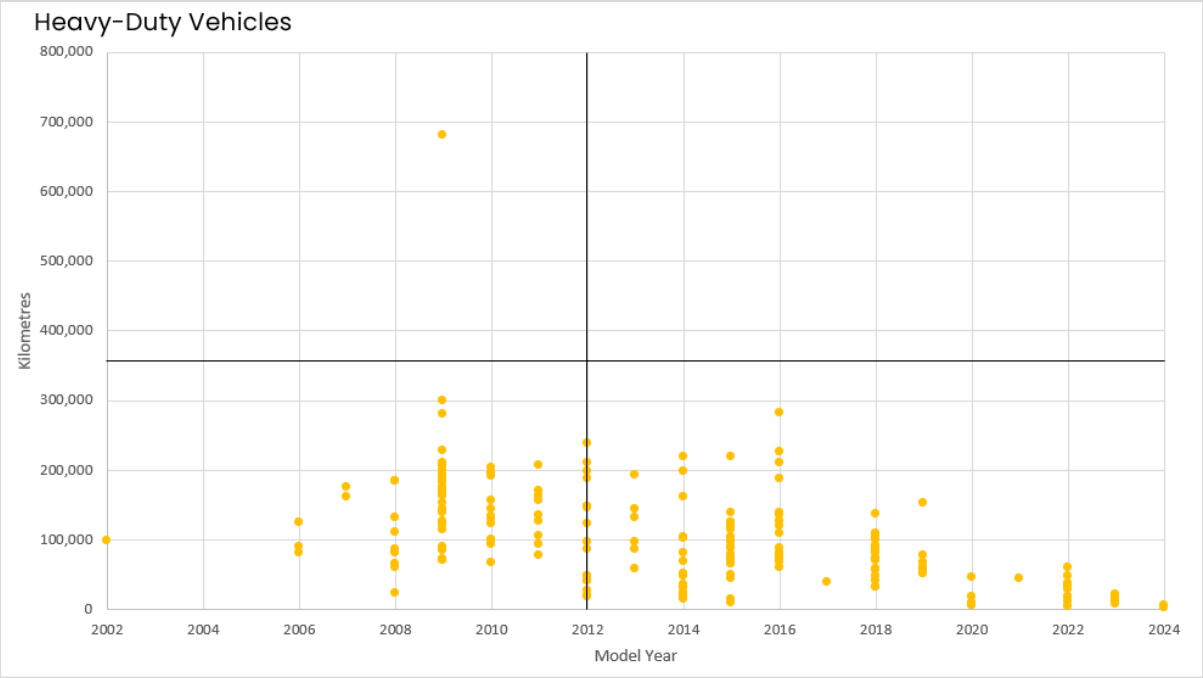


Figure 6.5-9: Heavy-Duty Vehicles (Kilometres vs Model Year)

6.5.5.3 Risk and Opportunity

Fleet vehicles and heavy equipment assets (see Condition Methodology in **Section 6.5.6.1**) have similar risks and opportunities. There are consequences to EGI when vehicles and equipment exceed their useful life:

- Aging asset condition, resulting in decreased safety and reliability
- Increased maintenance costs
- Increased downtime (vehicles are more frequently in the shop for maintenance) decreasing employee productivity potentially affecting EGI's ability to serve its customers
- Decreased resale value

Based on the value assessment analysis, fleet vehicles primarily pose a financial risk to EGI if they are not maintained or replaced as needed. Maintenance costs increase after the vehicle warranty expires and productivity is reduced due to increased downtime because of more frequent maintenance activities. On-road failure would also impact public safety and decrease productivity. Decreased productivity can affect the ability to serve EGI's customers, potentially creating a risk to customer satisfaction. In the 2023 AMP Customer Engagement, customers indicated that EGI should manage the replacement and maintenance costs in such a way that the fleet is brought back to its optimal level.

6.5.6 Heavy Equipment

Heavy Equipment is described as off-road building equipment. At EGI, this asset subclass primarily consists of backhoes, trailers, compressors, forklifts, welding machines, and directional drilling equipment. These assets are grouped together due to similarities in condition methodology and approach.

6.5.6.1 Condition Methodology

The analysis of heavy equipment assets used the same condition methodology for fleet vehicles (see **Section 6.5.5.1**).

6.5.6.2 Condition Findings

The average age for heavy equipment is 9.9 years. Analysis indicates that average maintenance costs exceed the market value of heavy equipment at approximately 12 years old or an average age of 6 years (see **Figure 6.5-2**:).

Based on Fleet Management system reporting, industry standards and asset assessment trends, the typical average useful life threshold for heavy equipment is approximately 12 years old (or approximately 7,000 service hours). This threshold is used as a guide for further detailed inspections. The condition of these units is thoroughly assessed when they reach their useful life threshold to make an informed decision to replace or refurbish the asset for continued service.

As shown in **Figure 6.5-2**: , the average age of heavy equipment assets is higher than the optimal age, highlighting the need for increased investments to ensure that heavy equipment replacements continue to occur as per the replacement strategy.

6.5.6.3 Risk and Opportunity

Fleet vehicles and heavy equipment assets have similar risks and opportunities (see **Section 6.5.5.3**).

6.5.7 Tools

EGI uses a wide variety of tools including electric air movers, drills, concrete saws, clay spades, gas surveyors, personal gas monitors, pipe locators, pipe squeeze-off tools, shoring boxes, torpedoes, and grease guns. In total, there are approximately 11,000 tools currently in use.

Due to the variety of tools and equipment, several inspection and calibration frequencies are in place. The general condition and functionality of tools are assessed by the operator prior to use and during scheduled inspections and calibrations. Deficiencies identified are reported where an assessment of the repair and replacement costs is completed to determine the appropriate course of action.

6.5.7.1 Risk and Opportunity

Not maintaining EGI's tool population presents both a safety risk to employees and customers during operation. In addition, productivity will decline due to increased downtime because of using inadequate tools, posing both a financial risk to EGI as well as impacting customer satisfaction. Finally, for those tools whose function it is to isolate gas piping and reduce emissions associated with removing gas from the pipe during construction and maintenance activities, insufficient availability of tooling can result in higher emissions during these activities.

6.5.8 Fleet and Equipment Asset Strategies and Programs Outcomes

6.5.8.1 Vehicle Replacement Program (Create)

EGI's strategy is to continue to support low emission vehicles when appropriate for operations to reduce GHG emissions. These purchases are reviewed for economics, emission reduction capabilities, operational requirements and O&M cost factors. In 2025, EGI will spend $1MM to purchase the following low- and zero-emission vehicles:

- Hybrid vehicles to reduce emissions and improve fuel efficiency
- Light-duty hydrogen-fueled cell vehicles which are a zero-emission fleet vehicle
- Light-duty battery electric vehicles where it supports EGI's operations
- Dual-fueled compressed natural gas (CNG) vehicles reducing emissions and fuel costs compared to gasoline

6.5.8.2 Vehicle Replacement Program (Replace)

EGI's replacement strategy is to source and purchase all vehicle and equipment assets to support business operations and objectives, including the conversion to other fuel sources allowing EGI to continue to reduce overall GHG emissions.

The optimal replacement strategy for all fleet vehicles is determined by the lowest cost of a vehicle or equipment's lifetime. The lowest cost is determined by analyzing cost curves for maintenance. Asset replacement decisions are evaluated against the optimal replacement (see **Figure 6.5-10**) analysis plus age, mileage, hours of use, condition, risk of failure, and functional

requirements. Each asset is ranked and evaluated annually. In general, the optimal replacement point is determined when the maintenance costs begin to exceed the market value of the asset.

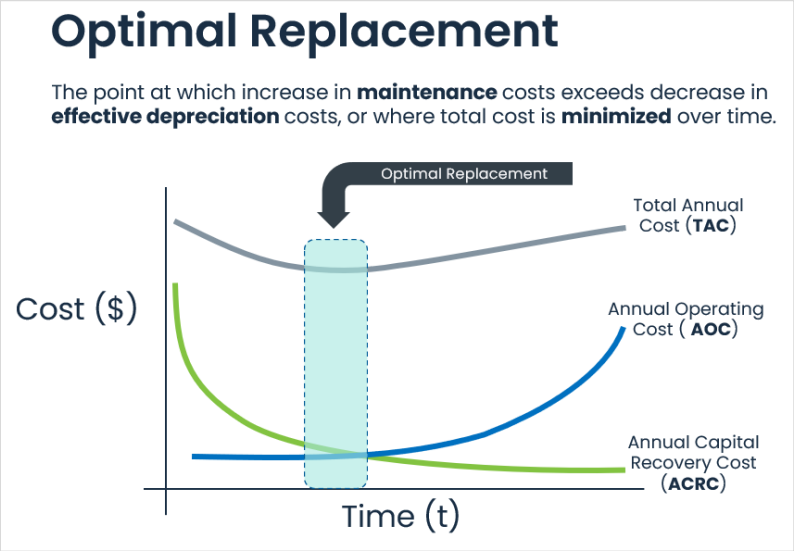


Figure 6.5-10: Optimal Replacement

The replacement cycles for the various vehicle classes are shown in **Table 6.5-4**.

Table 6.5-4: Vehicle Replacement Cycle

Class	Replacement Cycle (years)	Replacement Cycle (km)
Light-Duty	6	145,000
Medium-Duty	12	175,000
Heavy-Duty	12	350,000

6.5.8.3 Heavy Equipment Replacement Program (Replace)

EGI's replacement strategy is driven by proactively replacing assets based on detailed physical condition assessments and reactively acquiring new equipment based on business needs. Depending on evaluation results, there could be a decision to refurbish the asset instead of replacement. The current replacement cycle for heavy equipment is 12 years.

6.5.8.4 Heavy Equipment Replacement Program (Create)

EGI's strategy to support reduction of GHG emissions and methane will come from investments into energy transition equipment such as the GoVac mobile compression trailer. There are plans to purchase approximately six assets worth $4MM to support EGI's operations from 2024 to 2026. Each trailer will reduce GHG emissions and/or methane by approximately 3,000 to 4,000 tons of carbon dioxide each year. The trailers' lifespan is expected to be 20 years.

6.5.8.5 Tools Replacement Program (Replace)

EGI's strategy for tools is to establish an annual replacement program based on average historical spend. The program is reactive in nature and driven by replacing/acquiring tools that are:

- Showing signs of wear and tear, or are broken and unrepairable
- Stolen or lost
- Deemed obsolete by the manufacturer
- No longer approved for use due to evolving engineering standards and practices
- Required by EGI operations departments for business function

Tools and equipment deemed obsolete and/or no longer approved for use are removed from service and decommissioned. Approved replacement assets are then acquired.

6.5.9 Fleet and Equipment Capital Expenditure Summary

The average annual capital spend is forecast to be $37MM (EGI) as summarized in **Table 6.5-5**. Fleet and Equipment capital is further summarized as part of EGI's total 10-year capital plan in **Section 3**.

Table 6.5-5: Fleet and Equipment Capital Summary ($ Millions) – EGI

Asset Class Strategy	Program Name	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	10-Year Forecast
Improve	Emissions Reductions Program	1.7	1.6	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	3.8
Replace	Heavy Equipment Program	8.6	10.0	10.7	10.2	12.1	12.7	13.1	11.4	10.5	10.5	109.9
	Tools Replacement Program	9.1	1.1	1.1	1.1	1.1	1.1	1.1	3.1	2.2	1.1	22.1
	Vehicle Replacement Program	18.5	21.1	25.2	23.4	24.9	26.1	26.6	23.2	21.5	21.5	232.1
Total		38.0	33.7	37.0	35.3	38.1	39.9	40.8	37.7	34.2	33.1	**367.9**

6.6 Technology and Information Services

The Technology and Information Services (TIS) asset class includes the (1) Infrastructure, (2) Software, and (3) Communications subclasses. TIS continues to support process and system integration while in parallel reducing EGI operational and cybersecurity risks. EGI continues to align systems, processes, and procedures prioritized based on business value (customer experience, efficiency, safety/reliability, and compliance) while adopting industry best practices regarding cloud computing where feasible.

The infrastructure asset subclass has three types of assets: (1) laptops/desktops, (2) desktop sustainment equipment, and (3) network and security infrastructure hardware. Desktop sustainment equipment includes the additional components that equip the end user such as keyboards, telephone headsets, computer monitors, audio/visual equipment, telephony, printers, scanners, and ergonomic equipment.

Network and security infrastructure hardware assets include network components, security appliances, and telephony equipment. Network hardware consists of routers, switches, hubs, firewalls, devices required to maintain voice communication, and video-conferencing networks. Security hardware refers to equipment used to protect control systems, business applications, computer infrastructure, and data networks. Telephony equipment includes routers, switches, and desk telephones.

The lifespans of infrastructure assets typically range between four and seven years depending on the device. As the devices within each group vary in age, a portion of all the infrastructure assets is upgraded each year to ensure ongoing operational reliability.

Software assets consist of packaged applications (purchased from and generally supported by a vendor), developed applications (custom-built in-house), and application infrastructure software (foundational infrastructure software and tools for applications).

Communications assets include mobile phones and field devices (such as GPS devices, push-to-talk radios, leak survey field technology, and truck modems).

TIS applications and related technology work activities are driven by a combination of enhancement projects and life cycle upgrades and/or replacements. The overarching objective is to ensure that TIS applications and related technologies provide desired functionality, adapt with evolving customer expectations, perform efficiently, and are usable, reliable, maintainable, and compatible with other applications and technologies, while ensuring the required standard of security.

Effort is made to ensure the needs of each business area are met including considerations related to legislative compliance regulatory orders, and financial accounting and reporting requirements. Investments are developed for each TIS investment and are prioritized using life cycle, financial, and strategic drivers. During the TIS application life cycle, technology and design reviews are held to ensure new systems are implemented in the most cost-effective manner, using standard tools and proper security coding practices.

6.6.1 Technology and Information Services Objectives

The overall goal of the TIS asset class is to meet EGI's information technology needs, established in response to asset, process, and system objectives and concerns. The response to these needs and the decision to undertake a solution is guided by the TIS asset class objectives listed in **Table 6.6-1**: .

Table 6.6-1: TIS Asset Class Objectives

Asset Class Objectives	Description
Functionality	Ensure solutions provided are fit for purpose based on business requirements and value.
Reliability	Maintain the ability of the asset to perform its required function over its useful life.
Security	Ensure controls and checks are in place for applications/software/data that protect the asset against threats and vulnerabilities.
Availability	Ensure that infrastructure, devices, and/or applications/software are readily available for use when required and will work as intended.

Asset Class Objectives	Description
Supportability	Maintain the ability of support and service staff to install, configure and monitor assets, identify exceptions and faults, isolate defects/issues preventing the asset from functioning as expected, and provide maintenance services.
Maintainability	Continually ensure that assets are maintainable to isolate and correct defects, prevent unexpected breakdowns, maximize their useful life, meet new business requirements, and simplify future maintenance procedures.
Continuous Improvement	Continuously evolve the understanding of condition and risk for TIS assets and use risk, cost, and performance information to drive asset-related decisions.

The performance measures for the TIS asset class are as follows:

- Number of application/system outages
- Number of defects
- Number of vulnerabilities and security-related incidents
- Adherence to security policies and scorecard objectives
- Security patching levels
- Overall system and application availability metrics
- Number of infrastructure incidents
- Number of change and enhancement requests
- Incident response time and resolution time met

To achieve the TIS asset class objectives listed in **Table 6.6-1**, asset investment decisions are governed by the life cycle management strategies outlined in **Section 5.2.3**.

6.6.2 Technology and Information Services Hierarchy

The asset subclass hierarchy for the TIS asset class is shown in **Figure 6.6-1**.

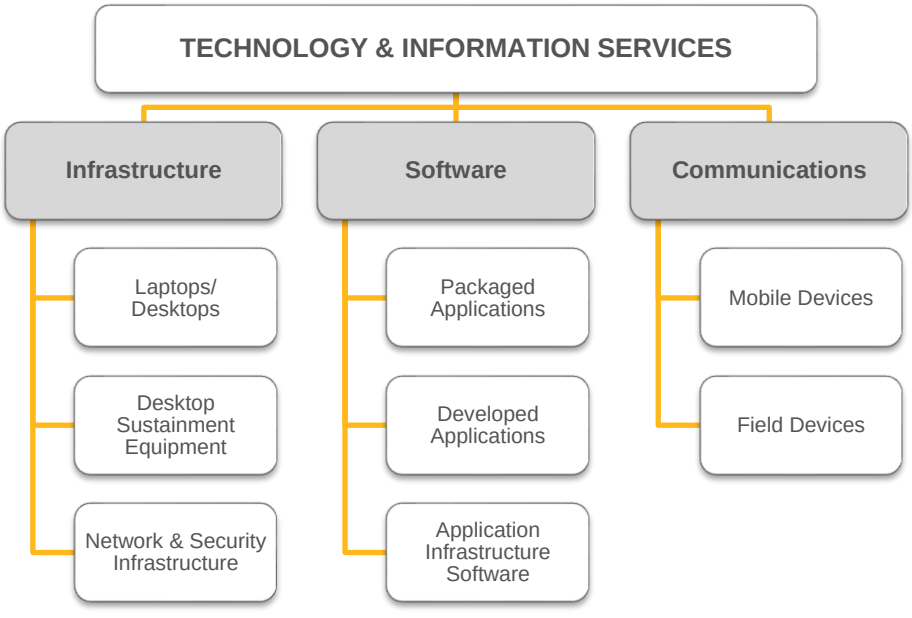


Figure 6.6-1: Technology and Information Services Hierarchy

6.6.3 Technology and Information Services Inventory

The TIS asset class inventory is shown in **Table 6.6-2**.

Table 6.6-2: TIS Asset Class Inventory[50]

Asset	Inventory
Infrastructure	
Laptops and Desktops	4,090
Desktop Sustainment Equipment	N/A[51]
Network and Security Infrastructure	5,740
Software	
Packaged Applications	209
Developed Applications	105
Application Infrastructure Software	47
External Service	39
Communications	
Mobile Phones	5,561
Field Devices	1,327

[50] As of January 2024.
[51] Desktop Sustainment Equipment assets are not recorded in inventory. For a list of assets that fall under Desktop Sustainment Equipment, see **Section 6.6.5.2**.

6.6.4 Technology and Information Services Condition and Strategy Overview

Table 6.6-3: TIS Condition and Strategy Overview

Asset Subclass	Avg. Age (Year)	Condition	Risk / Opportunity	Asset Class Strategies	Programs, Tactics and Standards
Laptops and Desktops	2	Laptops and desktops tend to experience performance issues and failures in their fourth year of operation (constituting approximately 30% of these assets). The condition of laptops and desktops is not proactively monitored.	**Financial Risk:** Aging assets result in a reduction in productivity and increase in maintenance costs. **Cyber and Security Risk:** Aging assets can go unsupported with no patches available by vendors resulting in higher likelihood of successful cyberattack.	Replace	**Laptop/Desktop Renewal Program:** EGI's strategy is to replace laptops and desktops every four years. For the majority of their life (three years), these assets are under warranty. This strategy allows for a short-extended use of the asset past warranty expiration (one additional year) prior to replacement.
Desktop Sustainment Equipment	N/A	The condition and health of desktop sustainment equipment is not proactively monitored.	**Employee and Contractor Health and Safety Risk:** Inadequate desktop sustainment equipment compromises the health and safety of employees who require specific equipment for ergonomic purposes. **Financial Risks:** Inability to meet business needs and requirements, reducing overall productivity. **Operational Risk:** Inadequate or lack of desktop sustainment equipment required for new and existing employees. **Cyber and Security Risk:** Aging assets can go unsupported with no patches available by vendors resulting in higher likelihood of successful cyberattack.	Maintain	Reactive maintenance as required through service requests.
				Replace	**Laptop/Desktop Renewal Program:** • Equipment is purchased to improve workstations based on employee ergonomic assessments. • Equipment is replaced when damaged, broken, or malfunctioning. • Equipment is purchased as required for new employee and contractor hires.
Network and Security Infrastructure	3	Network and appliances tend to experience performance issues and failures in their fifth year of operation (constituting approximately 30% of these assets).	**Financial Risk:** Aging assets result in a reduction in productivity, a risk of increase in infrastructure incidents and outages, and an increase in maintenance costs.	Replace	**Core Infrastructure and Security Renewal Program:** EGI's strategy is to proactively replace network infrastructure and security every five years. For the majority of their life (four years), these assets are under warranty and this strategy allows for a short-extended use of the asset past warranty expiration (one additional year) prior to replacement.
				Dispose	**Cloud Migration / Server Retirement Program:** EGI has adopted cloud computing services to reduce outages from infrastructure failures, reduce cyberattack exposure, leverage a scalable core infrastructure, reduce technical debt, and improve business reliability, as assets reaching end of life create material operational risk for hosted systems.
Packaged and Developed Applications	10	The condition of packaged and developed applications is evaluated on the following: • Ability to meet business requirements • Infrastructure to meet vendor support requirements • Software to meet vendor support life cycle (for packaged applications) • Ability to enhance and support existing applications For the condition findings for this subclass, see **Table 6.6-4** and **Table** 6.6-5.	**Financial Risks:** • Inability to meet business needs and requirements, reducing overall productivity. • Inability to meet financial and reporting requirements. • Increased maintenance costs due to reactively addressing required software and infrastructure repairs. **Operational Risk:** Extended application and system outages, inadequate (or the lack of) applications required for employees to complete assigned tasks, contributing to difficulties in meeting customer needs. **Reputational Risk:** Cybersecurity exposure due to the inability to apply required security patches potentially leading to negative reputational impacts for EGI if any breaches occur. **Cyber and Security Risk:** Aging assets can go unsupported with no patches available by vendors resulting in higher likelihood of successful cyberattack.	Create	New applications are purchased or developed where there is a business need identified to improve service levels or operational efficiency, and the application is supported by a business case.
				Maintain	**Application Infrastructure Upgrades Program:** Maintenance releases and software defect fixes are rolled out regularly as a means of reactively maintaining the performance of packaged and developed applications.
				Improve	Enhancements to existing applications are purchased or developed where there is a business need identified to improve service levels or operational efficiency and the application is supported by a business case.
				Replace	**Application Infrastructure Technology Obsolescence Program:** The replacement of developed and packaged applications is dependent on changing business requirements or due to an application solution becoming unsupported by its vendor.

Asset Subclass	Avg. Age (Year)	Condition	Risk / Opportunity	Asset Class Strategies	Programs, Tactics and Standards
Application Infrastructure Software	12	The condition of application infrastructure software is evaluated on the following: • Software to meet vendor support refresh life cycles • Ability to support the key foundational software required for in-use/predicted applications For the condition findings for this subclass, see **Table 6.6-6**.	**Financial Risks:** • Inability to meet business needs and requirements, reducing overall productivity. • Inability to meet financial and reporting requirements. • Increased maintenance costs due to reactively addressing required software and infrastructure repairs. **Operational Risk:** Extended application and system outages, inadequate (or the lack of) applications required for employees to complete assigned tasks, contributing to difficulties in meeting customer needs. **Reputational Risk:** Cybersecurity exposure due to the inability to apply required security patches potentially leading to negative reputational impacts for EGI if any breaches occur. **Cyber and Security Risk:** Aging assets can go unsupported with no patches available by vendors resulting in higher likelihood of successful cyberattack.	Create	Purchase of new infrastructure software will be dependent on requirements for new or upgraded packaged and developed applications, and compatibility with existing infrastructure software. For details, see above.
				Maintain	**Application Infrastructure Upgrades Program:** Maintenance is reactive – performance issues or software defects are addressed as they are identified.
				Replace	**Application Infrastructure Technology Obsolescence Program:** A proactive replacement/refresh strategy is in place, driven by forecast changes to existing software products and business requirements.
Mobile Devices	2	The condition of mobile devices is not proactively monitored.	**Operational Risk:** Inadequate (or the lack of) mobile devices hinder the ability of employees to resolve emergency field situations, off-hours, and on-call situations, which may affect the reliable and safe operations of EGI's systems and networks and lead to loss of supply, extended outages, or may contribute to the severity of an incident and potentially endanger lives of the public.	Maintain	Mobile devices are maintained internally to address performance issues. Damaged devices are repaired/replaced on an as-needed basis within the three-year replacement window.
				Replace	**Mobile Device Renewal Program:** EGI follows industry best practices for replacing mobile devices at two to three years, which aligns with the smartphone manufacturers' release cycles and typical data plan contracts. EGI purchases devices as required for new employee and contractor hires.
Field Devices	4	The condition of field devices is not proactively monitored. Due to exposure to tough working conditions, field devices experience significant wear and tear. (Breakage and performance issues generally occur in their fourth year of use).	**Employee and Contractor Health and Safety Risk / Public Health and Safety Risk:** Inadequate (or the lack of) field devices hinder the ability of employees to respond to emergency field situations due to device unavailability. **Operational Risk:** Inadequate (or the lack of) field devices may result in increased time travelling between office and job sites impacting response to customer needs. **Cyber and Security Risk:** Aging assets can go unsupported with no patches available by vendors resulting in higher likelihood of successful cyberattack.	Maintain	Maintenance repairs and replacements are performed as needed through service requests.
				Replace	**Field Device Renewal Program:** Most field devices, such as ruggedized laptops, Toughbooks and Toughpads, have a four-year proactive replacement strategy driven by industry best practices. Some assets, such as truck modems, are replaced as needed. EGI purchases devices as required for new employee and contractor hires.

6.6.5 Infrastructure

6.6.5.1 Laptops and Desktops

This TIS asset subclass includes over 4,000 laptops and desktops. The majority of employees and contractors rely heavily on the day-to-day performance of their laptops and desktops to perform daily tasks and to access company communications, applications, and resources on EGI's networks and systems.

Laptops and desktops are covered by the manufacturer's warranty for three years.

6.6.5.1.1 CONDITION METHODOLOGY

The condition of laptops and desktops is not proactively monitored. If these assets experience failures or signs of operating issues, a request for support and resolution is logged through ServiceNow (the TIS Service Management system). All laptops and desktops are labelled with a unique asset tag number to identify the asset for tracking purposes. The ServiceNow request is mapped to the user's unique asset tag number which ensures the necessary remediation work is completed on the appropriate asset.

6.6.5.1.2 CONDITION FINDINGS

Laptops and desktops tend to experience performance issues and failures in their fourth year of operation, a year after their warranty expires. Laptop failures can occur for a variety of reasons including complete hard drive failures, processor board failures, memory failures, and significantly degraded performance.

6.6.5.1.3 RISK AND OPPORTUNITY

The major risk identified for laptops and desktops is financial risk; aging assets result in a reduction in productivity and increase in maintenance costs. There are a number of consequences if these assets are not replaced soon after warranty expiry:

- Replacement parts for existing infrastructure become obsolete, resulting in an asset that is more expensive to repair.
- Existing infrastructure is not compatible with newer operating systems and applications, resulting in an asset with reduced functionality.
- Maintenance costs can become excessive after warranty expiry.
- There is an overall reduction in productivity due to aging assets.

6.6.5.2 Desktop Sustainment Equipment

Desktop sustainment assets include all TIS infrastructure equipment required for business operations. Audio/visual equipment, printers, monitors, keyboards, mice, privacy screens, and headsets are some examples of desktop sustainment equipment.

6.6.5.2.1 CONDITION METHODOLOGY

The condition of desktop sustainment equipment is evaluated on the following:

- New hire onboarding information
- Infrastructure incident requests
- Feedback and requests from ergonomic specialists and business users

The condition and health of desktop sustainment equipment is not proactively monitored.

6.6.5.2.2 CONDITION FINDINGS

Annually, there are approximately:

- 3,057 ergonomic-related requests requiring ergonomic equipment

- 757 onboarding requests requiring desktop sustainment equipment to support new employees/contractors
- 2,995 infrastructure incidents

6.6.5.2.3 RISK AND OPPORTUNITY

The major risks identified for desktop sustainment equipment are captured in **Table 6.6-3**.

6.6.5.3 Network Infrastructure and Security

6.6.5.3.1 CONDITION METHODOLOGY

Network and appliances tend to experience performance issues and failures in their fifth year of operation (constituting approximately 30% of these assets). The physical condition of network and security hardware is not proactively monitored. If these assets experience failures or signs of operating issues, the hardware vendor is contacted for support and an incident ticket is logged through ServiceNow.

6.6.5.3.2 CONDITION FINDINGS

Core and security infrastructure asset failures can occur for a variety of reasons, including hard drive failures, processor failures, memory failures, and significantly degraded performance.

6.6.5.3.3 RISK AND OPPORTUNITY

The major risk identified for network and security infrastructure failures is financial risk; aging assets result in a reduction in productivity due to incidents and outages and increase in maintenance costs. There are a number of consequences if these assets are not replaced soon after warranty expiry:

- Existing infrastructure is not compatible with newer operating systems and applications, resulting in an asset with reduced functionality.
- Maintenance costs can become excessive after warranty expiry.

6.6.6 Software

6.6.6.1 Packaged and Developed Applications

TIS assets include a number of key applications that provide critical functionality to EGI employees and customers, contributing to the support and growth of its natural gas storage, transmission, and distribution businesses. Key TIS applications also rely on ancillary systems that have been added over time to provide additional functionality as business needs change and grow.

Packaged applications, also known as commercial-off-the-shelf (COTS) software, are solutions purchased from and primarily supported by a vendor; support includes software version upgrades. Software upgrades are required for the application to stay current and supported. For some solutions, EGI provides functionality and enhancement requests, and the vendor provides additional software releases to address these requests.

Developed applications are custom-built solutions by EGI to meet business requirements. This generally occurs when no packaged solutions are available to support business requirements. The age range for developed applications can extend out as far as 20 years before a life cycle replacement or significant upgrade occurs. Technology upgrades and enhancements may occur regularly for internally developed solutions.

As software licence assets reach end of life, EGI is adopting a cloud-based model, as described in **Section 6.6.8.1**.

6.6.6.1.1 CONDITION METHODOLOGY

The condition of packaged and developed applications is evaluated on the following:

- Ability to meet business requirements
- Infrastructure to meet vendor support requirements

- Software to meet vendor support life cycle (for packaged applications)
- Ability to enhance and support existing applications

6.6.6.1.2 CONDITION FINDINGS

Table 6.6-4 summarizes the key packaged applications used at EGI and outlines their current state and condition. Each rate zone continues to operate some systems.[52] Over time, most systems will be integrated. After the systems are integrated, their maintenance costs will be allocated to the rate zones.

Table 6.6-4: Application State – Key Packaged Applications[53]

Application	Application Overview	Age (Years)	Application State
AutoSol Communication Manager (UG)	Polling engine application for reading measurement information	16	Hardware is currently under warranty. Software is current and supported.
Corrosion Survey (DNV GL SynerGi Pipeline)	Pipeline integrity software used in the Union rate zones for scheduling, tracking, and field collection of pipeline risk management data	8	Software update was completed in 2018.
Customer Information System (CIS)	Customer care and billing applications (SAP, CIS, and Banner)	1	CIS applications used in EGD and Union rate zones migrated to an SAP cloud-based solution in 2021 as part of EGI integration. Future upgrade is planned in 2028.
EGI Extranet	EGI external website for the EGD rate zone with self-service capabilities	4	Hardware was replaced in 2017/2018. Rewrite and foundational software upgrade occurred in 2017/2018. This application was integrated with the uniongas.com extranet in 2021.
Geographic Information System (ESRI eGIS)	Application for developing geographic views of EGD rate zone asset data	8	Hardware was replaced in 2020. Software was upgraded in 2020.
GIS Suite - G/Technology (Hexagon)	Application for developing geographic views of Union rate zones asset data	7	Application was upgraded in 2020 to maintain supportability.
GMAS	Collection and validation system for measurement information in the Union rate zones	21	Hardware is currently under warranty. Software is current and supported.
Guardian	Tracking and reporting system for Demand Side Management programs tracking leads and customer rebates	6	System is hosted externally and internally customized. Application migrated in 2023 to latest Lightning technology.
ITRONFCS	Application used to facilitate the meter reading process in EGD and Union rate zones	2	Software was upgraded in 2019. Consolidation of services was completed to single platform in 2021.
Lantern	Application for leak survey and corrosion survey inspection-related work	1	Application was commissioned in 2024.

[52] Copperleaf is not listed as it is managed by Corporate Services.
[53] As of January 2024.

Application	Application Overview	Age (Years)	Application State
PiMSlider	Application for analyzing asset condition data and the optimal lifespan of assets	5	Hardware is currently under warranty. Software is current and supported.
Powerspring (formerly Metretek)	Application providing automated meter readings for large volume customers in the EGD rate zone	4	Hardware and software were upgraded to current and supported versions in 2017.
ProjectWise	Managed environment for EGI employees in the Union rate zones to deposit, store, retrieve and allow for the disposition of engineering records	5	Application was upgraded in 2020 to maintain support.
PureConnect	Call centre application for call management in EGD and Union rate zones	2	Software and hardware was upgraded in 2021.
SCADA	Supervisory control and data acquisition systems that monitor and control underground transmission pipelines	2	Hardware was upgraded in 2019 as part of the GDS control centre migration and SCADA consolidation. Software was upgraded in 2020.
Irth Utilisphere	Locate tracking application used through Ontario One Call	1	Application was commissioned in 2024.
Work and Asset Management (WAMS)	Application to manage work and assets	5	Functional changes and technical upgrades were completed in 2023.

Table 6.6-5 summarizes the key developed applications used at EGI and outlines their current state and condition.

Table 6.6-5: Application State – Key Developed Applications[54]

Application	Application Overview	Age (Years)	Application State
Capital and O&M Management (COMMS)	Application suite for managing EGI capital investments	11	Hardware is currently under warranty. Software was upgraded in 2018.
Classify Allocation Report and Exchange (CARE and CARE.Net)	Nominations and scheduling system for gas storage, transportation, and capacity planning and includes direct purchase and unbundled in the Union rate zone	26	Application is aging; replacement is needed in order to ensure business continuity, mitigate risk of service outages, degraded performance, and cybersecurity risks.
Construction Administration Records System (CARS)	Application managing construction work orders for new customer service lateral attachments	21	This application was replaced by the Asset Work Management system in 2022.
Contrax	Application used to create, renew, manage and bill non-cycle large volume customers. Includes direct purchase and storage & transportation in the Union rate zone	3	Hardware is currently under warranty. Software is current and supported.

[54] As of January 2024.

Application	Application Overview	Age (Years)	Application State
Cross Bore Risk Mitigation	Analytics tool used to assess the probability of cross bores	3	Hardware is currently under warranty. Software is current and supported.
Customer Connections Worksuite	Application for managing Customer Connections information	5	This application was replaced by the Asset Work Management system in 2022.
Energy Cost Reporting (EnCore)	Application used to develop cost models for energy supply	7	Hardware is currently under warranty. Software is current and supported.
Enerline (formerly Unionline)	Secure web-based tool providing online services to contract customers	21	Application is aging; replacement is needed in order to ensure business continuity, mitigate risk of service outages, degraded performance, and cybersecurity risks.
EnTrac	Management software for large volume and direct purchase contracts in the EGD rate zone	17	Hardware was out of warranty in 2021 and moving to Cloud platform. Software is current and supported.
Field Record Access (FRA)	Application used to locate asset information	2	Application is aging; replacement is needed in order to ensure business continuity, mitigate risk of service outages, degraded performance, and cybersecurity risks.
Finance Business Analysis (FBA)	Data warehouse for reconciliation of customer consumption	6	Hardware is currently under warranty. Software is current and supported.
GetConnected	Tool used to submit natural gas services requests online	11	This application was integrated with the eApp application used in the EGD rate zone in 2022 as part of EGI integration.
iViewer	Image repository for as-laid drawings, scans of service tickets, and field notes	11	Hardware is currently under warranty. Application software was upgraded in 2020 to maintain support.
Land Management (rowAMPS)	Application to manage land/property and municipal taxation work	4	Cloud solution as a service offering was implemented in 2017.
Revenue Analysis and Volume Estimation (RAVE)	Application for volumetric analysis, estimation, and budgeting	17	Hardware is currently under warranty. Software is current and supported.
Unbundled Rate Compliance (URICA)	Application to request and track unbundled services as per Natural Gas Electricity Interface Review (NGEIR) direction in the EGD rate zone	14	Application is aging; replacement is needed in order to ensure business continuity, mitigate risk of service outages, degraded performance, and cybersecurity risks.

6.6.6.1.3 RISK AND OPPORTUNITY

The major risks identified for packaged and developed applications are captured in **Table 6.6-3**.

6.6.6.2 Application Infrastructure Software

The Application Infrastructure Software asset subclass encompasses software products and tools that support and serve as the platform environment for TIS solutions. Some of the key components of this asset subclass include database software used to store data for various applications, application deployment and execution software, integration software used for interfacing between applications and services, and reporting tools.

6.6.6.2.1 CONDITION METHODOLOGY

The condition of application infrastructure software is evaluated on the following:

- Ability to meet the vendor's support life cycle strategy
- Ability to support key foundational software required for business applications

6.6.6.2.2 CONDITION FINDINGS

The current age and state of key application infrastructure software used at EGI is shown in **Table 6.6-6**.

Table 6.6-6: State of Application Infrastructure Software[55]

Application	Application Overview	Age (Years)	Year(s) Since Last Refresh	Application State
DataStage	Extract, transform and load (ETL) integration tool	19	2	Software is current and supported.
Harvest	Source code management software	21	9	Software is supported.
Microsoft SQL Server	Database management software	21	1	Software is current and supported.
Oracle Database	Database management software	22	1	Software was upgraded to current version in 2021.
Oracle Fusion	Integration suite providing interfacing capabilities between applications	8	1	Software is current and supported.
Oracle Golden Gate	Data replication software	6	1	Software is current and supported.
Oracle WebLogix Application Server	Management software for deployment and execution of applications	18	4	Software is current and supported.
Quality Assurance and Testing Suite	Testing and quality assurance tool suite	18	1	Software is supported.
SAP Business Objects Reporting Suite	Suite of reporting tools for business reporting and analytics	13	1	Software was upgraded to current version in 2021.
Team Foundation Server	Foundational software used for .Net application development	16	9	Software is supported.

[55] As of January 2024.

6.6.6.2.3 RISK AND OPPORTUNITY

The risks identified for application infrastructure software are the same as for packaged and developed applications (see **Table 6.6-3**).

6.6.7 Communications

6.6.7.1 Mobile Devices

Mobile devices consist of smartphones, cell phones and push-to-talk radios. The industry best practice to replace mobile devices is two to three years, which aligns with smartphone manufacturers' release cycles as well as the typical data plan contract.

6.6.7.1.1 CONDITION METHODOLOGY

The condition of mobile devices is not proactively monitored. If these assets experience failures or signs of operating issues, the user contacts the TIS Service Desk to log a ticket through ServiceNow. In addition, the TIS asset class relies on new hire and business needs requests for equipping new mobile device users.

6.6.7.1.2 CONDITION FINDINGS

Annually, there are approximately 1,230 mobile device requests, including both normal life cycle replacement and mobile device replacement due to hardware issues.

6.6.7.1.3 RISK AND OPPORTUNITY

The major risks identified for mobile device assets are:

- **Employee Productivity Benefit:** Inability of employees to be productive through inaccessibility of mobile devices.
- **Operational Risk:** Inadequate (or the lack of) mobile devices hinder the ability of employees to resolve emergency field situations, off-hours, and on-call situations, which may affect the reliable and safe operations of EGI's systems and networks and lead to loss of supply, extended outages, or may contribute to the severity of an incident and potentially endanger lives of the public.

6.6.7.2 Field Devices

Field devices include ruggedized laptops, Toughpads and Toughbooks, printers, plotters and multi-function devices, GPS devices, and truck modems for signal strengthening.

6.6.7.2.1 CONDITION METHODOLOGY

The following inputs are used to assess the condition and suitability of field devices:

- Incident requests logged in ServiceNow
- Feedback from end users on field device performance
- Business needs driving field devices requirements

6.6.7.2.2 CONDITION FINDINGS

Typically, field devices experience an elevated level of breakage and performance issues by the fourth year of use. Due to exposure to tough working conditions, field devices experience significant wear and tear, requiring maintenance on a frequent and reactive basis.

6.6.7.2.3 RISK AND OPPORTUNITY

The major risks identified for field devices are:

- **Employee and Contractor Health and Safety Risk / Public Health and Safety Risk:** Inadequate (or the lack of) field devices hinder the ability of employees to respond to emergency field situations due to device unavailability.
- **Financial Risk:** Lack of availability of field devices impacts productivity for employees.
- **Operational Risk:** Inadequate (or the lack of) field devices may result in productivity loss due to increased time for travelling between office and job sites, missed appointment windows, and extended service outages.

6.6.8 TIS Asset Class Strategies and Program Outcomes

6.6.8.1 Cloud Migration / Server Retirement Program (Dispose)

EGI has adopted cloud computing services to reduce outages from infrastructure failures, reduce cyberattack exposure, leverage a scalable core infrastructure, reduce technical debt, and improve business reliability, as assets reaching end of life create material operational risk for hosted systems. In addition, onsite license models are no longer available within the software industry.

Historically, EGI purchased its software licenses and IT infrastructure systems and would capitalize the costs and amortize them over time. In cloud computing, a cloud services user does not own the underlying assets, as the cloud subscription is expensed under the Operations and Maintenance (O&M) budget. The transition to cloud computing services results in higher O&M costs as spending shifts away from capital.

6.6.8.1.1 TYPES OF CLOUD SERVICES

EGI uses three types of cloud services:

1. **Software as a Service (SaaS)**
   - SaaS refers to software applications that are delivered over the Internet, on demand, and usually via subscription.
   - Cloud providers host and manage the software and associated infrastructure and handle maintenance (i.e., upgrades).
   - Users connect to applications over the Internet via web browser on smart devices or via personal computers (PCs).
   - Using this cloud delivery model, IT productivity costs, such as Microsoft Office 365, are charged back as O&M via Cost Allocation Methodology (CAM) and are no longer regarded as an Asset Management Plan (AMP) capital expenditure.
2. **Platform as a Service (PaaS)**
   - PaaS refers to cloud computing services that provide an on-demand environment that developers use to develop, test, deliver, and manage software applications.
   - PaaS allows developers to create web or mobile apps without the need to set up or manage the underlying infrastructure (i.e., servers, storage, networks, and databases).
   - SAP Canada is the external service provider administering the Customer Information System (CIS) application using this cloud delivery model.
   - Using this cloud delivery model, core infrastructure, server, and storage costs are charged back as O&M via CAM and are no longer regarded as capital expenditure.
3. **Infrastructure as a Service (IaaS)**
   - IaaS refers to scalable IT infrastructure from a cloud provider on a pay-as-you-go basis. Infrastructure components include servers, storage, and operating systems.
   - IaaS can be at a fixed or scalable capacity.
   - Using this cloud delivery model, core infrastructure, server, and storage costs are charged back as O&M via CAM and are no longer regarded as capital expenditure.

6.6.8.2 Infrastructure Strategy Outcomes

6.6.8.2.1 LAPTOP/DESKTOP RENEWAL PROGRAM (REPLACE)

EGI's renewal strategy is to replace laptops and desktops every four years. Industry best practice suggests replacing laptops and desktops every three years, in line with its warranty (also three years). EGI's strategy allows for one additional year past warranty expiration prior to replacement, reducing the overall capital cost of the laptop refresh cycle.

Defective or poorly performing laptops that are out of warranty are repaired if the problem is quickly determined and if the repair can be done cost-effectively. Otherwise, the device is replaced. The impact of repairing an out-of-warranty device includes productivity loss to the end user, technician repair time, and the cost of unbudgeted parts for repair. As more out-of-warranty devices fail over time, EGI's replacement strategy is most effective at balancing risk, cost, and performance for this group of assets.

The four-year replacement policy for laptops and desktops has been in place for the last 20 years and has proven to be sufficient and manageable from a resourcing perspective.

EGI follows both a proactive and reactive maintenance strategy for these assets, managed through ServiceNow.

Desktop sustainment equipment is provided on an as-needed, reactive basis. Desktop sustainment equipment is issued based on the following:

- Equipment is damaged, broken, or malfunctioning.
- Equipment is required based on an ergonomic assessment.
- Equipment is required for new employee and contractor hires.

EGI uses historical spend to project the capital requirements for the replacement of desktop sustainment equipment.

6.6.8.2.2 CORE INFRASTRUCTURE AND SECURITY RENEWAL PROGRAM (REPLACE)

EGI's strategy is to replace servers and appliances for core infrastructure and security infrastructure every five years. For most of their life (four years), these assets are under warranty. This strategy allows for a short, extended use of the asset past warranty expiration (one additional year) prior to replacement.

Defective or poorly performing servers and appliances that are out of warranty are repaired by the vendor through infrastructure maintenance contracts following warranty expiry. The impact of repairing an out-of-warranty device includes potential productivity loss to the end user due to applications being unavailable and the costs required for the infrastructure maintenance contracts. As more devices fail over time, EGI's replacement strategy is most effective at balancing performance, cost, and risk for this group of assets.

EGI follows both a proactive and reactive maintenance strategy for these assets, managed through ServiceNow and the hardware vendors.

6.6.8.3 Software Strategy Outcomes

6.6.8.3.1 APPLICATION INFRASTRUCTURE TECHNOLOGY OBSOLESCENCE PROGRAM (REPLACE)

The replacement strategy for packaged applications is driven by vendor release schedules specific to each application and changes in business requirements. A replacement and/or upgrade can also occur due to the vendor discontinuing software support or application enhancements.

The replacement strategy for developed applications is driven by forecast requirements for the business. Maintenance releases and software defect fixes are rolled out regularly to reactively maintain the performance of the application. Major enhancements and renewals are implemented for projected new or changing business requirements.

Applications are replaced when business requirements change or when a vendor ceases support for the application. As applications are developed or replaced, an increasingly important aspect of this work is the development of appropriate measures to address cybersecurity risk. EGI integration will drive a number of application replacements and migrations during the 2025 to 2034 timeline.

The following major packaged and developed applications have been identified for the next 10 years:

- Records Management Upgrade (2024 – 2027)

- Contract Market Harmonization and Contract Market Systems – Technology Obsolescence

For additional detail on these investments, see **Appendix A**.

6.6.8.3.2 APPLICATION INFRASTRUCTURE UPGRADE PROGRAM (MAINTAIN)

A proactive replacement strategy is in place for application infrastructure software, driven by forecast changes of existing software applications' business requirements.

The maintenance strategy is reactive; performance issues or software defects are addressed as they are identified.

6.6.8.4 Communications Strategy Outcomes

6.6.8.4.1 MOBILE DEVICE RENEWAL PROGRAM (REPLACE)

The TIS asset class strategy for mobile devices is to stay one release cycle behind manufacturer releases as mobile devices are available at a much lower cost. As such, mobile devices have a proactive replacement strategy of every three years driven by industry best practice and release cycles.

Mobile devices are reactively maintained to address performance issues and damaged/broken devices on an as-needed basis within the three-year replacement window. Approximately 500 devices are replaced annually as per the refresh strategy.

EGI uses historical spend to project the capital requirements for the replacement of mobile devices.

6.6.8.4.2 FIELD DEVICES RENEWAL STRATEGY (REPLACE)

The majority of field devices, such as ruggedized laptops, Toughbooks and Toughpads, have a four-year replacement strategy, based on industry best practices and EGI's condition experiences. Some assets (such as truck modems) do not have an industry-directed replacement cycle and are reactively replaced as they fail. TIS uses historical spend to project the capital requirements for the replacement of field devices.

6.6.9 Technology and Information Services Capital Expenditure Summary

The average annual capital spend is forecast to be $49MM (EGI), as summarized in **Table 6.6-7**. The TIS capital is further summarized as part of EGI's total 10-year capital plan in **Section 3**.

Table 6.6-7: TIS Capital Summary ($ Millions) – EGI

Asset Class Strategy	Program Name	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	10-Year Forecast
Maintain	Application Infrastructure Upgrades Program	6.6	27.3	25.4	15.6	14.4	18.1	14.9	19.9	8.5	14.0	164.7
Replace	Application Infrastructure Technology Obsolescence Program	55.6	48.0	28.7	20.8	10.5	8.4	8.0	5.8	4.1	4.8	194.8
	Core Infrastructure and Security Renewal Program	1.5	5.6	7.1	4.6	4.3	4.9	4.9	4.7	2.4	2.4	42.3
	Field Device Renewal Program	0.0	7.9	4.4	5.6	1.5	1.0	0.0	8.4	0.0	1.0	29.8
	Laptop/Desktop Renewal Program	7.6	4.7	5.7	6.9	4.3	4.6	4.7	5.9	4.7	4.8	53.8
	Mobile Device Renewal Program	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	6.0
Dispose	Cloud Migration/Server Retirement Program	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8
Total		73.8	94.1	71.9	53.9	35.6	37.6	33.0	45.4	20.3	27.6	**493.2**

7 Appendices

7.1 Appendix A

7.1.1 Investments Greater than $10 Million

A more detailed account for the investments in **Table 7.1-1** can be found in a separate Appendix A document in PDF format filed with the 2025 – 2034 Asset Management Plan document.

Table 7.1-1: Investments Greater than $10MM

Asset Class	Asset Strategy	Investment Category	Investment Name	25 – 34 Forecast (with overhead) ($million)	In-Service Dates
Distribution Pipe	Replace	Discrete	St Laurent Pipeline Replacement Project	172.0	2025 and 2026
	Maintain	Discrete	NPS 12 Martin Grove Rd Main Replacement: Lavington to St. Albans Rd.	24.8	2026
	Replace	Discrete	A10: Wilson Avenue, Toronto, VSM Replacement	61.0	2031
	Maintain	Discrete	Div_04: NPS 8 Port Stanley, London, Replacement	16.9	2026
Growth	Improve	Customer Growth	SRP2024_(20)Missisauga_Brampton_Wanless Dr/Hurontario St_Reinforcement_NPS8_3550m_XHP_&_20327A_Upgrade	12.3	2027
	Improve	Customer Growth	SRP2024_(07)Brantford/Waterloo_Listowel_Highway 23_Reinforcement_NPS6_7500m_1900kPa	11.1	2030
	Improve	Customer Growth	SRP2024_(20)Missisauga_Shelburne_Blind Line_Reinforcement_NPS8_15700m_XHP_&_3730322_Upgrade	36.5	2026
	Improve	Customer Growth	SRP2024_(20)Missisauga_Erin_Charleston Sideroad _Reinforcement_NPS8_7000m_XHP_&_21100A_Upgrade	14.3	2031
	Improve	Customer Growth	20024974 Mississauga Reinforcement Project	17.4	2026
	Improve	Customer Growth	SRP2024_(07)Brantford/Waterloo_Owen Sound_County Rd 40_Reinforcement_NPS12_11800m_4670kPa	36.8	2031
	Improve	Customer Growth	Hamilton Reinforcement Project	196.4	2028
	Improve	Programmatic	Kelfield Operations Centre - Land Purchase	25.3	2029

Asset Class	Asset Strategy	Investment Category	Investment Name	25 – 34 Forecast (with overhead) ($million)	In-Service Dates
Real Estate & Workplace Services	Improve	Programmatic	VPC Core and Shell	26.3	2031
	Improve	Programmatic	Station B New Building	18.3	2025
	Create	Programmatic	Thorold Operations Centre - New Building	23.2	2028
	Create	Programmatic	GTA West - New Build - Halton Hills	35.7	2032
	Improve	Programmatic	New London Site	40.8	2032
TIS	Replace	Programmatic	Contract Market Systems - Technology Obsolescence	49.4	2026
	Maintain	Programmatic	Records Management Upgrade (2024-2027)	13.2	2026
Compression Stations	Replace	Discrete	Dawn C Compression Lifecycle	147.2	2029
	Replace	Programmatic	Waubuno Compression Lifecycle - Core	31.8	2027
Distribution Stations	Replace	Programmatic	BRAN: 16U-601 Brantford Gate Station, Station Rebuild (Capital Maintenance), Proj# 57-22-701	11.9	2026
	Replace	Programmatic	SARN: 13F-220R Vidal St	12.5	2034
LNG	Replace	Programmatic	Hagar Cold Box	11.1	2032
	Replace	Programmatic	Hagar JVG Compressor Upgrade	27.0	2027
	Replace	Programmatic	Hagar KVGR and Cycle Mix Cooler	19.3	2027
Transmission Pipe & Underground Storage	Create	Discrete	Dawn Parkway Expansion Project (Kirkwall-Hamilton NPS 48)	213.0	2028
	Create	Discrete	Dawn Parkway Expansion Project (Dawn-Enniskillen NPS 48)	299.0	2030
	Create	Discrete	Panhandle Growth - Leamington Interconnect	86.1	2034
	Create	Discrete	Panhandle Growth	136.0	2031
	Create	Discrete	Panhandle Regional Expansion Project - Dawn Facilities	45.4	2025
	Maintain	Programmatic	Panhandle Line - Risk Mitigation	32.1	2028

7.2 Appendix B

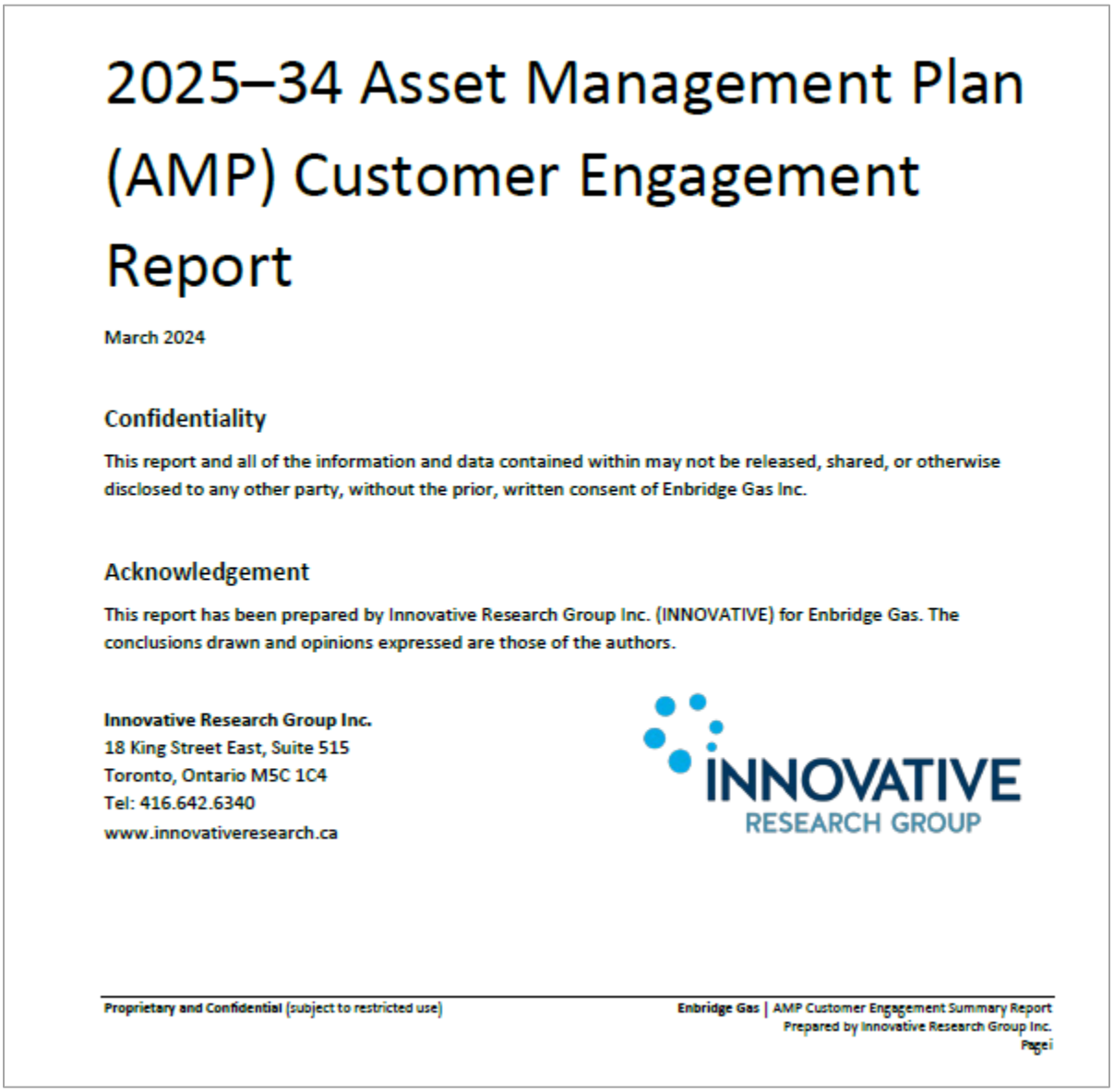
7.2.1 Integrated Resource Planning Screened Investments

A separate document in PDF format detailing the Integrated Resource Planning (IRP) Screened Investments has been filed with the 2025 – 2034 Asset Management Plan document.

7.3 Appendix C

7.3.1 2023 AMP Customer Engagement

This appendix, including the 216-page report described in **Figure 7.3-1** has been filed separately from the 2025 – 2034 AMP document with the OEB.



2025–34 Asset Management Plan (AMP) Customer Engagement Report

March 2024

Confidentiality

This report and all of the information and data contained within may not be released, shared, or otherwise disclosed to any other party, without the prior, written consent of Enbridge Gas Inc.

Acknowledgement

This report has been prepared by Innovative Research Group Inc. (INNOVATIVE) for Enbridge Gas. The conclusions drawn and opinions expressed are those of the authors.

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INNOVATIVE RESEARCH GROUP

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Figure 7.3-1: 2025 – 2034 AMP Customer Engagement Report Confidentiality Statement

8 Glossary

8.1 Terms and Definitions

The following is a list of terms found in this document and their definitions. Terms include acronyms and initialisms.

Table 8.1-1: Terms and Definitions

Term	Definition
AHR	Asset Health Review
AI	Adequacy Index
AIPM	Asset Investment Planning and Management
ALE	Asset Life Extension
AMI	Advanced Metering Infrastructure
AMP	Asset Management Plan
APUs	auxiliary power units
ASR	Asset Security Rating
AutoSol Communication Manager (UG)	Polling engine application for reading measurement information
Bcf	billion cubic feet
Bcm	billion cubic metres
BOG	boil-off gas
CAM	Cost Allocation Methodology
CARE CARE.Net	Classify Allocation Report and Exchange – Nominations and scheduling system for gas storage, transportation, and capacity planning and includes direct purchase and unbundled in the Union rate zone
CARS	Construction Administration Records System – Application managing construction work orders for new customer service lateral attachments
CCUS	carbon capture, utilization, and storage
CER	Canada Energy Regulator
CHBA	Canadian Home Builders Association
CIAC	Contribution in Aid of Construction
CIE	Community and Indigenous Engagement
CIS	Customer Information System – Customer care and billing applications (SAP, CIS and Banner)
CNG	compressed natural gas
COMMS	Capital and O&M Management – An application suite for managing EGI capital investments
Contrax	Application used to create, renew, manage and bill non-cycle large volume customers. Includes direct purchase and storage & transmission in the Union rate zone.

Term	Definition
Corrosion Survey (DNV GL SynerGi Pipeline)	Pipeline integrity software used in the Union rate zones for scheduling, tracking, and field collection of pipeline risk management data
Cross Bore Risk Mitigation	Analytics tool used to assess the probability of cross bores
COTS	commercial-off-the-shelf
CP	cathodic protection
critical equipment	Any equipment, of which if a failure were to occur, would hinder the gas compressor's ability to perform the function of compressing gas for the purpose of storage or transmission
CSA	Canadian Standards Association
Customer Connections Worksuite	Application for managing Customer Connections information
DataStage	Extract, transform and load (ETL) integration tool
DCF+	Discounted Cash Flow-plus
DCS	Distributed Control Systems
DCVG	Direct Current Voltage Gradient
DIMP	Distribution Integrity Management Program
DOC	depth of cover
DSA	designated storage area
DSM	Demand Side Management
eApp	A tool used to submit natural gas services requests online
EC	external corrosion
ECA	Environmental Compliance Approval
ECCC	Environment and Climate Change Canada
ECDA	external corrosion direct assessment
EDIMP	Enhanced Distribution Integrity Management Program
EFV	excess flow valve
EGD	legacy Enbridge Gas Distribution
EGI	Enbridge Gas Inc.
EGI Extranet	EGI external website for the EGD rate zone with self-service capabilities
EMD	electric motor drive
EnCore	Energy Cost Reporting – an application used to develop cost models for energy supply
ENERGY	Ministry of Energy and Electrification
Enerline (Formerly Unionline)	Secure web-based tool providing online services to contract customers
EnTrac	Management software for large volume and direct purchase contracts in the EGD rate zone

Term	Definition
ERW	electric resistance welded
ES	Expansion Surcharge
ESA	Electrical Safety Authority
ETSA	Energy Transition Scenario Analysis
EVCs	electronic volume correctors
FAST	Field Assessment Survey Tool
FBA	Finance Business Analysis – data warehouse for reconciliation of customer consumption
FCI	Facility Condition Index
FIMP	Facilities Integrity Management Program
FMEA	Failure Modes and Effects Analysis
FRA	Field Record Access – an application used to locate asset information
FTA	Fault Tree Analysis
functional subsystems	Equipment that is directly involved in the compression process of natural gas.
GDP	Gross Domestic Product
GFMAM	Global Forum on Maintenance & Asset Management
GHG	greenhouse gas
ESRI eGIS	Geographic Information System – an application for developing geographic views of EGD rate zone asset data
GetConnected	Tool used to submit natural gas services requests online
GIS Suite - G/Technology	Hexagon – an application for developing geographic views of Union rate zone asset data
GMAS	Collection and validation system for measurement information in the Union rate zones
GPS	Global Positioning System
GTA	Greater Toronto Area
GTI	Gas Technology Institute
GVW	gross vehicular weight
Harvest	Source code management software
HCAs	high consequence areas
HDV	heavy-duty vehicle
HMI	Human Machine Interface
HPC	High Performance Coating
HVAC	Heating, Ventilation and Air Conditioning
IAIR	Independent Asset Integrity Review
IaaS	Infrastructure as a Service refers to scalable IT infrastructure from a cloud provider on a pay-as-you-go basis.

Term	Definition
IAM	Institute of Asset Management
ICM	Incremental Capital Module
IESO	Independent Electricity System Operator
ILI	in-line inspection
IMP	Integrity Management Program
IRC	The Institute for Research in Construction
IRP	Integrated Resource Planning
IRPA	Integrated Resource Planning alternative
ISIR	Individual Specific Individual Risk
ITRONFCS	Application used to facilitate the meter reading process in EGD and Union rate zones
iViewer	Image repository for as as-laid drawings, scans of service tickets and field notes
JUT	joint utility trenches
LCU	Loss of Critical Unit
LDAR	leak detection and repair
LDIW	low ductile inner wall
LDV	light-duty vehicle
LFL	lower flammability limit
LNG	Liquefied Natural Gas
LTC	Leave to Construct
LRP	Long-Range Plan
MCF	Mean Cumulative Function
MDV	medium-duty vehicle
MEC	Materials Evaluation Centre
MECP	Ministry of the Environment, Conservation and Parks
MENDM	Ministry of Northern Development and Mines
MFL	magnetic flux leakage
Microsoft SQL Server	Database management software
MOP	maximum operating pressure
MCCs	Motor Control Centres
MPAC	Municipal Property Assessment Corporation
MSAPR	Multi-Sector Air Pollutants Regulations
MUB	Multi-Unit Building
MXGI Program	Meter Exchange Government Inspection Program

Term	Definition
MXGS	Meter Exchange Government Sample
NCMH	normal cubic meter per hour
NDE	nondestructive examination
NGEP	Natural Gas Expansion Program
NGT	natural gas transportation
NOx	nitrogen oxide
NPS	nominal pipe size
NRC	National Research Council of Canada
NWT	nominal wall thickness
O/H	overheads
O&M	Operations and Maintenance
OBC	Ontario Building Code
OEB	Ontario Energy Board
OEM	original equipment manufacturer
OGSRA	Oil, Gas and Salt Resources Act
Oracle Database	Database management software
Oracle Fusion	Integration suite providing interfacing capabilities between applications
Oracle Golden Gate	Data replication software
Oracle WebLogix Application Server	Management software for deployment and execution of applications
OREDA	Offshore & Onshore Reliability Data
PaaS	Platform as a Service refers to cloud computing services that provide an on-demand environment that developers use to develop, test, deliver, and manage software applications.
PCs	Personal computers
PE	Polyethylene
PFM	Pressure Factor Metering
PHAs	Process Hazard Analyses
PHMSA	Pipeline and Hazardous Materials Safety Administration
PI	profitability index
PiMSlider	Application for analyzing asset condition data and the optimal lifespan of assets
PJ	petajoules
PLC	Programmable Logic Controller
PLPRs	property line post regulator sets
PM	preventive maintenance

Term	Definition
Powerspring (formerly Metretek)	Application providing automated meter readings for large volume customers in the EGD rate zone
PREP	Panhandle Regional Expansion Project
ProjectWise	Managed environment for EGI employees in the Union rate zones to deposit, store, retrieve and allow for the disposition of engineering records
PRV	pressure relief valve
psig	pounds per square inch gauge
PureConnect	Call centre application for call management in EGD and Union rate zones
QA	Quality Assurance
QMER	Quality Material Equipment Reports
QRA	Quantitative Risk Assessment
Quality Assurance and Testing Suite	Testing and quality assurance tool suite
RAM study	Reliability, Availability and Maintainability study
RAVE	Revenue Analysis and Volume Estimation – an application for volumetric analysis, estimation and budgeting
RCM	Reliability-Centred Maintenance
REWS	Real Estate and Workplace Services
RNG	Renewable Natural Gas
rowAMPS	Land Management – an application to manage land/property and municipal taxation work
RPM	Rate Process Method
RPP	Rolling Project Portfolio
RTU	remote terminal unit
SaaS	Software as a Service refers to software applications that are delivered over the Internet, on demand, and usually via subscription.
SAP Business Objects Reporting Suite	Suite of reporting tools for business reporting and analytics
SBD	system boundary diagram – a visual tool used to represent the equipment in the system, the equipment in the subsystems, and the interaction between subsystems
SCADA	Supervisory Control And Data Acquisition – systems that monitor and control underground transmission pipelines
SCG	slow crack growth
SDIMP	Storage Downhole Integrity Management Program
SES	System Expansion Surcharge
SIL	Sarnia Industrial Line
SLPRP	St. Laurent Pipeline Replacement Project
SMA	subject matter advisor

Term	Definition
SMO	sales meter only
SMOC	South Merivale Operations Centre
SMYS	Specified Minimum Yield Strength
SR	Societal Risk
SRP	System Reinforcement Plan
STO	Storage and Transmission Operations
subassemblies	Group of equipment further subdivided from a subsystem
subsystems	Group of equipment that works together to serve a single function within the greater system
supporting subsystems	Equipment that is not directly involved in the compression of natural gas but is critical to the operation of the functional subsystems
system	Critical equipment list (regarding Asset Health Review)
Team Foundation Server	Foundational software used for .Net application development
TCS	Temporary Connection Surcharge
TGS	Toronto Green Standard
TIMP	Transmission Integrity Management Program
TIS	Technology and Information Services
TOC	Technology and Operations Centre
TPUS	Transmission Pipe and Underground Storage
TSA	Transportation Security Administration
TSSA	Technical Standards & Safety Authority
TTC	Toronto Transit Commission
TWG	Technical Working Group
UFG	unaccounted for gas
Union	legacy Union Gas
UPS	Uninterruptible Power Supply
URICA	Unbundled Rate Compliance – an application to request and track unbundled services as per Natural Gas Electricity Interface Review (NGEIR) direction in the EGD rate zone
USP	Utility System Plan
VPC	Victoria Park Centre
VRA	vehicle refueling appliances
WAMS	Work and Asset Management application to manage work and assets
" wc	inches water column (a measurement)
WCSB	Western Canadian Sedimentary Basin

Appendix A

Investments Greater than $10 Million

2024-10-31

Report

—

Company: Enbridge Gas Inc.

Owned by: Asset Management Governance Department

Controlled Location: Asset Management TeamSite

ENBRIDGE

Investment Summary Report

Investment Codes	Report Start Year	Number of Years
742622, 10294, 10293, 10288, 10290, 742761, 10292	**2025**	**10**

Investment Name

St. Laurent Pipeline Replacement Project

Investment Description

Issue/Concern/Opportunity:
Vintage steel mains have shown signs of declining health due to the cumulative effect of poor manufactured coating performance, construction practices, latent third-party damages to pipe coating, and the effect of stray currents from transit infrastructure such as subway and streetcars. The current failure projection model is forecasting an exponential increase in the number of corrosion-related failures, while the Copperleaf value framework and the 40-year risk projection are showing an increase in the safety risk associated with steel main failures. In addition to age, vintage steel mains are also susceptible to accelerated degradation and/or higher risk of third-party damage in the following ways:
- Compression couplings
- Shallow blow-off valve assemblies that could be damaged during excavation activities
- Reduction in the original depth of cover
- Continuous exposure to road salt and seasonal ground movement on bridge crossing assets
- Lack of cathodic protection with pipe casings that could result in corrosion, causing excessive stress or shorts on the carrier pipe that is in contact with the casing, which could lead to the loss of containment
- Manufacturing defects associated with seam welds and fittings that are weak points in the distribution system and could result in a loss of containment due to prolonged exposure to stress and corrosion
- Latent damages to pipe coatings that were never reported to EGI for repair and became active corrosion sites, which could hamper the effect of the corrosion protection system and result in accelerated corrosion and potential loss of containment.

Justification:
Replacement of the natural gas pipelines is required to address potentially significant consequences to safety and operational reliability on the St. Laurent Pipeline System revealed through the recent Integrity and Risk program. These drivers have been captured and prepared as part of the re-filing of the LTC application (EB-2024-0200)

Recommended Alternative Description

Scope of Work:
Project comprising of investments (742622, 10294, 10293, 10288, 10290, 742761, 10292) to construct approximately 17.6 km of natural gas pipeline to replace 14.4 km of existing natural gas pipelines along St. Laurent Boulevard, Sandridge Road, and Tremblay Road in the City of Ottawa. Project includes plans to construct ancillary facilities as well.

Install:
- 10.0 km of Nominal Pipe Size (NPS) 12 Extra High Pressure (XHP) Steel Coated (ST) natural gas pipeline.
- 2.5 km of NPS 16 XHP ST natural gas pipeline.
- 0.3 km NPS 6 XHP ST natural gas pipeline
- 0.9 km NPS 6 Intermediate Pressure (IP) polyethylene (PE) natural gas pipeline.
- 3.9 km of NPS 4 IP PE natural gas pipeline.

Investment Type	Project (EGI)	Planning Portfolio	EGD - Core - DP - Main Replacement - Vintage Steel Mains Replacement Program
Investment Stage	Executing		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	60 - Ottawa
	Asset Program (EGI)	DP - Main Replacement
	Asset Class (EGI)	Distribution Pipe
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	Yes
	Intolerable Risk (EGI)	Yes
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)	
St. Laurent Pipeline Replacement Project									$	159,967,170
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ 71,447,819	$ 71,304,874	$ 7,235,265	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ 1,283,806	$ 7,398,682	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
11443	**2025**	**10**

Investment Name

NPS 12 Martin Grove Rd Main Replacement: Lavington to St. Albans Rd.

Investment Description

Issue/Concern/Opportunity:
Vintage steel mains have shown signs of declining health due to the cumulative effects of poorly manufactured coatings, construction practices, latent third-party damages to pipe coatings, and the effect of stray currents from transit infrastructure (such as the subway and streetcars). The current failure projection model forecasts an exponential increase in the number of corrosion-related failures. The Copperleaf value framework and the 40-year risk projection show an aggressive increase in the safety risk associated with steel main failures. In addition to age, vintage steel mains are also susceptible to accelerated degradation and/or higher risk of third-party damage in the following ways:
- Compression couplings
- Shallow blow-off valve assemblies that could be damaged during excavation activities
- Reduction in the original depth of cover
- Continuous exposure to road salt and seasonal ground movement on bridge-crossing assets
- Lack of cathodic protection on pipe casings that could result in corrosion and could lead to the loss of containment
- Manufacturing defects associated with seam welds and fittings that could result in a loss of containment due to prolonged stress and corrosion
- Latent damages to pipe coatings that were never reported to EGI for repair and became active corrosion sites, resulting in accelerated corrosion and potential loss of containment.

Site-Specific Concerns: Martin Grove to St. Albans Road: Address NPS 12 pipe from Lavington Drive South to Burnhamthorpe Road, then west to Ashbourne Drive, then following Auckland Road south to St. Albans Road.

There are over 360 service connections that will be removed from the high-pressure (HP) steel main and an intermediate pressure (IP) polyethylene (PE) subsystem installed to reconnect these customers. Depth of cover (DOC) has been identified as a significant concern for these main segments as identified by 2018 and 2019 DOC surveys that found over 52% of the survey locations had DOC less than 90 cm, with 77 survey locations measuring less than 60 cm of cover. Poor DOC can lead to increased third-party damages. Additional risk factors include two unrestrained compression couplings (CCs), nine restrained CCs, and three suspect valves where, due to their installation dates, may have been tied in using unrestrained CCs (as discovered by an Integrity Assessment showing significant correlation between valves of this vintage with unrestrained CC tie-ins).

Cathodic protection history for the past 20 years shows that over 15% of the readings taken each year were below the minimum requirements. Poor cathodic protection levels can lead to corrosion.

Assets: NPS 12 pipe from Lavington Drive south to Burnhamthorpe Road, then west to Ashbourne Drive, then following Auckland Rd. South to St. Albans Road.

Project Timing & Execution Risks: Moratoriums and easements.

Related Investment Code: 10086.

Recommended Alternative Description

Scope of Work: Replacement of approximately 6.4 km of NPS 12 steel main from Martin Grove Road and Lavington Drive South to Burnhmthorpe Rd, then west to Ashbourne Drive, then south to Auckland Road and St. Albans Road. Approximately 360 services are to be reconnected to a new IP PE sub-system.

Resources: Enhanced inspection work by EDIMP taking place in 2024. Other resources for the Phase 2 construction are to be determined.

Solution Impact: Main replacement project identified by Asset Management - pipelines as high priority. Replacement is required due to age, pipeline condition and enhanced (EDIMP) inspection & risk assessment results.

Investment Type	Project (EGI)	Planning Portfolio	EGD - Core - DP - Main Replacement - Vintage Steel Mains Replacement Program
Investment Stage	Short Term Planning		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	10 - Toronto
	Asset Program (EGI)	DP - Main Replacement
	Asset Class (EGI)	Distribution Pipe
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	No
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)	
NPS 12 Martin Grove Rd Main Replacement: Lavington to St. Albans Rd.									$	23,000,000
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ -	$ 2,500,000	$ 19,500,000	$ 1,000,000	$ -	$ -	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

ENBRIDGE

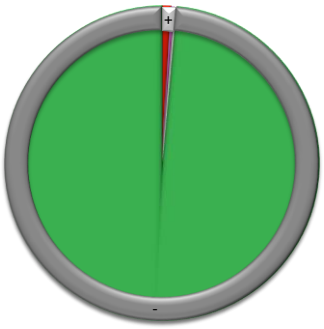
Investment Summary Report

Investment Code	Report Start Year	Number of Years
11443	**2025**	**10**

Investment Name

NPS 12 Martin Grove Rd Main Replacement: Lavington to St. Albans Rd.

Alternative Value - Recommended



Value Function Measure	Value
Public Safety Risk	151
Reputational Risk	59
Financial Risk	33
Employee And Contractor Safety Risk	15
Environmental Risk And Remediation	3
Operational Risk	0
Avoided GHG Emissions (CA)	0
Budget Savings OPEX (CA)	0
Cost Avoidance CAPEX (CA)	0
Cost Avoidance OPEX (CA)	0
Total Investment Cost (CA)	(17,893)
Total	**(17,632)**

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
100339	**2025**	**10**

Investment Name

A10: Wilson Avenue, Toronto, VSM Replacement

Investment Description

Issue/Concern/Opportunity:
Phased replacement of 12 gas main from Bathurst Ave. to Walsh Ave. Main is currently protected by Rectifier.
- The main on Wilson Ave. has numerous Pumpkins that have been installed on it. Starting from Wendell Ave. and going east towards Bathurst St.
- Corrosion on main has been an issue on Wilson Ave. due to stray current from Toronto Transit Commission (TTC) which continues to be an ongoing concern.
- The service connections have field-applied coatings which leaves a concern for future corrosion issues on this main.
- Regarding the main in the middle of the road on Wilson Ave., Curbside Valve Tee (CVT) repairs are problematic due to the location of the main.

Assets:
There is 8.5 km of NPS 12 HP Vintage Steel Main (VSM) installed between 1955 and 1964 on Wilson Ave. between Walsh Ave. and Bathurst St., Toronto.

Recommended Alternative Description

Scope:
Replace approximately 8.5 km of 12-inch SC HP Vintage Steel Gas Main, like for like. There are approximately 384 services and 746 customers. In addition, install 2,000 m of NPS 2 PE IP and 400 m of NPS 4 PE IP, eliminating 136 HP services of the 384 existing HP services.
Resources: NPL to execute.
Solution Impact: Eliminate vintage steel main, reduce the number of HP services attached and reduce corrosion and coding deficiencies.
Project Timing & Execution Risks: tentative construction window 2029 - 2031
- TRCA permit is required.
- Moratorium
- Easement is required for the Humber River Crossing.
- Major Crossings - CP Rail, 400 Hwy, Humber River, Metrolinx – Barrie Line, the Allen, and 401 off ramp.

Q3 2024 update: Following the preliminary results of the enhanced (EDIMP) inspection which discovered 17 critical phase 1 features (>70% metal loss) in 2024, a sectional replacement work (Wilson Avenue (Dufferin - Billy Bishop) Replacement - 746426) was immediately set up to replace a 450m section along Wilson Ave between Dufferin St and Billy Bishop Way. The full replacement scope still remains unchanged until more information is provided from EDIMP.

Related Investment Code - 746426

Investment Type	Project (EGI)	Planning Portfolio	EGD - Core - DP - Main Replacement - Vintage Steel Mains Replacement Program
Investment Stage	Executing		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	10 - Toronto
	Asset Program (EGI)	DP - Main Replacement
	Asset Class (EGI)	Distribution Pipe
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	No
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)
A10: Wilson Avenue, Toronto, VSM Replacement									$ 60,881,988
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ -	$ -	$ -	$ 500,000	$ 2,000,000	$ 54,800,000	$ 3,000,000	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

ENBRIDGE

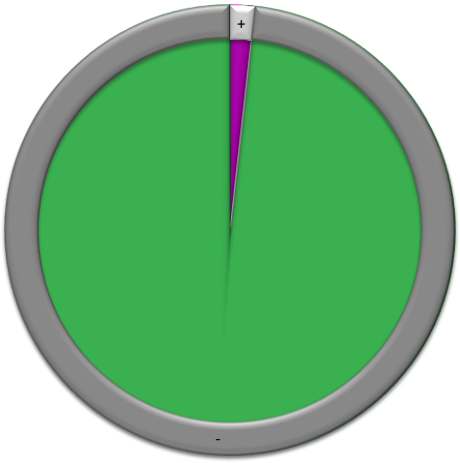
Investment Summary Report

Investment Code	Report Start Year	Number of Years
100339	**2025**	**10**

Investment Name

A10: Wilson Avenue, Toronto, VSM Replacement

Alternative Value - Recommended



Value Function Measure	Value
Financial Risk	627
Operational Disruption Risk (Gas) (CA)	46
Public Safety Risk	4
Reputational Risk	1
Avoided GHG Emissions (CA)	0
Budget Savings OPEX (CA)	0
Cost Avoidance CAPEX (CA)	0
Cost Avoidance OPEX (CA)	0
Employee And Contractor Safety Risk	0
Environmental Risk And Remediation	0
Budget Savings CAPEX (CA)	0
Revenue Impact (CA)	0
Operational Risk	0
Energy Efficiency (CA)	0
Gas Storage Reliability (CA)	0
Operational Disruption Risk (Liquids) (CA)	0
Total Investment Cost (CA)	(37,368)
Total	**(36,690)**

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
31018	**2025**	**10**

Investment Name

SRP2024_(20)Missisauga_Brampton_Wanless Dr/Hurontario St_Reinforcement_NPS8_9900m_XHP_&_20327A_Upgrade

Investment Description

Extensive growth along NW 2103 in the North redirects the gas supply coming from Bondhead Gate Station away from Caledon and Erin, forcing pressures to fall below minimum system pressure (MSP) in these areas at design conditions. Reinforcement from the south allows for Brampton Gate to have a greater impact in supplying these regions, thus ensuring the pressures in these areas stay above MSP of 485 kPa.

Recommended Alternative Description

Extensive growth along NW 2103 in the North redirects the gas supply coming from Bondhead Gate Station away from Caledon and Erin, forcing pressures to fall below MSP in these areas at design conditions. Reinforcement from the south allows for Brampton Gate to have a greater impact in supplying these regions, thus ensuring the pressures in these areas stay above MSP of 485 kPa.

Station modification and pipe reinforcement required to maintain system pressures due to growth. This includes the following:
- Approximately 1400m of 8" ST XHP pipe looped around existing pipe on Wanless Dr from McLaughlin Rd to Hurontario St.
- Approximately 8500m of 8" ST XHP pipe looped around existing pipe on Hurontario St from Wanless Dr tonorth of King St.

Investment Type	Project (EGI)	Planning Portfolio	EGD - Core - Growth - System Reinforcement
Investment Stage	Short Term Planning		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	20 - Mississauga
	Asset Program (EGI)	GTH - System Reinforcement
	Asset Class (EGI)	Growth
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	Yes
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name	Net Base Capex O (CA) (without overheads)
SRP2024_(20)Missisauga_Brampton_Wanless Dr/Hurontario St_Reinforcement_NPS8_9900m_XHP_&_20327A_Upgrade	$ 11,300,000

Account Type	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Base CAPEX O	$ 500,000	$ 1,700,000	$ 9,000,000	$ 100,000	$ -	$ -	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
31019	**2025**	**10**

Investment Name

SRP2024_(07)Brantford/Waterloo_Listowel_Highway 23_Reinforcement_NPS6_7500m_1900kPa

Investment Description

Project Specific:
- Significant Growth in the area
- Area of work is in ideal soil conditions and no rock encountered along proposed pipeline route.
- Entire route/construction area for the pipeline is within the Right of Way (ROW).
- No costs allocated for tree clearing.
- The method of construction is expected to be a mix of open trench and Horizontal Directional Drill (HDD) (for major road crossings and watercourses). The amount of HDD required will be confirmed in the Class 4 cost estimate stage when the location of the proposed running line is determined.
- The proposed work is within the Maitland Valley Conservation Authority regulated areas; however this estimate does not include any environmental mitigation. If identified during the Environmental Assessment, it may impact the cost.
- OEB Leave to Construct (LTC) application is required.
- No other special permits and/or other environmental permits are anticipated.
- No tipping fee for contaminated soil, pole support, or tree clearing is included.
- Assumed no major conflicts with other infrastructure or buried utilities at the site.
- No provision for Temporary Land Use (TLU) or any other land costs.
- No provision for extensive traffic control.
- Assumed no station modifications are required.

Recommended Alternative Description

System reinforcement by looping the existing NPS 3 & 4 main between Station 22Q-401R (43.760797, -80.956279) and Station 21Q-101R (43.70467, -80.989646) with an NPS 6 ST 1900 kPa pipeline. Approximate length of the reinforcement is 7.5 km.

Investment Type	Project (EGI)	Planning Portfolio	EGD - Core - Growth - System Reinforcement
Investment Stage	Short Term Planning		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	Div_07 - Waterloo
	Asset Program (EGI)	GTH - System Reinforcement
	Asset Class (EGI)	Growth
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	Yes
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name	Net Base Capex O (CA) (without overheads)
SRP2024_(07)Brantford/Waterloo_Listowel_Highway 23_Reinforcement_NPS6_7500m_1900kPa	$ 11,000,000

Account Type	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Base CAPEX O	$ -	$ -	$ -	$ -	$ 1,000,000	$ 10,000,000	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
30500	**2025**	**10**

Investment Name

SRP2024_(20)Missisauga_Shelburne_Blind Line_Reinforcement_NPS10_15700m_XHP_&_3730322_Upgrade

Investment Description

Issue/Concern/Opportunity: Inlet to Ida and Hanbury district station (Dundalk) has dropped below system minimum requirements. Gas volume and flow will be diminished with a potential to limit supply to existing and future customers. There is potential for loss of supply to existing customers during peak period demands.

Assets: Pipe and district station

Recommended Alternative Description

NW 2103 Updated Reinforcement SRP (2024)

Scope of Work: This investment pertains to the 15.7 km System Reinforcement Plan (SRP) project identified in 2024, an update to the original Reinforcement scoped in 2022.
Install NPS 10 XHP gas main from Highway 10 and Sideroad 10, along Sideroad 10 and Blind Line, to Sideroad 20. Install NPS 10 XHP gas main from Blind Line and Sideroad 20, along Blind Line and Sideroad 30/County Rd 11, to Devonleigh Dr. Modifications are required to Station 3730322 (Hwy 10 and Cty Rd 10 Feeder), which will be relocated to the intersection of Blind Line and Sideroad 20.

Investment Type	Project (EGI)	Planning Portfolio	EGD - Core - Growth - System Reinforcement
Investment Stage	Executing		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	20 - Mississauga
	Asset Program (EGI)	GTH - System Reinforcement
	Asset Class (EGI)	Growth
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	Yes
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)	
SRP2024_(20)Missisauga_Shelburne_Blind Line_Reinforcement_NPS10_15700m_XHP_&_3730322_Upgrade									$	33,294,333
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ 2,500,000	$ 29,500,000	$ 500,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
30501	**2025**	**10**

Investment Name

SRP2024_(20)Missisauga_Erin_Charleston Sideroad _Reinforcement_NPS8_3500m_XHP_&_21100A_Upgrade

Investment Description

Issue/Concern/Opportunity: Inlet to Shamrock & HWY 24 district station (Erin) has dropped below system minimum requirements. Gas volume and flow will be diminished with a potential to limit supply to existing and future customers. There is potential for loss of supply to existing customers during peak period demands. Pressures fall well below the 100 psig minimum system pressure (MSP) at the tail end of NW 2103 in Erin due to significant projected growth within the town of Erin, Ontario. Reinforcement has been scoped out to achieve an inlet pressure of 485 kPa (70 psi) into Stn 21100A to reduce the length required. Install pipe to improve pressure for downstream station inlet - Network 2103 (i.e., 400 psig system) low pressures modeled at inlet to Erin Stn21100A (74.8psig).

Assets:
Pipe-3500m of looped 8" ST XHP pipe along Charleston Sideroad from Hurontario St to Shaws Creek Road
Station- Upgrade Station 21100A (Shamrock & Hwy 24 District)

Recommended Alternative Description

400psi network 2103 modeled low pressure at inlet to Erin Stn21100A is 74.8psi in 2030. After Ph1 reinforcement it'll drop to 82psi again in 2032.

3.5km NPS 8 XHP on Charles Sideroad from existing NPS 4 XHP near Hwy10 to the west, in parallel with existing NPS 4 XHP

Investment Type	Project (EGI)	Planning Portfolio	EGD - Core - Growth - System Reinforcement
Investment Stage	Long Term Planning		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	50 - Barrie
	Asset Program (EGI)	GTH - System Reinforcement
	Asset Class (EGI)	Growth
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	Yes
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)	
SRP2024_(20)Missisauga_Erin_Charleston Sideroad _Reinforcement_NPS8_3500m_XHP_&_21100A_Upgrade									$	13,400,000
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ 1,300,000	$ 11,300,000	$ 100,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
742201	**2025**	**10**

Investment Name

Mississauga Reinforcement Project

Investment Description

Issue/Concern/Opportunity: This project is intended to firm-up existing interruptible contract parameters to replace existing coal as main fuel source for the commerical customers within the City of Mississauga. Various potential alternatives, scopes and in service date (ISD) are currently being assessed by the project team; this Copperleaf investment will be revised as updates and better information becomes available over time. GDS is evaluating facility and non-facility alternatives to serve incremental natural gas demandsommerical customers within the City of Mississauga.

Justification: Potential new large industrial customers as a result of converting from coal to natural gas.

Recommended Alternative Description

Scope of Work: GDS is evaluating facility and non-facility alternatives to serve incremental natural gas demands from large customers in Mississauga. While alternatives evaluation is ongoing the following potential reinforcement scope has been assumed: Approximately 3.1 km of new NPS 6 ST pipe is required and rebuilding of both customer stations.

Solution Impact: Potential new large industrial customers as a result of converting from coal to natural gas.

Project Timing & Execution Risk: Q4 2026 ISD. Execution risks include OEB approval timelines and long lead material times.

Investment Type	Project (EGI)	Planning Portfolio	EGD - Core - Growth - System Reinforcement
Investment Stage	Executing		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	20 - Mississauga
	Asset Program (EGI)	GTH - System Reinforcement
	Asset Class (EGI)	Growth
2. Compliance	Compliance Investment	
	Compliance Justification & Code	
3. Must Do	Must Do Investment	Yes
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name	Net Base Capex O (CA) (without overheads)
Mississauga Reinforcement Project	$ 16,000,000

Account Type	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Base CAPEX O	$ 1,500,000	$ 13,000,000	$ 1,000,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
8701	**2025**	**10**

Investment Name

Kelfield Operations Centre - Land Purchase

Investment Description

Issue/Concern: The Kelfield office, owned by Enbridge Gas Inc. (EGI), is in poor physical condition and is considered obsolete in its functionality and utilization. It is an old facility with an approximate age of 56 years.

Physical Obsolescence: The acceptable EGI standard for the physical condition is a Facility Condition Index (FCI) of 0 to 5%. The current FCI of the facility based on this study is 10.47%. Therefore, the physical condition of the facility does not meet EGI acceptable standards.

Functional Obsolescence – Building: The acceptable EGI standard for the functional condition is 0. A functional condition between 0 and 49% is considered correctable at the current location. The current facility Adequacy Index (AI) is 71%. Based on the FCI/AI graph, the current recommendation for the existing facility is to increase the site area by purchasing the abutting property, demolish existing building, and rebuild the facility on the combined sites to accommodate current EGI standards.

Functional Obsolescence – Site: The site does not meet operational requirements for size and vehicular circulation. The yard has only one point of access. The yard size is smaller than EGI standard yard size requirements. The current yard size is 0.3 acres. EGI standard yard size is 2.5 acres. The existing building requires expansion by approximately 7,200 square feet to meet the need for current staff and EGI functional requirements. Building addition on the property entails further reduction in the yard and parking areas. Both the building and site area are too small to meet current EGI standards. The current building is approximately 7,724 square feet and the ideal building size, based on EGI design standards, is estimated to be 14,924 square feet, with a site area of approximately five acres. There is no opportunity for building expansion at the current location. It is understood that the location of the facility works well for EGI operations.

Assets: 40 Kelfield St., Etobicoke, ON.

Recommended Alternative Description

Scope of Work:
The assets in scope are located at 40 Kelfield St., Etobicoke, ON. The nature of work is to purchase adjacent property.

Solution Impact:
Purchasing the extra land will ensure adequate yard area for current activities.

Timing & Execution Risks:
The project duration is 3 months (i.e., 0 – 3 months for site acquisition).

Expenditures:
The total cost for the project is $25M net capital. The project costs are based on a Class 5 estimate.

Investment Type	Project (EGI)	Planning Portfolio	EGD - Core - Real Estate & Workplace Services - Furniture/Structures & Improvements
Investment Stage	Short Term Planning		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	10 - Toronto
	Asset Program (EGI)	REWS - Furniture/Structures & Improvements
	Asset Class (EGI)	Real Estate & Workplace Services
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	No
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)	
Kelfield Operations Centre - Land Purchase									$	25,000,000
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ -	$ -	$ -	$ -	$ 25,000,000	$ -	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

ENBRIDGE

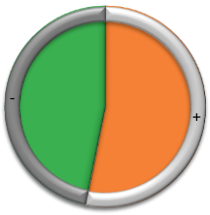
Investment Summary Report

Investment Code	Report Start Year	Number of Years
8701	**2025**	**10**

Investment Name

Kelfield Operations Centre - Land Purchase

Alternative Value - Recommended



Value Function Measure	Value
Cost Avoidance OPEX (CA)	18,942
Cost Avoidance CAPEX (CA)	0
Budget Savings CAPEX (CA)	0
Budget Savings OPEX (CA)	0
Revenue Impact (CA)	0
Total Investment Cost (CA)	(16,680)
Total	**2,262**

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
8782	**2025**	**10**

Investment Name

VPC Core and Shell

Investment Description

Issue/Concern: The building shell and core for the VPC facility is over 50 years old. The tower building was constructed in or around 1968 as a two-storey building with an addition in 1978 that included floors 3 to 5. The VPC facility houses over 1,200 employees. It is an owned facility that is currently undergoing renovations.

Physical Condition: Currently safe, ongoing periodic structural review required.

Functional Condition: Failed performance as an insulator and barrier to the outdoors, water and vapour intrusion, and comfort and energy efficiency is compromised.

Proposed Activity: Envelope replacement - high performance curtain wall, new shell with very high levels of glazing allowing increased daylight and views; change from 30% today to 60 – 80% penetration of light.

Assets: 500 Consumers Rd., North York, ON

Related Program: N/A

Recommended Alternative Description

Scope of Work: The assets in scope are located at 500 Consumers Rd., North York, ON. The nature of work is the removal and replacement of the 50-year-old exterior envelope on the tower and the replacement of core mechanical and electrical systems. This project calls for correcting physical and functional deficiencies by renovating and renewing the existing facility. This is the preferred strategy since the Facility Condition Index (FCI) and Adequacy Index (AI) show the building and site deficiencies are correctable by the following activities:
- Renewing the building's main mechanical system
- Adding two elevators
- Renovating the three main staircases
- Replacing the building envelope

Resources: External professional resources for design and engineering as well as a construction company will be contracted for the project. Historically, Enbridge Gas Inc. (EGI) has retained architectural and engineering consulting services and general construction contractors for the execution of similar projects.

Solution Impact: The renovation will correct operational and workplace inefficiencies by using less energy and emitting less greenhouse gases on the existing property. The service life of the renewed facility would be 40 years.

Timing: The project duration is 24 months:
0 – 3 months: Programming and design development
3 – 9 months: Permit and tender documents
9 – 12 months: Permit and tender process
12 – 14 months: Contract award and winter contingency as required
14 – 24 months: Construction

Risks include contractor delays and material delivery delays or defects.

Expenditures: The total cost for the project is $26M net capital. Construction costs are determined from facility assessment reports and architectural consultant budget forecasts and using marketplace comparisons. Project costs are based on a Class 5 estimate.

Investment Type	Project (EGI)	Planning Portfolio	EGD - Core - Real Estate & Workplace Services - Furniture/Structures & Improvements
Investment Stage	Short Term Planning		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	00 - Head Office
	Asset Program (EGI)	REWS - Furniture/Structures & Improvements
	Asset Class (EGI)	Real Estate & Workplace Services
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	No
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)
VPC Core and Shell									$ 26,000,000
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ -	$ -	$ -	$ -	$ 10,000,000	$ 10,000,000	$ 6,000,000	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ 1,000,000	$ 1,000,000	$ -	$ -	$ -	$ -

ENBRIDGE

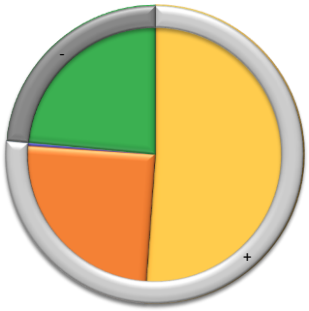
Investment Summary Report

Investment Code	Report Start Year	Number of Years
8782	**2025**	**10**

Investment Name

VPC Core and Shell

Alternative Value - Recommended



Value Function Measure	Value
Employee Productivity (CA)	35,472
Cost Avoidance OPEX (CA)	17,271
Avoided GHG Emissions (CA)	272
Energy Efficiency (CA)	22
Cost Avoidance CAPEX (CA)	0
Budget Savings CAPEX (CA)	0
Budget Savings OPEX (CA)	0
Revenue Impact (CA)	0
Total Investment Cost (CA)	(16,318)
Total	**36,719**

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
3640	**2025**	**10**

Investment Name

Station B New Building

Investment Description

Issue/Concern:
The Station B office on Eastern Avenue is an owned property in a good location but does not meet current building standards or operational requirements. The physical condition is considered good but the utilization and functionality is challenged. The office space no longer meets the needs of the staff currently working out of the facility. The new building will be able to provide the needed functionality and safety for the staff to carry out their tasks.

Physical Obsolescence: The acceptable EGI standard for the physical condition is a Facility Condition Index (FCI) of 0 to 5%. The current FCI of the facility based on this study is 12.28%. Therefore, the physical condition of the facility does not meet EGI acceptable standards.

Functional Obsolescence – Building: The acceptable EGI standard for the functional condition is 0. A functional condition between 0 and 49% is considered correctable at the current location. The current facility Adequacy Index (AI) is 49%.

Functional Obsolescence – Site: The property is divided into two separate parts. The first part consists of approximately 0.7 acres completely fenced off including a secure gate station located adjacent to the site on the northwest corner. The reminder of the site consists of 3.2 acres and is used as an operations depot. The site does not meet operational requirements for size and vehicular circulation. One point of access is provided to the site which poses circulation difficulties and poses operational inefficiencies. The yard size is marginally smaller than EGI standard yard size requirements. The current yard size is 2.25 acres. The EGI standard yard size is 2.5 acres. It was noted by EGI staff that the existing yard size is adequate for current operations. The existing building requires expansion by approximately 8,000 square feet to meet the need for current staff and EGI functional requirements.

Assets: 405 Eastern Avenue, Toronto, ON.

Related Program: N/A

Recommended Alternative Description

Scope of Work:
EGI is developing a new LEED-certified facility in downtown Toronto, Ontario, at Station B, which will emit only 75 tonnes of CO_2 annually. The new design aims to push sustainability further by incorporating many decarbonizing and green building practices. The facility was designed with passive principles, emphasizing the use of low-embodied carbon materials that minimize the environmental impact from construction. Passive design strategies, such as optimizing the building's orientation and geometry, as well as enhancing the building envelope, will contribute to maximizing energy efficiency and reducing heat loss. These elements help the building maintain stable indoor temperatures with minimal energy input, and optimal occupant comfort. Energy systems within the facility will be highly efficient, ensuring that the building operates at optimal performance levels. Through these integrated design elements, the new LEED facility will not only achieve greater sustainability but also provide long-term operational savings, reinforcing Enbridge's commitment to environmental responsibility. The project will serve as a landmark in green building and sustainable design in Toronto's urban landscape.
The project entails demolishing the existing facility and building a new single-story building with underground parking to ensure much needed yard requirements for core operational needs such as fleet and equipment parking, aggregate bunkers, and yard. Underground parking will ensure the site is maximized for operations yard needs as land in Toronto's downtown is limited and requires efficient use of property. This will expand the usable existing yard. The new building footprint of approximately 20,000 square feet will ensure adequate interior storage/warehouse and fabrication space for operations, an operations muster/meeting space, washroom/locker facilities appropriately sized for the operation, and a larger office environment for site staff. The program will include currently missing elements such as a lunch room and meeting rooms and correct operational and workplace inefficiencies.
The assets in scope are located at 405 Eastern Avenue, Toronto, ON. The nature of work is site improvements and construction and fit-up of a new building.
Resources:
Professional resources for design and engineering along with a contractor will be retained from the marketplace. Historically, EGI has engaged architectural and engineering consulting services and general construction contractors for the execution of similar projects.
Solution Impact: The service life of the new facility would be 25 – 40 years, with the old building being demolished.
Project Timing:
The project duration is 36 months.
0 – 3 months: Programming and design development
3 – 9 months: Site plan agreement, permit and tender documents
9 – 12 months: Permit and tender process
12 – 14 months: Contract award and winter contingency as required
14 – 28 months: Construction
28 – 30 months: Fit-up and occupancy
30 – 36 months: Old building demolition and remaining site improvements
Risks include contractor delays and material delivery delays or defects.

Expenditures:
The total cost for the project is $55 M net capital which includes a working construction cost contingency of 15%. Construction costs are determined based on historical EGI projects. The project also leverages national pricing agreements with furniture, walls, and flooring manufacturers. Project costs are based on a Class 5 estimate.

Investment Type	Project (EGI)	Planning Portfolio	EGD - Core - Real Estate & Workplace Services - Furniture/Structures & Improvements
Investment Stage	Executing		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	10 - Toronto
	Asset Program (EGI)	REWS - Furniture/Structures & Improvements
	Asset Class (EGI)	Real Estate & Workplace Services
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	No
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
3640	**2025**	**10**

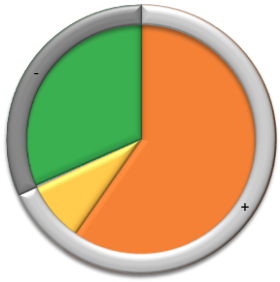
Investment Name

Station B New Building

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)	
Station B New Building									$	54,900,372
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ 15,400,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Alternative Value - Recommended



Value Function Measure	Value
Cost Avoidance OPEX (CA)	53,519
Employee Productivity (CA)	7,537
Avoided GHG Emissions (CA)	70
Cost Avoidance CAPEX (CA)	0
Budget Savings CAPEX (CA)	0
Budget Savings OPEX (CA)	0
Revenue Impact (CA)	0
Energy Efficiency (CA)	(159)
Total Investment Cost (CA)	(28,326)
Total	**32,641**

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
737754	**2025**	**10**

Investment Name

Thorold Operations Centre - New Building

Investment Description

Issue/Concern/Opportunity: Build a new Thorold Ops Centre of approx. 10,000 sq.ft. at 2132 Hwy 20, Thorold, Ontario.
Justification: The driver for this project is optimization in support of the Union, and EGI amalgamation and right sizing the Thorold Enbridge facility.
Scope of work includes programming, designing and construction of a new replacement facility.
Assets: The area of the acquired land is approximately 45.5 acres.

Recommended Alternative Description

Scope of Work: Build a new 10,000 sf facility.
This Project requires purchasing a property suitable in size (approx. 5 acres) and building a new 10,000 sq. ft. building that will consist of administration, warehouse, welding and fabrication facilities. The new facility will use less energy and emit less greenhouse gases. The service life for the new facility will be 25-40 years. The nature of work is development of a new property and the construction and fit-up of a new building. The total Project duration is 25 months as described below:

0 – 3 months: Programming, design development
3 – 9 months: Site plan agreement, permit and tender documents, permit and tender process
9 – 11 months: Contract award and winter contingency as required
11 – 25 months: Construction
28 – 30 months: Fit-up and occupancy

Expenditures
The total cost for the Project is $21.5M net capital (as shown in Table 5-134) which includes a working construction cost contingency of 15%. Construction costs are determined based on historical EGD project costs and land values using marketplace comparisons. The Project also leverages national pricing agreements with furniture, walls, and flooring manufacturers. The Project costs are based on a Class 5 estimate.
Resources
External professional resources for design and engineering along with a construction company will be contracted for the Project. Historically EGD has retained architectural and engineering consulting services and general construction contractors for the execution of similar projects

Investment Type	Project (EGI)	Planning Portfolio	EGD - Core - Real Estate & Workplace Services - Furniture/Structures & Improvements
Investment Stage	Executing		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	80 - Niagara
	Asset Program (EGI)	REWS - Furniture/Structures & Improvements
	Asset Class (EGI)	Real Estate & Workplace Services
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	No
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name										Net Base Capex O (CA) (without overheads)
Thorold Operations Centre - New Building										$ 21,467,853
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ 500,000	$ 5,900,000	$ 14,953,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

ENBRIDGE

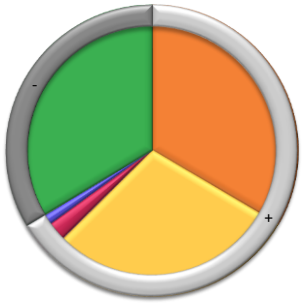
Investment Summary Report

Investment Code	Report Start Year	Number of Years
737754	**2025**	**10**

Investment Name

Thorold Operations Centre - New Building

Alternative Value - Recommended



Value Function Measure	Value
Cost Avoidance OPEX (CA)	16,854
Employee Productivity (CA)	14,688
Energy Efficiency (CA)	1,245
Avoided GHG Emissions (CA)	667
Employee And Contractor Safety Risk	0
Cost Avoidance CAPEX (CA)	0
Budget Savings CAPEX (CA)	0
Budget Savings OPEX (CA)	0
Revenue Impact (CA)	0
Total Investment Cost (CA)	(16,939)
Total	**16,515**

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
739715	**2025**	**10**

Investment Name

GTA West - New Build - Halton Hills

Investment Description

Issue/Concern/Opportunity: Operations boundary location committee recommendation. Consolidated facility in the West/Niagara region with the possibility of retiring a number of redundant facilities within the region.
Assets: 1 new operations site and building. 10 acres, 26,000 sqft (12,000 sqft ops, 14,000 sqft office). Office for 70 office and 70 field staff.
Related Investments: New GTA West Site (100548)

Recommended Alternative Description

Project Timing & Execution Risk: Site 1 consolidated Facility
Scope of Work: Purchase a new 10 acre site and build a new 26,000 sf facility.
This Project requires purchasing a property suitable in size (approx. 10 acres) and building a new 26,000 sq. ft. building that will consist of administration, warehouse, welding and fabrication facilities. This option corrects operational and workplace inefficiencies by consolidating redundant sites and optimizing operation boundaries. The new facility will use less energy and emit less greenhouse gases. The service life for the new facility will be 50 years.
Two existing assets in scope and one new facility. The nature of work is development of a new property and the construction and fit-up of a new building. The total Project duration is 30 months as described below:
0 – 3 months: Programming, design development, location analysis
3 – 6 months: Site acquisition
6 – 12 months: Site plan agreement, permit and tender documents, permit and tender process
12 – 14 months: Contract award and winter contingency as required
14 – 28 months: Construction
28 – 30 months: Fit-up and occupancy
Post-occupancy disposition of property
Expenditures
The total cost for the Project is $36M net capital which includes a working construction cost contingency of 15%. Construction costs are determined based on historical EGD project costs and land values using marketplace comparisons. The Project also leverages national pricing agreements with furniture, walls, and flooring manufacturers. The Project costs are based on a Class 5 estimate.
Resources
External professional resources for design and engineering along with a construction company will be contracted for the Project. Historically EGD has retained architectural and engineering consulting services and general construction contractors for the execution of similar projects

Investment Type	Project (EGI)	Planning Portfolio	EGD - Core - Real Estate & Workplace Services - Furniture/Structures & Improvements
Investment Stage	Executing		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	01 - All
	Asset Program (EGI)	REWS - Furniture/Structures & Improvements
	Asset Class (EGI)	Real Estate & Workplace Services
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	No
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)	
GTA West - New Build - Halton Hills									$	35,959,955
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ -	$ -	$ -	$ -	$ 300,000	$ 200,000	$ 20,000,000	$ 14,800,000	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
739715	**2025**	**10**

Investment Name

GTA West - New Build - Halton Hills

Alternative Value - Recommended

Value Function Measure	Value
Cost Avoidance OPEX (CA)	21,483
Employee Productivity (CA)	13,423
Avoided GHG Emissions (CA)	115
Energy Efficiency (CA)	68
Cost Avoidance CAPEX (CA)	0
Budget Savings CAPEX (CA)	0
Budget Savings OPEX (CA)	0
Revenue Impact (CA)	0
Total Investment Cost (CA)	(19,733)
Total	**15,355**

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
736942	**2025**	**10**

Investment Name

Contract Market Systems - Technology Obsolescence

Investment Description

Issue/Concern/Opportunity:
This project will consolidate the contracting, gas management/nominations and billing applications at EGI. The Contract to Cash processes are currently using aging and disparate systems for groups such as Large Volume Contracting, Gas Supply and Storage and Transmission Sales. This new platform and integrated systems will then enable Rate and Service Harmonization (if approved) and further enhance the customer experience, and reduce total cost of ownership.

On-going sustainment costs ($2.3m annual), continuation of capital spend to extend current assets (~ $875k annual)
Extended support costs $5m/year for infrastructure
Extended support costs $6m/year for SAP ECC. Costs will increase post Unify (2025).

Justification: Many of these systems are 20-30 years old and are built using technology that is or will become unsupported in the near future and requires upgrading. Failure to refresh aging systems and applications puts our business at risk with an increased chance of service outages, degraded performance, business and customer interruptions, increased costs, difficulty in acquiring support and ability to address cybersecurity risks.

Assets: Legacy (EGD&Union) Contract Management and Billing (EnTrac, URICA, ConTrax) and associated Legacy (LEGD&LUG) Gas Management systems (CARE, Enerline) will be replaced and/or modified by SAP modules and decommissioned (EGI may still retain this system name/brand for the customer facing portal, even if the underlying technology is replaced). New system integrations with CIS/SAP/Oracle/Cost of Gas, reporting, and data warehouse are examples of additional changes and systems impacted.

Related Investments: Contract Market Harmonization Investment # 102291

Recommended Alternative Description

Scope of Work:
Legacy (LEGD&LUG) Contract Management and Billing (EnTrac, URICA, ConTrax) and associated Legacy (LEGD&LUG) Gas Management systems (CARE, Enerline) will be replaced and/or modified by SAP modules and decommissioned. EGI may still retain this system name/brand for the customer facing portal, even if the underlying technology is replaced. New system integrations with CIS/SAP/Oracle, Cost of Gas, reporting, and data warehouse are examples of additional changes and systems impacted.

TIS benefits:
-Improved support and sustainment and cyber security.
- Decommissioning of servers and legacy applications.
- Reduced complexity and total cost of ownership for Contract and Gas Management systems and support

Business Benefits:
- Alignment, simplification and automation of business processes
- Easier to train staff, one set of unified processes and procedures
- Reduction in testing efforts, eliminating multiple systems and applications
- Improved customer experience and ease of use when transacting with Enbridge systems
- Reduced chance of service outages and degraded system performance

Resources: Customer Care Large Volume SME's, Energy Services Gas Management SME's, Finance, TIS SME's, Enterprise Architect, Data and Analytics Arch, Network and Security, Change Management, Project Manager, System Integrator, (Legal, Finance, Regulatory SME's as required)

Solution Impact: This project is required to align disparate and aging systems which must be replaced in order to ensure that contract market customers can continue to transact. Without this project, transactions such as contracting, gas management, and billing are at risk of service outage, degraded performance, cyber security risk, and increased cost of sustainment. This project also delivers a modernized technology platform that will enable the Contract Market Harmonization project which implements the proposed harmonized rates and services for the contract market. The implementation of this project and the Contract Market Harmonization project will deliver improved customer experience, simplified processes and aligned services on a modernized and reliable technology platform.

Project Timing & Execution Risks:
Timing- Project activities are expected to start in 2023, with the teams proving out the technology, and process mining tools, and reviewing business processes for standardization. An Request For Proposal (RFP) will be developed and selection the System Integrator (SI) for a project implementation date in 2026.

Risks- Competing priorities and resource constraints, continuity of resources on the project team to help mitigate schedule impacts for knowledge gaps (current state/future state, design/testing) and any potential rework as a result.

Investment Type	Project (EGI)	Planning Portfolio	EGD - Core - TIS - TIS Business Solutions
Investment Stage	Executing		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	00 - Head Office
	Asset Program (EGI)	TIS Business Solutions
	Asset Class (EGI)	TIS
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	No
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
736942	**2025**	**10**

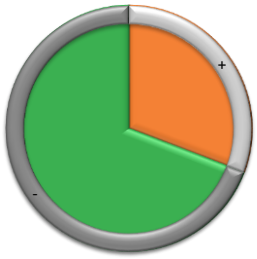
Investment Name

Contract Market Systems - Technology Obsolescence

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)	
Contract Market Systems - Technology Obsolescence									$	71,964,064
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ 25,300,000	$ 17,340,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Alternative Value - Recommended



Value Function Measure	Value
Cost Avoidance OPEX (CA)	25,512
Public Safety Risk	0
Cost Avoidance CAPEX (CA)	0
Budget Savings CAPEX (CA)	0
Budget Savings OPEX (CA)	0
Revenue Impact (CA)	0
Employee Productivity (CA)	0
Total Investment Cost (CA)	(57,370)
Total	**(31,858)**

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
102364	**2025**	**10**

Investment Name

Records Management Upgrade (2024-2027)

Investment Description

Issue/Concern/Opportunity:
ESRI GIS Data Model Consolidation, ESRI Utility Networks deployment for small municipal area from each legacy franchise and preliminary deployment and set up of design tools.

The GIS technologies host information about EGI gas carrying asset which are critical to drive integrity and operation of these assets. In addition, the information is used by the Integrity group to determine asset condition which will inform the asset life cycle strategies used to develop the 10 year Asset Plan with focus on safe and reliable operations of EGI assets. The Records Management technologies is made up of multiple systems which will become vendor unsupported between 2024 to 2026 and requires upgrades to reduce technology complexity, cyber risk, and to enable process optimization. Failure to maintain software warranty will increase the likelihood of system failures, increase outages, degraded performance and increase vulnerability to cybersecurity attacks.

The objective of the Records Management (Asset Records) Technology Obsolescence project is to align the key systems and high level process for gas carrying asset records which are used to support Operations in performing maintenance, and construction work as well as Engineering to conduct analysis and produce asset plans. This will be enabled through the selection of an integrated suite of applications that satisfy all technical and business requirements.

Assets:
TIS Business Solutions, examples of the core systems impacted:
- ESRI ArcServer GIS (Packaged Software) 10.8 (2026 retirement)
- Hexagon GIS (Packaged Software) G/Technology (2024 retirement)
- iViewer (Custom)
- ProjectWise Connect (Packaged Software) (2024 retirement)

Recommended Alternative Description

Scope of Work :
The scope and objective of the Records Management (Asset Records) Technology Obsolescence project is to address the technology obsolescence and align the key systems for gas carrying asset records. This will be enabled through the selection of an integrated suite of applications that satisfy all technical and business requirements. The work will consist of upgrading software to the latest supported versions as well as incorporate the opportunities to optimize business processes by leveraging new capabilities offered by the software.

The initiative will follow TIS project methodologies as developed and governed by the Project Management Office, including, signed charter and a project plan covering the activities of design, build, test and implementation.

Benefits:
EGI will be able to leverage advancements in technology which could provide further benefits in optimizing business processes. As such the following benefits are estimated: Technology savings of $975k annual savings related to a reduction in technology, licenses, and infrastructure. Business savings are comprised of $1,000,000 related to drafting efficiencies in Distribution Operations; $400,000 related to Records Management team savings in Engineering & STO; $50,000 related to efficiencies in Engineering Construction/Drafting and Capital Development; all savings have been derived using an ~8% rate reduction

Resources:
Project Managers, Enterprise Architecture, System Integrators, Operations SMEs, Asset Records SMEs, TIS SMEs, Vendor Professional Services, External Contractors

Solution Impact:
This will impact Operations and Engineering employees as well as third-party alliance partners who require asset records to perform their work. This will also impact teams within the organization that produce and manage asset records throughout the asset lifecycle, such as the Records Management team and Asset Integrity. The solution will implement the latest version of software where software bugs have been resolved and the technology would be compatible to the latest hardware thereby ensuring a more secure, reliable, and sustainable platform. With the upgrades there are advancements in software technology introducing new capabilities that will optimize business processes.

Project Timing & Execution Risks:
This project is expected to start in 2024, with design efforts starting in 2025 and in service target date of completion 2027.

Risk: Competing priorities, resource constraints, and business cost pressures.

Investment Type	Project (EGI)	Planning Portfolio	EGD - Core - TIS - TIS EGI Business Solutions
Investment Stage	Executing		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	00 - Head Office
	Asset Program (EGI)	TIS Business Solutions
	Asset Class (EGI)	TIS
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	No
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
102364	**2025**	**10**

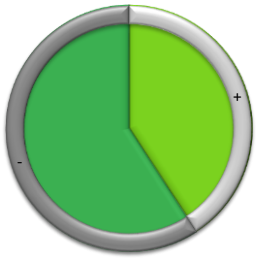
Investment Name

Records Management Upgrade (2024-2027)

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)	
Records Management Upgrade (2024-2027)									$	12,316,000
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ 1,000,000	$ 5,000,000	$ 6,000,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Alternative Value - Recommended



Value Function Measure	Value
Budget Savings OPEX (CA)	6,759
Public Safety Risk	2
Cost Avoidance CAPEX (CA)	0
Cost Avoidance OPEX (CA)	0
Budget Savings CAPEX (CA)	0
Revenue Impact (CA)	0
Employee Productivity (CA)	0
Total Investment Cost (CA)	(9,805)
Total	**(3,045)**

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
48715	**2025**	**10**

Investment Name

Dawn C Compression Lifecycle

Investment Description

Issue/Concern:
**** An Asset Health Review is underway and will inform a third-party Reliability, Availability and Maintainability Study to quantify risks associated with asset failures. These activities will support additional detailed alternatives analysis and final scoping which will in turn inform the project cost estimate, timing and business case.

Dawn C Plant is one of the nine centrifugal compressors located at the Dawn Compressor Station. It is primarily used to lift from lower storage pressure levels, experienced later in the operations season, to intermediate pressure levels. The intermediate pressure level is typically elevated further in pressure by another compressor to reach the desired Dawn outlet pressure. Dawn Plant C and Plant D have a suction pressure rating of 195 psig, the lowest rating of the compressor fleet at Dawn. Considering the other compressors at Dawn have a 225 psig minimum inlet rating, Dawn Plants C and D become very critical when pool storage levels fall below 225 psig, as they typically do late in the operational season. Overall, compression can pose a very large consequence of failure as compressors are integral assets required to achieve the Dawn to Parkway Transmission System deliverability requirements throughout the year.

The consequence of compressor failure is dominated by gas cost impacts to customers. Transmission system consequences associated with failure of a single compressor are heavily influenced by the time of year, weather severity and time to mitigate the failure. Siemens, the original equipment manufacturer (OEM) of the Dawn C compressor, has indicated that 40 years is the typical timeframe for supporting the supply of engine parts required to recover from a critical engine failure or to complete recommended overhauls. Dawn Plant C was installed in 1984, which indicates that the RB211- 24A engine in Plant C is reaching end of life.

Justification: By continuing to comply with original equipment manufacturer (OEM) recommendations Preventive Maintenance (PM) schedules and overhauls, compressor reliability risk is controlled to moderate levels but risk increases gradually over the 25,000-hour recommended interval between overhauls. Availability of parts is essential to repair internal engine failures and complete overhauls. Notably, the RB211-24A in Plant C has non-standard dimensions and cannot be retrofitted with more modern editions of the RB211 without significant plant retrofits. Similar to the 40-year old Dawn Plant B, which was replaced and retired in 2017 due to the risks associated with discontinued OEM support of critical engine parts, it is expected that Dawn Plant C will be exposed to a similar level of risk as the global inventory of spare components diminishes.

Assets: Dawn Plant C

Recommended Alternative Description

Scope of Work:
Removal and abandonment of the plant, associated piping and electrical, and remediation of land back to level grade. A new compression facility and its associated infrastructure will be developed and installed at the Dawn Compressor Station.

Work includes full project gating cycle due to scale and complexity including: stakeholder consultations, planning, detailed design, permit applications, environmental assessment. procurement, retaining a construction contractor, isolate system, demolition of structures/equipment to be replaced, erect buildings if required, prefabricating piping, hydrotesting, install new piping and auxiliary systems, NDE as required, coating, inspection, train staff, energize system, remediating site, and records updates.

Resources:
Consultant resources for design
Contractor resources for abandonment, construction and commissioning
Regulatory approval

Solution Impact:
This project will ensure the safe removal of infrastructure and the replacement of 32,000 hp of obsolete compression to support the storage to transmission requirements at Dawn.

Project Timing & Execution Risk:
Regulatory approval and planning - 2 years, abandonment and remediation 18 months.

Investment Type	Project (EGI)	Planning Portfolio	UG - Core - Compression Stations - Replacements
Investment Stage	Executing		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	Div_53 - Union South Storage
	Asset Program (EGI)	CS - Replacements
	Asset Class (EGI)	Compression Stations
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	No
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
48715	**2025**	**10**

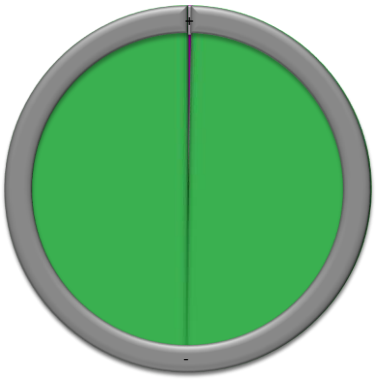
Investment Name

Dawn C Compression Lifecycle

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)
Dawn C Compression Lifecycle									$ 138,601,099
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ -	$ 13,860,000	$ 27,720,000	$ 83,160,000	$ 13,860,000	$ -	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Alternative Value - Recommended



Value Function Measure	Value
Financial Risk	303
Operational Risk	4
Avoided GHG Emissions (CA)	0
Budget Savings OPEX (CA)	0
Cost Avoidance CAPEX (CA)	0
Cost Avoidance OPEX (CA)	0
Employee And Contractor Safety Risk	0
Environmental Risk And Remediation	0
Public Safety Risk	0
Reputational Risk	0
Gas Storage Reliability (CA)	0
Total Investment Cost (CA)	(102,009)
Total	**(101,703)**

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
48732	**2025**	**10**

Investment Name

Waubuno Compression Lifecycle - Core

Investment Description

Issue/Concern/Opportunity:

The Waubuno compressor elevates available pipeline pressure to the Waubuno Pool Maximum Operating Pressure (MOP). Compression increases the working inventory value of the pool by approximately 3.5 petajoules (PJ) on top of what the pipeline alone can achieve. The compressor is operated approximately 45 days per year in late summer to early fall to top off the pool. The consequence of compressor failure is dominated by customer impact. Risk associated with failure of the Waubuno compressor is heavily influenced by the level of the pool at which the failure occurs and time to mitigate the failure.
The Joy Compressor (manufactured in 1985) was a used compressor package and installed at Waubuno in 1988. The Joy Compressor Company changed ownership approximately 20 years ago whereupon original equipment manufacturer (OEM) support for the compressor was discontinued. Although normal wear components are still available in the marketplace, replacement major compressor items such as cylinders, crankshafts, and rods, etc., required to support a critical failure are no longer available. In the event of a critical failure, sourcing used parts (which are rare) or aftermarket custom machining services would be the only options for repair. This was the case in 2007 when a discharge valve seat failed, resulting in catastrophic damage to cylinder 611. An extensive search across the used parts dealers was required to secure a viable used cylinder head. Other internal damage was repaired through custom machining services.

Justification: In the event of a future failure, if usable parts or custom machining are not available, the two options would be custom-designed aftermarket castings (if possible) or replacement of the entire compressor. However, both options would render the compressor out of service for at least one operational season.

Assets: Waubuno Compressor

Recommended Alternative Description

July 2024 - Preferred Scope
Scope of Work:
In order to meet lifecycle needs for the Waubuno storage facility, Enbridge Gas Distribution and Storage (GDS) is proposing to construct a new NPS 16 pipeline from Waubuno to TR-7 (~1.6 km). This will eliminate the requirement for a remote compressor at Waubuno; and therefore, this project will also involve the abandonment of the Waubuno Remote Compressor Unit and related equipment.
Waubuno Station Modifications (common in all scenario alternatives)
- New Control and Measurement Building
- Upgrade meters, control valve, and filter/separator
- Launcher and associated piping
Pipeline Construction:
- NPS 16 Pipeline from Waubuno to TR-7/TR-2/TR-1
- ~1.5 KM NPS 20 Line (1,440 psi MOP)
- Connection to TR-7 (for injection); to TR-2 (200# Storage Suction); to TR-1 (Flexibility/Optionality)
- Valving to connect new pipeline with TR-1, TR-2, and TR-7 with overpressure protection
- Receiver and associated piping at new TR-7 valve site
- New Control Building
- Waubuno Compressor Abandonment (common in all alternative scenarios)
- Removal of the compressor and any associated equipment in compressor building.
- Removal of all the NPS 8 compressor suction and discharge piping back to their take-off at the bypass control valve.
- Removal of the aftercooler, filter and silencer.
- Removal of all electrical wiring, control wiring and SCADA communication wiring and panels associated with the compressor.
- Removal of the compressor building and foundation. As the site has been in existence since the 1980s, there is a strong possibility of ground contamination that will need remediation.
Resources:
- Consultant resources for design
- Contractor resources for abandonment, construction and commissioning
Solution Impact:
- Replace approximately 3.5 PJ of inventory provided by the current compressor that is obsolete and poses the risk of significant downtime in the event of a failure.
Project Timing & Execution Risks:
- Requires Ontario Energy Board Leave to Construct approval
- Pool out of service
- Pipeline route not finalized
- Landowners may want abandoned pipeline removed
- Dependent on TR-7 pipeline
- 2027 in-service date

Investment Type	Project (EGI)	Planning Portfolio	UG - Core - Compression Stations - Replacements
Investment Stage	Executing		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	Div_53 - Union South Storage
	Asset Program (EGI)	CS - Replacements
	Asset Class (EGI)	Compression Stations
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	No
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
48732	**2025**	**10**

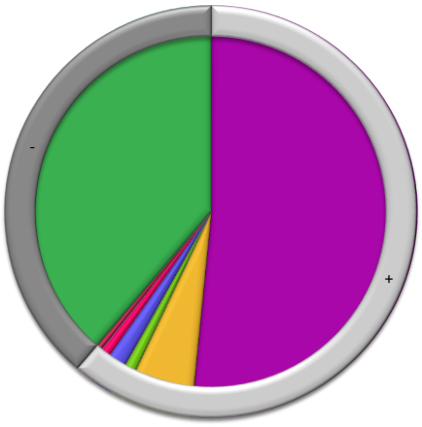
Investment Name

Waubuno Compression Lifecycle - Core

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)
Waubuno Compression Lifecycle - Core									$ 27,909,000
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ 2,790,900	$ 8,372,700	$ 16,745,400	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Alternative Value - Recommended



Risk work has been completed outside of Copperleaf

Value Function Measure	Value
Financial Risk	29,871
Operational Risk	3,194
Budget Savings OPEX (CA)	613
Avoided GHG Emissions (CA)	982
Budget Savings CAPEX (CA)	483
Energy Efficiency (CA)	333
Cost Avoidance CAPEX (CA)	0
Cost Avoidance OPEX (CA)	0
Revenue Impact (CA)	0
Employee And Contractor Safety Risk	0
Environmental Risk And Remediation	0
Public Safety Risk	0
Reputational Risk	0
Total Investment Cost (CA)	(22,443)
Total	**13,033**

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
103426	**2025**	**10**

Investment Name

BRAN: 16U-601 Brantford Gate Station, Station Rebuild (Capital Maintenance)

Investment Description

Issue/Concern/Opportunity: Rebuild entire station to address station integrity issues, maintenance/operational issues.
Justification: A full rebuild will correct station integrity issues and maintenance/operational issues.

Assets: Brantford Gate Station (16U-601)

Related Investments: Not applicable.

Recommended Alternative Description

Scope of Work: Rebuild station
Resources: Enbridge, AECON, 3rd party contractors, nondestructive examination (NDE). Most likely led by Engineering Construction team.
Solution Impact: Address station integrity issues, operational / maintenance issues, and enable additional load on Eastern Trans system.
Project Timing & Execution Risk: Completion by Dec 2026.

Investment Type	Project (EGI)	Planning Portfolio	UG - Core - Distribution Stations - Station Rebuilds & B and C Stations
Investment Stage	Executing		

Investment Overview

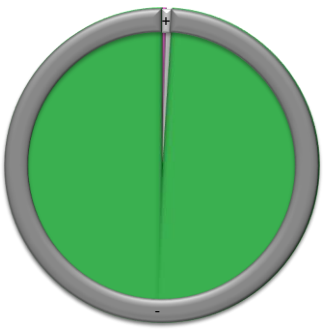
1. Project Information	State/Province	Ontario
	Operating Area (EGI)	Div_06 - Brantford
	Asset Program (EGI)	DS - Station Rebuilds & B and C Stations
	Asset Class (EGI)	Distribution Stations
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	No
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name	Net Base Capex O (CA) (without overheads)
BRAN: 16U-601 Brantford Gate Station, Station Rebuild (Capital Maintenance), Proj# 57-22-701	$ 11,915,982

Account Type	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Base CAPEX O	$ 750,000	$ 10,718,319	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Alternative Value - Recommended



Value Function Measure	Value
Reputational Risk	38
Avoided GHG Emissions (CA)	21
Operational Risk	13
Financial Risk	14
Environmental Risk And Remediation	7
Budget Savings OPEX (CA)	2
Employee And Contractor Safety Risk	0
Cost Avoidance CAPEX (CA)	0
Cost Avoidance OPEX (CA)	0
Public Safety Risk	0
Total Investment Cost (CA)	(9,607)
Total	**(9,512)**

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
734676	**2025**	**10**

Investment Name

SARN: 13F-220R Vidal St

Investment Description

Issue/Concern/Opportunity: 13F-220R is experiencing flooding due to its current location. The heater age is of concern and the control valves require an upgrade. Potential relocation is necessary due to building floods.

Justification: Full rebuild is required.

Assets:13F-220R

Recommended Alternative Description

Scope of Work: Full rebuild and potential relocation. Scope to be determined in the next iteration of the 10Y AMP.

Resources: Enbridge

Solution Impact: Remediate aging heater and elminate the flooding concern.

Investment Type	Project (EGI)	Planning Portfolio	UG - Core - Distribution Stations - Station Rebuilds & B and C Stations
Investment Stage	Long Term Planning		

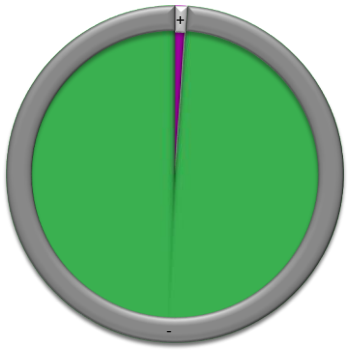
Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	Div_03 - Sarnia
	Asset Program (EGI)	DS - Station Rebuilds & B and C Stations
	Asset Class (EGI)	Distribution Stations
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	No
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)	
SARN: 13F-220R Vidal StStation Rebuild									$	12,480,000
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,280,000	$ 11,200,000
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Alternative Value - Recommended



Value Function Measure	Value
Financial Risk	59
Environmental Risk And Remediation	4
Reputational Risk	6
Public Safety Risk	1
Employee And Contractor Safety Risk	0
Operational Risk	0
Avoided GHG Emissions (CA)	0
Budget Savings OPEX (CA)	0
Cost Avoidance CAPEX (CA)	0
Cost Avoidance OPEX (CA)	0
Operational Disruption Risk (Gas) (CA)	0
Total Investment Cost (CA)	(5,792)
Total	**(5,722)**

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
100295	**2025**	**10**

Investment Name

Div_04: NPS 8 Port Stanley, London, Replacement

Investment Description

Issue/Concern/Opportunity:
The NPS 8 Port Stanley line is approximately 20 km of NPS 8 built in 1959, with unknown grade and wall thickness, bare and protected, and Dresser construction (some gas welded – such welds are usually susceptible to lack of fusion imperfections). There has been a history of a significant number of leaks due to corrosion on this single-feed system that provides natural gas to Port Stanley and St. Thomas, with about 13,000 customers including hospitals in the St Thomas region and a retirement home in Port Stanley.

External corrosion has created difficulties with repairs due to the inability to weld. In one repair case, it took Operations three weeks to locate a suitable weld location for a repair. Repairs often require the use of split sleeves ($8K/each). Depth of cover (DOC) is a significant risk factor, with two exposed pipe sections being reported over creek crossings in December 2019. There are significant accessibility issues with locations of the pipe, making it difficult for emergency response and condition surveys. Some sections of pipe are heavily overgrown while other locations can be over 500 m from the nearest road. There are three below-grade stations that are considered confined spaces and which often flood, and must be evacuated before inspections and maintenance can occur. Gas supply from Lake Erie was known to have high moisture content and may contribute to internal corrosion.

No isolation is built into the single feed system; so if supply needs to be shut down, all downstream customers would be affected. In 2000, 6.8 km of main were replaced due to corrosion and exposed pipe. In 2003, 230 meters were replaced due to a Class B leak under a river crossing. Three casings on the system are known to be shorted. An attempted pressure increase in 1970 resulted in numerous leaks from compression couplings and pipe; therefore, the pipe cannot be pressure-elevated.

Assets: Port Stanley line is approximately 20 km of NPS 8 built in 1959.

Recommended Alternative Description

Q3 2024 update: The enhanced (EDIMP) inspection work is progressing as planned for September and the preliminary condition findings are expected in Nov/Dec. The full replacement scope still remains unchanged until more information is provided from EDIMP.

Due to the condition of the existing NPS 8 ST, an approximate length of 15 km, a cost estimate has been requested for the replacement of the line. Starting at the south end at the Port Stanley Gate Station headed north approximately 2.2 km, this section can be replaced with NPS 6 ST as per System Analysis decreased from current NPS 8. A large section of NPS 8 ST (approximately 6.8 km) was replaced in 2000 and does not require replacement. Also, 3 km of NPS 8 requires replacement to NPS 6. Furthermore, 10.2 km of NPS 8 is size-for-size replacement from Middlemarch headed East to the St. Thomas South Station and from Middlemarch North to the Existing NPS 10 at Talbot Line where it connects.

Investment Type	Project (EGI)	Planning Portfolio	UG - Core - DP - Main Replacement - Vintage Steel Mains Replacement Program
Investment Stage	Executing		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	Div_04 - London
	Asset Program (EGI)	DP - Main Replacement
	Asset Class (EGI)	Distribution Pipe
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	Yes
	Intolerable Risk (EGI)	Yes
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)	
Div_04: NPS 8 Port Stanley, London, Replacement									$	14,649,154
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ -	$ 14,401,776	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
30542	**2025**	**10**

Investment Name

SRP2024_(07)Brantford/Waterloo_Owen Sound_County Rd 40_Reinforcement_NPS12_11800m_4670kPa

Investment Description

Loop existing 10-inch Steel 4,670 kPa main from existing PH4 reinforcement to Squire, Ontario with 12-inch steel main. Install valve site and 12-inch receiver facilities.

Recommended Alternative Description

Scope of Work: The project will loop the existing NPS10 ST 4670 kPa main from existing PH4 reinforcement to Squire, Ont with NPS12 ST main. As well as install a valve site and 12" receiver facilities. Alternative running lines and pipe sizes can be determined closer to the project design stages. This project supports all pressures downstream to Owen Sound, Port Elgin, Southampton, Wiarton, Sauble Beach and east of Owen Sound, but supports growth on the entire system. Actual growth rates and loads will need to be confirmed closer to the project planning stages.

Resources: Company crews, 3rd party contractor crews and 3rd party vendors.

Solution Impact: Organic growth on the Owen Sounds system wide primarily north of St Jacobs Transmission Station. This reinforcement supports the entire system and downstream networks.

Project Timing & Execution Risks: System reinforcement is required in 2031 as per current plan and significant growth on systems. Risks include weather, resource availability, procurement of materials, etc.

Investment Type	Project (EGI)	Planning Portfolio	UG - Core - Growth - System Reinforcement
Investment Stage	Executing		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	Div_07 - Waterloo
	Asset Program (EGI)	GTH - System Reinforcement
	Asset Class (EGI)	Growth
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	Yes
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name		Net Base Capex O (CA) (without ovetrheads)
SRP2024_(07)Brantford/Waterloo_Owen Sound_County Rd 40_Reinforcement_NPS12_11800m_4670kPa		$ 36,528,217

Account Type	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Base CAPEX O	$ -	$ -	$ -	$ -	$ 506,000	$ 3,000,000	$ 31,000,000	$ 2,000,000	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
736259	**2025**	**10**

Investment Name

Hamilton Reinforcement Project

Investment Description

Issue/Concern/Opportunity: Reinforcement required to support changes to industrial demand in the area.

Assets: Distribution Reinforcement

Recommended Alternative Description

Scope of Work:
- The preliminary preferred route consists of approximately 14 km of NPS 12 pipe.
- It begins at Trans Canada Energy (TCE) new gate station and heads northeast and then west to the customer site.
- Install NPS 12 ST 4140 kPa MOP dedicated main to customer. Dedicated main will begin at the TCE crossing on Regional Rd 56 (43.167912, -79.784155 - A) and continue along Upper Centennial Parkway to Barton St to Kenilworth Ave to the customer site (43.258819, -79.804792 - B).
- It is a direct line from TCE feed.
- The project consists of a new gate station, a new customer station and 2 customer station rebuilds.
- The proposed facilities for the final state will also meet the transition state requirements for the customer.

Resources: Capital Development, Business Development, Engineering Construction

Solution Impact: In May 2021, the customer initiated a significant growth project with Enbridge for an increased demand of 96,000 m3/hr.

Project Timing & Execution Risk: In Service Date 2028 as required by the customer.

Investment Type	Project (EGI)	Planning Portfolio	UG - Core - Growth - System Reinforcement
Investment Stage	Executing		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	Div_16 - Hamilton
	Asset Program (EGI)	GTH - System Reinforcement
	Asset Class (EGI)	Growth
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	Yes
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)	
Hamilton Reinforcement Project									$	191,354,452
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ 8,343,260	$ 48,024,658	$ 108,263,502	$ 9,610,551	$ -	$ -	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
48714	**2025**	**10**

Investment Name

Hagar Cold Box

Investment Description

Issue/Concern: The Cold Box is several heat exchangers in series used to cool the natural gas feedstock to -160°C at which point the natural gas turns into a liquid. The Cold Box is the core of the liquefied natural gas (LNG) station and is necessary to produce LNG. The consequence of a Cold Box failure is dominated by customer impact. Risk of associated failure is heavily influenced by thermal cycling and operational hours. Over its 50 years of operation, the Cold Box has amassed 140,000 operational hours. Significant failure modes include leakage of natural gas or refrigerants out of the piping into the interior of the Cold Box shell reaching potentially explosive levels or heat exchanger cross leaks that reduce the effectiveness of the refrigeration process. Both of these failure modes impair LNG production to the extent the plant cannot meet its annual production requirements. As the Cold Box internals are encased in very densely packed insulation and clad in an outer steel jacket, troubleshooting and repair of either of these failure modes is extremely difficult and time consuming.

Assets: Cold Box

Recommended Alternative Description

Scope of Work: This project involves replacement of the Cold Box.

Solution Impact: Considering the complex nature of internal repair or replacement of the Cold Box, a reactive response to internal leakage would render the liquefaction process out of production and unable to meet its regulated requirements for at least an operational season. Due to the age of the plant, the replacement of an individual component such as the Boil Off Gas (BOG) Compressor introduces a risk of the compatibility of new equipment with the existing balance of the plant. This could result in a change in project scope or an approach that favours broader plant renewal.

Resources: Projects will work with a third-party engineering firm to complete the design and a contractor to complete the field work. Operations will support Major Projects as required.

Project Timing & Execution Risks: The proposed timing to complete the on-site work is during the second and third quarters of the year. Design and ordering of long-lead items will need to occur a year in advance.

Investment Type	Project (EGI)	Planning Portfolio	UG - Core - LNG - Integrity
Investment Stage	Long Term Planning		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	Div_53 - Union South Storage
	Asset Program (EGI)	LNG - Integrity
	Asset Class (EGI)	LNG
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	No
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)	
Hagar Cold Box									$	11,000,000
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,500,000	$ 8,500,000	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Alternative Value - Recommended

Value Function Measure	Value
Avoided Reactive Replacement	668
Total Investment Cost (CA)	(5,978)
Total	**(5,310)**

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
49955	**2025**	**10**

Investment Name

Hagar JVG Compressor Upgrade

Investment Description

Issue/Concern: The Boil-Off Gas (BOG) compressor is one of the two compressors used to power the refrigerant process which cools the natural gas feedstock to -160°C at which point the natural gas turns into a liquid. The BOG compressor was also used to recover BOG (i.e., natural gas vapours) from the liquefied natural gas (LNG) storage tank which occurs on a continuous basis due to the ambient warming of the tank exterior. In 2012, a separate compressor was installed to manage the LNG storage tank boil-off gas.

The BOG compressor is necessary to produce LNG. The consequence of compressor failure is dominated by customer impact. Risk associated with failure of the BOG compressor is heavily influenced by the time of year, weather severity and time to mitigate the failure. Over its 50 years of operation, the 240 horsepower Ingersoll Rand BOG compressor has amassed 325,000 operational hours. The compressor is obsolete and, although normal wear components are still available in the marketplace, some core compressor replacement parts such as cylinders, crankshafts, pistons, etc., required to support a critical failure may no longer manufactured by the original equipment manufacturer (OEM). In the event of a critical failure, securing used parts (which are rare) or aftermarket custom machining services are the only options for a timely repair. This was the case in 2017 when an aftermarket service was solicited to develop a weld and machine repair of a compressor cylinder which had failed. The aftermarket service was able to design a custom repair which took three months to complete. In the event that the cylinder is not repairable, a custom-designed aftermarket casting or a complete replacement of the compressor may be options. These options would take the plant out of service for at least one operational season.

Assets: BOG compressor

Recommended Alternative Description

Scope of Work: Replacement of the 240 horsepower Boil Off Gas (BOG) Compressor (JVG)

Solution Impact: Mitigate the risk of a critical part failure that is non-repairable due to obsolescence.

Resources: Projects will work with a third-party engineering firm to complete the design and a contractor to complete the field work. Operations will support Major Projects as required.

Project Timing & Execution Risks: The proposed timing is to complete the on-site work during the second and third quarters. Design and ordering of long-lead items will need to occur a year in advance.
Due to the age of the plant, the replacement of an individual component such as the BOG compressor introduces a risk of the compatibility of new equipment with the existing balance of the plant. This could result in a change in project scope or an approach that favours broader plant renewal.

Investment Type	Project (EGI)	Planning Portfolio	UG - Core - LNG - Replacements
Investment Stage	Long Term Planning		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	Div_92 - Union North Storage
	Asset Program (EGI)	LNG - Replacements
	Asset Class (EGI)	LNG
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	No
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)	
Hagar JVG Compressor Upgrade									$	26,820,000
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ -	$ -	$ -	$ -	$ 1,500,000	$ 14,592,000	$ 10,728,000	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

ENBRIDGE

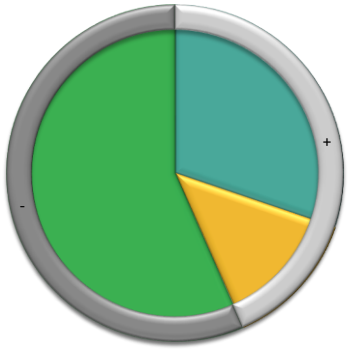
Investment Summary Report

Investment Code	Report Start Year	Number of Years
49955	**2025**	**10**

Investment Name

Hagar JVG Compressor Upgrade

Alternative Value - Recommended



Value Function Measure	Value
Avoided Reactive Replacement	8,661
Operational Risk	3,759
Reputational Risk	24
Financial Risk	2
Environmental Risk And Remediation	0
Employee And Contractor Safety Risk	0
Public Safety Risk	0
Avoided GHG Emissions (CA)	0
Budget Savings OPEX (CA)	0
Cost Avoidance CAPEX (CA)	0
Cost Avoidance OPEX (CA)	0
Total Investment Cost (CA)	(16,211)
Total	**(3,765)**

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
48709	**2025**	**10**

Investment Name

Hagar KVGR and Cycle Mix Cooler

Investment Description

Issue/Concern: The Hagar Liquefied Natural Gas (LNG) Plant was installed in 1968 to provide security of supply to the Sudbury industrial and distribution markets. The KVGR Compressor is one of the two compressors used to power the refrigerant process which cools the natural gas feedstock to -160°C at which point the natural gas turns into a liquid. The KVGR Compressor is necessary to produce LNG. The consequence of compressor failure is dominated by customer impact. Risk associated with failure of the KVGR Compressor is heavily influenced by the time of year, weather severity and time to mitigate the failure. Over its 50 years of operation, the 1,500 horsepower Ingersoll Rand KVGR Compressor has amassed 140,000 operational hours. The compressor is obsolete and, although normal wear components are still available in the marketplace, some core compressor replacement items such as cylinders, crankshafts, pistons, etc., required to support a critical failure may no longer manufactured by the original equipment manufacturer (OEM). In the event of a critical failure, securing used parts (which are rare) or aftermarket custom machining services may be the only option for a timely repair. In the event custom machining services are not able to make a repair, a custom-designed aftermarket casting option or complete replacement of the compressor would be required rendering the LNG plant out of service for at least one operational season .

Assets: Compressor and Cycle Mix Cooler

Recommended Alternative Description

Scope of Work: Replacement of the 1,500 horsepower KVGR Compressor

Solution Impact: Mitigate the risk of a critical part failure that is non-repairable due to obsolescence.

Resources: Projects will work with a third-party engineering firm to complete the design and a contractor to complete the field work. Operations will support Major Projects as required.

Project Timing & Execution Risks: The proposed timing to complete the on-site work is during the second and third quarters of the year. Design and ordering of long-lead items will need to occur a year in advance. Due to the age of the plant, the replacement of an individual component such as the compressor introduces a risk of the compatibility of new equipment with the existing balance of the plant. This could result in a change in project scope or an approach that favours broader plant renewal.

Investment Type	Project (EGI)	Planning Portfolio	UG - Core - LNG - Replacements
Investment Stage	Long Term Planning		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	Div_92 - Union North Storage
	Asset Program (EGI)	LNG - Replacements
	Asset Class (EGI)	LNG
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	No
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)	
Hagar KVGR and Cycle Mix Cooler									$	19,092,000
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,500,000	$ 17,592,000
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

ENBRIDGE

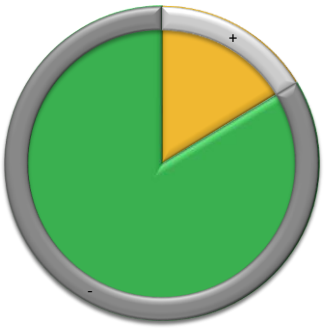
Investment Summary Report

Investment Code	Report Start Year	Number of Years
48709	**2025**	**10**

Investment Name

Hagar KVGR and Cycle Mix Cooler

Alternative Value - Recommended



Value Function Measure	Value
Operational Risk	2,785
Reputational Risk	18
Financial Risk	2
Environmental Risk And Remediation	0
Employee And Contractor Safety Risk	0
Public Safety Risk	0
Avoided GHG Emissions (CA)	0
Budget Savings OPEX (CA)	0
Cost Avoidance CAPEX (CA)	0
Cost Avoidance OPEX (CA)	0
Total Investment Cost (CA)	(14,285)
Total	**(11,481)**

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
101136	**2025**	**10**

Investment Name

New London Site

Investment Description

Issue/Concern/Opportunity: This project will allow for potential consolidation currently under review of four operational sites in the Union rate zones into a single facility.
Boundary analysis still ongoing and investment details will continually be updated as strategy progresses.

Recommended Alternative Description

Scope of Work:
EGI's new Zero Carbon facility in London, Ontario, will replace the existing building, which currently emits approximately 235 tonnes of CO2 annually. This project is designed to eliminate these emissions entirely, aligning with the company's commitment to sustainability and reducing its environmental impact. The new facility will be built following decarbonize strategies, emphasizing low-embodied carbon materials and passive design strategies. These include optimizing the building's material selection, orientation, geometry, and envelope to minimize energy load while maximizing efficiency. Design strategies will also focus on airtight construction, superior insulation, and strategic use of natural light, all of which contribute to significant energy savings. In addition, the facility will feature energy systems designed to operate with maximum efficiency. Renewable energy sources, such as geothermal and solar photovoltaic (PV) systems, will be considered to integrated into the design, further reducing reliance on non-renewable energy. By embracing these sustainable practices, the new facility not only eliminates direct carbon emissions but also serves as a model for future low-carbon building projects.

This project requires selling existing assets, purchasing a property suitable in size (approximately 7 to 10 acres) and building a new 44,000 sq. ft. building that will consist of administration, warehouse, welding and fabrication facilities.
The preferred strategy is to correct physical and functional deficiencies by purchasing a new site and build a new facility on the new site.
Resources: External professional resources for design and engineering along with a construction company will be contracted for the project. Historically, Enbridge Gas Inc. (EGI), has retained architectural and engineering consulting services and general construction contractors for the execution of similar projects.
Solution Impact: This option corrects operational and workplace inefficiencies by consolidating existing facilities. The service life for the new facility will be 25 to 40 years.
Project Timing & Execution Risks
Timing: The total project duration is 30 months:
0 – 3 months: Programming, design development, and location analysis
3 – 6 months: Site acquisition
6 – 12 months: Site plan agreement, permit and tender documents, permit and tender process
12 – 14 months: Contract award and winter contingency as required
14 – 28 months: Construction
28 – 30 months: Fit-up and occupancy
Post-occupancy disposition of property
Risks include contractor delays and material delivery delays or defects.

Expenditures:
The total cost for the project is $42M net capital which includes a working construction cost contingency of 15%. Construction costs are determined based on historical EGI project costs and land values using marketplace comparisons. The project also leverages national pricing agreements with furniture, walls, and flooring manufacturers. The project costs are based on a Class 5 estimate.

Investment Type	Project (EGI)	Planning Portfolio	UG - Core - Real Estate & Workplace Services - Furniture/Structures & Improvements
Investment Stage	Executing		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	Div_04 - London
	Asset Program (EGI)	REWS - Furniture/Structures & Improvements
	Asset Class (EGI)	Real Estate & Workplace Services
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	No
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)	
New London Site									$	41,974,952
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ -	$ -	$ -	$ -	$ -	$ 1,645,000	$ 18,810,000	$ 20,000,000	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

ENBRIDGE

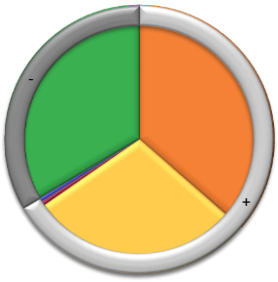
Investment Summary Report

Investment Code	Report Start Year	Number of Years
101136	**2025**	**10**

Investment Name

New London Site

Alternative Value - Recommended



Value Function Measure	Value
Cost Avoidance OPEX (CA)	24,466
Employee Productivity (CA)	19,508
Energy Efficiency (CA)	330
Avoided GHG Emissions (CA)	373
Cost Avoidance CAPEX (CA)	0
Budget Savings CAPEX (CA)	0
Budget Savings OPEX (CA)	0
Revenue Impact (CA)	0
Total Investment Cost (CA)	(22,520)
Total	**22,156**

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
48654	**2025**	**10**

Investment Name

Dawn Parkway Expansion Project (Kirkwall-Hamilton NPS 48)

Investment Description

Issue/Concern: In response to increased natural gas demand growth along the Dawn Parkway System, the Kirkwall to Hamilton Expansion will provide reliable, secure, economic natural gas capacity to meet the growing design day demand of the Dawn Parkway Transmission system which serves both in- and ex-franchise markets.

Assets: The Kirkwall-Hamilton Expansion Project consists of 10.2 km of NPS 48 pipeline from the Kirkwall Valve Site to the Hamilton Valve Site.

Recommended Alternative Description

Scope of Work:
System installation of approximately 10.2 km of NPS 48 internally-coated pipeline from Kirkwall Valve Site (17V-302) to Hamilton Valve Site (18W-601V) on the Dawn Parkway System.

Resources:
Projects group to provide project management support from design and planning phase to project execution.

Solution Impact:
Capacity is available on the Dawn Parkway System to meet in-franchise growth and customer demand.

Project Timing & Execution Risks:
As of Spring 2024, project ISD timing is projected to be in 2028.

This project was filed with the Ontario Energy Board (OEB); but due to the global pandemic, there was demand uncertainty and the project ultimately was paused. Transmission System Planning will indicate when this project needs to move forward. Further analysis may need to be done once the OEB issues its decision regarding Integrated Resource Planning (IRP). With any project involving a pipeline, there will be land acquisition risk, opposition risk and the risk of a positive decision by the OEB.

Schedule delays due to right-of-way access for survey, environmental studies, permitting, and/or issuance of OEB Leave to Construct may put at risk the planned in-service date.

Proposal is based on Class 4 level cost estimates. There is risk that actual capital costs could exceed the estimate.

Investment Type	Project (EGI)	Planning Portfolio	UG - Core - Transmission Pipe & Underground Storage - Growth
Investment Stage	Executing		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	Div_16 - Hamilton
	Asset Program (EGI)	TPS - Growth
	Asset Class (EGI)	Transmission Pipe & Underground Storage
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	Yes
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)	
Dawn Parkway Expansion Project (Kirkwall-Hamilton NPS 48)									$	205,317,211
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ 200,000	$ 18,000,000	$ 38,247,415	$ 128,942,204	$ 16,000,000	$ -	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
100699	**2025**	**10**

Investment Name

Dawn Parkway Expansion Project (Dawn-Enniskillen NPS 48)

Investment Description

Issue/Concern: In response to increased natural gas demand growth along the Dawn Parkway System, the Kirkwall to Hamilton Expansion will provide reliable, secure, economic natural gas capacity to meet the growing design day demand of the Dawn Parkway Transmission system which serves both in- and ex-franchise markets. These facilities are incremental to the Kirkwall to Hamilton Expansion (Investment Number 48654) and timing is dependent on the Dawn Parkway System demands.

Assets: Install approximately 17.2 km of NPS 48 internally-coated pipeline from Dawn Compressor Station (10G-301) to Enniskillen Valve Site (11H-301V) on the Dawn Parkway System.

Recommended Alternative Description

Scope of Work:
Install approximately 17.2 km of NPS 48 internally-coated pipeline from Dawn Compressor Station (10G-301) to Enniskillen Valve Site (11H-301V) on the Dawn Parkway System.

Resources:
Projects group to provide project management support from design and planning phase to project execution.

Solution Impact:
Capacity is available on the Dawn Parkway System to meet in-franchise growth and customer demand.

Project Timing & Execution Risks:
- Schedule delays due to right-of-way access for survey, environmental studies, permitting, and/or issuance of OEB Leave to Construct (LTC) may put at risk the planned in-service date.
- This project will follow Kirkwall to Hamilton (48654). It will be based upon studies done by the Transmission System Planning identifying a need for expansion based upon the demands from the study.
- Once the OEB issues its decision regarding Integrated Resource Planning (IRP), further analysis may need to be done.
- With any project involving a pipeline, there will be land acquisition risk, opposition risk and the risk of a positive decision by the OEB.
- Estimate/ Forecast does not include maximum operating pressure (MOP) Upgrade or Dawn Station Work.
- Current forecast in-service date of 2030

Investment Type	Project (EGI)	Planning Portfolio	UG - Core - Transmission Pipe & Underground Storage - Growth
Investment Stage	Long Term Planning		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	Div_04 - London
	Asset Program (EGI)	TPS - Growth
	Asset Class (EGI)	Transmission Pipe & Underground Storage
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	Yes
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA)	
Dawn Parkway Expansion Project (Dawn-Enniskillen NPS 48)									$	295,000,000
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ -	$ -	$ -	$ 59,000,000	$ 88,500,000	$ 147,500,000	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
736923	**2025**	**10**

Investment Name

Panhandle Growth - Leamington Interconnect

Investment Description

Issue/Concern/Opportunity:
To provide reliable, secure, and affordable natural gas supply to meet the growth in Design Day demand of the Panhandle System, timing of this investment is contingent on demand forecast and TSP recommendation and is likely beyond 2033 horizon

Assets:

i) Leamington Interconnect : 12 km of 6040 kPag loop of the NPS20; or Leamington North Line/Leamington North Line Loop reinforcement; and/or IRP partial solution

ii. Leamington Interconnect Valve Sites: Three new valve sites with isolation valves are required to connect to each of the existing laterals (1. Leamington North Line and Leamington North Loop, 2. Mersea Line and 3. Kingsville East Line). Launcher/receiver facilities will be installed at location 1 and 3.

Recommended Alternative Description

1. Scope Install approximately 12 km of NPS 20 or Leamington North Line/Leamington North Line Loop reinforcement

Reinforcement projects broadly involve the installation of new or modification of existing gas distribution assets to maintain minimum required system pressure, maintain capacity, and meet customer demand. These projects are primarily driven by customer growth and system reliability considerations. Failure to implement reinforcement projects in a timely manner could lead to a potential inability to support increasing demands of existing customers and the addition of future customers.

2. Resources:
This project will be internally managed by EGI staff. Construction work, such as well drilling and new pool piping installation, will be performed by contractors.

3. Solution Impact:
Expansion of the Panhandle system provides customers in the Leamington and Kingsville area with increased access to diversity, reliability and security of supply of the Dawn Hub.

4. Project Timing & Execution Risks:
This project 's in-service date is contingent on demand forecast and Transmission Pipe and Storage (TSP) recommendations.

Investment Type	Project (EGI)	Planning Portfolio	UG - Core - Transmission Pipe & Underground Storage - Growth
Investment Stage	Executing		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	Div_01 - Windsor
	Asset Program (EGI)	TPS - Growth
	Asset Class (EGI)	Transmission Pipe & Underground Storage
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	Yes
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)	
Panhandle Growth - Leamington Interconnect									$	86,130,711
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 172,130	$ 21,118,437	$ 64,020,960
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Report Generation Date: 8/26/2024

ENBRIDGE

Investment Summary Report

Investment Code	Report Start Year	Number of Years
735972	**2025**	**10**

Investment Name

Panhandle Growth

Investment Description

Issue/Concern:
Panhandle System expansion is driven by in-franchise growth in Chatham-Kent, Windsor-Essex and surrounding areas, including the fast-growing greenhouse market in the Leamington/Kingsville area. Based on the current forecast for in-franchise general service and contract growth in the Panhandle Transmission System market, EGI has determined that the next Panhandle facilities for expansion will need to be in place). These facilities are incremental to the Panhandle Regional Expansion Project and timing is dependent on the Panhandle System demands.

Assets:
Install approximately 12 km of NPS 36 pipeline from Richardson sideroad, looping the existing Panhandle NPS 20 pipeline to Comber Transmission Station (05E-403).

Recommended Alternative Description

Scope
To provide reliable, secure, and affordable natural gas supply to meet the growth in Design Day demand of the Panhandle System by installing approximately 12 km of NPS 36 pipeline from Richardson Sideroad, looping the existing Panhandle NPS 20 pipeline to Comber Transmission Station (05E-403).

Resources
This project will be internally managed by EGI staff. Construction work, such as well drilling and new pool piping installation, will be performed by contractors.

Solution Impact
Expansion of the Panhandle system will provide customers with increased access to diversity, reliability and security of supply of the Dawn Hub.

Project Timing & Execution Risks
Original forecast for construction will commence in 2029. The expected in-service date is 2031.

Investment Type	Project (EGI)	Planning Portfolio	UG - Core - Transmission Pipe & Underground Storage - Growth
Investment Stage	Long Term Planning		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	Div_02 - Chatham
	Asset Program (EGI)	TPS - Growth
	Asset Class (EGI)	Transmission Pipe & Underground Storage
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	Yes
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name									Net Base Capex O (CA) (without overheads)	
Panhandle Growth									$	135,000,000
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ -	$ -	$ -	$ -	$ 257,458	$ 31,587,263	$ 95,757,413	$ 7,397,866	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Report Generation Date: 8/26/2024

Investment Code	Report Start Year	Number of Years
740055	**2025**	**10**

Investment Summary Report

Investment Name

Panhandle Regional Expansion Project - Dawn Facilities

Investment Description

Issue/Concern:
To provide reliable, secure, and affordable natural gas supply to meet the growth in Design Day demand of the Panhandle System:

Assets:
i. Dawn Yard (Moved to Investion Number - 740055) : 700 m of 8960 kPa maximum operating pressure (MOP) NPS42 station header is required to maintain the maximum sustainable pressure on design day. This header will also provide operational flexibility and security of supply to the Panhandle system.

Related Program:
Panhandle Regional Expansion Project

Recommended Alternative Description

1. Scope:

To provide reliable, secure, and affordable natural gas supply to meet the growth in Design Day demand of the Panhandle System:

i. Dawn Yard: 700 m of 8960 kPa MOP NPS42 station header is required to maintain the maximum sustainable pressure on design day. This header will also provide operational flexibility and security of supply to the Panhandle system.

2. Resources:
This project will be internally managed by EGI staff. Construction work, such as well drilling and new pool piping installation, will be performed by contractors.

3. Solution Impact:
Expansion of the Panhandle system provides customers with increased access to diversity, reliability and security of supply of the Dawn Hub.

4. Project Timing & Execution Risks:
This project started 2021 with its feasibility endorsed in Q2 2022. Construction will commence in 2025. The expected in-service date is Fall 2025.

Investment Type	Project (EGI)	Planning Portfolio	UG - Core - Transmission Pipe & Underground Storage - Growth
Investment Stage	Executing		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	70 - Storage
	Asset Program (EGI)	TPS - Growth
	Asset Class (EGI)	Transmission Pipe & Underground Storage
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	Yes
	Intolerable Risk (EGI)	No
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name		Net Base Capex O (CA) (without overheads)
Panhandle Regional Expansion Project - Dawn Facilities		$ 46,798,278

Account Type	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Base CAPEX O	$ 36,031,195	$ 668,560	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Report Generation Date: 8/26/2024

Investment Code	Report Start Year	Number of Years
100086	**2025**	**10**

Investment Summary Report

Investment Name

Panhandle Line - Risk Mitigation

Investment Description

Issue/Concern: EGI's Integrity Management team initiated work in 2019 to better understand the risk associated with the two NPS 12 crossings that connect the Panhandle Eastern System owned and operated by Energy Transfer in Michigan with the EGI system in Ontario. These two crossings, installed in 1947, have never been internally inspected to check for the presence of the primary threat of internal corrosion; such inspection cannot be achieved given the configuration of the asset.

A risk assessment was recently completed for the river crossings. The risk owner and risk approver reviewed the risk results and have decided the risk requires treatment with a permanent solution.

Assets: Transmission Pipeline (Canada Energy Regulator (CER)-regulated crossing)

Recommended Alternative Description

Scope of Work: Replacement of the twin NPS 12 Crossings with a single pipeline of equivalent capacity.

Resources: Projects group to provide project management support from design and planning phase to project execution.

Solution Impact: The principal risk is the lack of In-line Inspection (ILI) data needed to inform effective decision-making to mitigate a potential loss of pipeline containment (i.e., leak). Replacement with a new single pipeline, designed, manufactured and constructed to current standards that is ILI-capable can address this risk.

Project Timing & Execution Risks: Original in-service date was estimated to be Q3 2024. Overall project schedule is highly dependent on regulatory process and discussion with joint partner (Energy Transfer). As of spring 2024, ISD is forecast to be 2028 pending discussion with ETP.

Investment Type	Project (EGI)	Planning Portfolio	UG - Core - Transmission Pipe & Underground Storage - Replacements
Investment Stage	Executing		

Investment Overview

1. Project Information	State/Province	Ontario
	Operating Area (EGI)	Div_01 - Windsor
	Asset Program (EGI)	TPS - Replacements
	Asset Class (EGI)	Transmission Pipe & Underground Storage
2. Compliance	Compliance Investment	No
	Compliance Justification & Code	
3. Must Do	Must Do Investment	Yes
	Intolerable Risk (EGI)	Yes
	Third Party Relocation (EGI)	No
	Program work with sufficient history and risk to warrant continuation (EGI)	No

Alternative Spend Profile - Recommended

Name										Net Base Capex O (CA)
Panhandle Line - Risk Mitigation										$ 30,039,110
Account Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Base CAPEX O	$ 100,000	$ 3,000,000	$ 8,400,000	$ 18,000,000	$ 500,000	$ -	$ -	$ -	$ -	$ -
Contributions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dismantlement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Report Generation Date: 8/26/2024

Region	Operating Area (EGI)	Asset Class	Binary Screening (Pass/ Fail)	Cause of Binary Screening Fail	Investment Code	Investment Name	In Service Date	2025-2034 Forecast (Includes overhead allocation)	Investment Description - Binary Screening - Pass	Technical Screening (Pass/Fail)	Cause of Technical Screening Fail	Technical Evaluation Completion Status	Technical Evaluation Results	Technical Evaluation Comments	Economic Evaluation Completion Status	Economic Evaluation Results	Economic Evaluation - IRPAs Considered	IRP Plan Completion Status	IRP Plan - Results	IRP Plan - IRPAs Considered
Southeast	**Div_07 - Waterloo**	Growth	**Pass**		**30542**	SRP2024_(07)Brantford/Waterloo_Owen Sound_County Rd 40_Reinforcement_NPS12_11800m_4670kPa	**2031**	$ 36,778,983	Risk/Concern/Opportunity: The Owen Sound system north of St. Jacob's historically adds about 1300 customers per year and growth has been strong along the lakeshore (Port Elgin, Southampton, Owen Sound & towards Collingwood). Assets: Loop existing 10-inch Steel 4,670 kPa main from existing PH4 reinforcement to Squire, Ontario with 12-inch steel main. Install valve site and 12-inch receiver facilities. See C55 Project Code: 743688 for details on IRP Project	Pass		Completed	Pass	CNG, ETEE - Potentially could eliminate, reduce or defer project scope.	Planned					
GTA West	**20 - Mississauga**	Growth	**Pass**		**30500**	SRP2024_(20)Missisauga_Shelburne_Blind Line_Reinforcement_NPS8_15700m_XHP_&_37 30322_Upgrade	**2026**	$ 36,447,118	NW 2103 Dundalk XHP Reinforcement SRP Issue/Concern/Opportunity: Inlet to Ida and Hanbury district station (Dundalk) has dropped below system minimum requirements. Gas volume and flow will be diminished with a potential to limit supply to existing and future customers. There is potential for loss of supply to existing customers during peak period demands. Assets: Pipe and district station Related Program: Not applicable	Pass		Completed	Pass	CNG, ETEE - CNG potentially could defer project scope, ETEE potentially could reduce or defer project scope.	Planned					
GTA West	**50 - Barrie**	Growth	**Pass**		**30501**	SRP2024_(20)Missisauga_Erin_Charleston Sideroad _Reinforcement_NPS8_7000m_XHP_&_21100A _Upgrade	**2026**	$ 14,268,807	Issue/Concern/Opportunity: Inlet to Shamrock & HWY 24 district station (Erin) has dropped below system minimum requirements. Gas volume and flow will be diminished with a potential to limit supply to existing and future customers. There is potential for loss of supply to existing customers during peak period demands. Pressures fall well below the 100 psig MSP at the tail end of NW 2103 in Erin due to significant projected growth within the town of Erin, Ontario. Reinforcement has been scoped out to achieve an inlet pressure of 485 kPa (70 psi) into Stn 21100A to reduce the length required. Install pipe to improve pressure for downstream station inlet - Network 2103 (i.e., 400 psig system) low pressures modeled at inlet to Erin Stn21100A (74.8psig). Assets: Pipe-3500m of looped 8" ST XHP pipe along Charleston Sideroad from Hurontario St to Shaws Creek Road Station- Upgrade Station 21100A (Shamrock & Hwy 24 District) Related Program: Not applicable	Pass		Completed	Pass	CNG, ETEE - CNG potentially could defer project scope, ETEE potentially could reduce or defer project scope.	Planned					
GTA West	**20 - Mississauga**	Growth	**Pass**		**31018**	SRP2024_(20)Missisauga_Brampton_Wanless Dr/Hurontario St_Reinforcement_NPS8_3550m_XHP_&_20327 A_Upgrade	**2027**	$ 12,272,866	Extensive growth along NW 2103 in the North redirects the gas supply coming from Bondhead Gate Station away from Caledon and Erin, forcing pressures to fall below MSP in these areas at design conditions. Reinforcement from the south allows for Brampton Gate to have a greater impact in supplying these regions, thus ensuring the pressures in these areas stay above MSP of 485 kPa. Station modification and pipe reinforcement required to maintain system pressures due to growth. This includes the following: - Approximately 1400m of 8" ST XHP pipe looped around existing pipe on Wanless Dr from McLaughlin Rd to Hurontario St. - Approximately 8000m of 8" ST XHP pipe looped around existing pipe on Hurontario St from Wanless Dr tonorth of King St.	Pass		Completed	Pass	CNG, ETEE - CNG potentially could defer project scope, ETEE potentially could reduce or defer project scope.	Planned					
Southeast	**Div_07 - Waterloo**	Growth	**Pass**		**31019**	SRP2024_(07)Brantford/Waterloo_Listowel_Hig hway 23_Reinforcement_NPS6_7500m_1900kPa	**2030**	$ 11,129,470	System reinforcement by looping the existing NPS 3 & 4 main between Station 22Q-401R (43.760797, -80.956279) and Station 21Q-101R (43.70467, -80.989646) with an NPS 6 ST 1900 kPa pipeline. Approximate length of the reinforcement is 7.5 km.	Pass		Completed	Pass	CNG, ETEE - CNG potentially could defer project scope, ETEE potentially could reduce project scope.	Planned					
Northern & Eastern	**60 - Ottawa**	Growth	**Pass**		**7743**	SRP2024_(60)Ottawa_L'Orignal_ROW_Reinforce ment_NPS8_3300m_XHP	**2027**	$ 6,647,131	Issue/Concern: Reinforcement projects broadly involve the installation of new or modification of existing gas distribution assets to maintain minimum required system pressure to maintain the capacity to meet customer demand. These projects are primarily driven by customer growth and system reliability considerations. Failure to implement reinforcement projects in a timely manner could lead to a potential inability to support increasing demands of existing customers and the addition of future customers. • Project Purpose/Need: This reinforcement is to add capacity within legacy Enbridge Gas Distribution's pipe network to: o Satisfy the current contractually allowable demand of the Large Volume Contract (LVC) customer, which is 6,800 m3/h o Support customer growth of the downstream High Pressure Polyethylene (HPPE) network This geographic area sits at the eastern tail end of XHP network 6587, which is fed exclusively by Lancaster gate to the southeast. • Pressure Issue/Concern : The minimum system pressure was forecasted to be infeasible by 2020. • Customer Growth Issue/Concern: As of 2017, there are 2,039 customers on this network. Without reinforcement, a forecasted 24 customers may not be able to be added. • Risk If Not Completed: System risk without the reinforcement o EGI may not be able to satisfy contractual demand of a large-volume customer along with supporting forecasted customer growth o This network is at the mid-tail end of the East Valley line, with pressures approaching the minimum. o This XHP system is operating at over 30% Specified Minimum Yield Strength (SMYS). If this line pressure drops below 30% SMYS, this reinforcement will not be sufficient. o Approximately 1,430 customers would potentially be lost over the winter of 2017 – 2018. o There are approximately 2,039 customers forecasted to be connected by 2017. Assets (preferred option): • Station: 62328A set to 80 psig • Main: - 10 km - NPS 4 XHP main - from County Rd. 17 and Hwy 11 - to Cassburn Rd. and Emerson Rd. - along Hwy 11. Related Programs: Not applicable	Pass		Completed	Pass	CNG, ETEE - Potentially could reduce or defer project scope.	Planned					
Northern & Eastern	**60 - Ottawa**	Growth	**Pass**		**31027**	SRP2024_(60)Ottawa_Perth_New STN	**2031**	$ 5,969,490	Pressures on system drop below 700kPa minimum system pressure due to growth. New Gate station is required to bring system pressures above MSP to sustain growth.	Pass		Completed	Pass	CNG, ETEE - CNG potentially could defer project scope, ETEE potentially could reduce or defer project scope.	Planned					
GTA East & Toronto	**40 - Whitby**	Growth	**Pass**		**31020**	SRP2024_(40)Whitby_Lindsay_Hwy 35_Reinforcement_NPS8_4000m_2758kPa	**2031**	$ 3,505,007	Approximately 4 km of NPS 8 ST XHP along Hwy 35 (replacing existing NPS 4 XHP) is required to maintain pressures above minimum system pressure at the inlet to station 13294123 (Logie & Riverview District). Highlighted main is the proposed reinforcement. Future reinforcement including extending this reinforcement on Hwy 35 and downstream reinforcement on Logie St to station 13294123 may be required after 2033 to support future growth in Lindsay, based on growth data provided by the region.	Pass		Completed	Pass	CNG, ETEE - CNG potentially could defer project scope, ETEE potentially could eliminate, reduce or defer project scope.	Planned					
Southeast	**Div_07 - Waterloo**	Growth	**Pass**		**739271**	SRP2024_(07)Brantford/Waterloo_Port Elgin_29N-101_Upgrade_Station Rebuild	**2027**	$ 2,865,137	Due to growth in the Port Elgin area, a station rebuild is needed to increase capacity of this system. Due to current Port Elgin station location and land sizing, a land purchase will be required for the station rebuild. With a new land purchase, pipeline work will be required as well. The station rebuild will require a heater	Pass		Completed	Pass	CNG, ETEE - Potentially could defer project scope.	Planned					
Northern & Eastern	**60 - Ottawa**	Growth	**Pass**		**31008**	SRP2024_(60)Ottawa_Ottawa_Poupart Rd_Reinforcement_NPS8_2500m_379kPa	**2026**	$ 2,791,882	System below 20 psi minimum. Route proposed will establish trunk main for proposed subdivision, and improve pressures further downstream in Rockland IP network. Phase 2 IP reinforcement will involve the installation of NPS 8 PE main from the end of the existing NPS 4 PE main along Poupart Rd, connecting to the existing main on St Jean st. Timing largely dependant on Stewart Village project timeline. Phase 3 Reinforcement will involve looping installation of NPS 6 PE main along Poupart Rd.	Pass		Completed	Pass	CNG, ETEE - CNG potentially could eliminate, reduce or defer project scope, ETEE potentially could reduce or defer project scope.	Planned					
GTA West	**50 - Barrie**	Growth	**Pass**		**31021**	SRP2024_(50)Barrie_Innisfil_Webster Rd_Reinforcement_NPS6_2400m_345kPa_&_Ne w STN	**2027**	$ 2,457,563	New station and distribution pipe to connect to existing system to support downstream growth 1st Preferred Design to accommodate Regional Growth New Station at S/E corner of Innisfil Beach Rd & Webster Blvd. 2400m NPS 6 PE Pipe from New Station Outlet to Quarry & Webster	Pass		Completed	Pass	CNG, ETEE - CNG potentially could defer project scope, ETEE potentially could reduce project scope.	Planned					
Southeast	**Div_07 - Waterloo**	Growth	**Pass**		**30541**	SRP2024_(07)Brantford/Waterloo_Listowel_21Q-103R_Upgrade_Station Rebuild	**2032**	$ 2,219,862	Due to load growth in the area, a station rebuild is required to replace the existing 21Q-103R. The station rebuild will increase system capacity and maximum sustainability of the system. The new station will include a filter and ERX with cell modem.	Pass		Completed	Pass	CNG, ETEE - Potentially could defer project scope.	Planned					
Southwest	**Div_04 - London**	Growth	**Pass**		**30556**	SRP2024_(04)London/Sarnia_London_13O-402_Upgrade	**2029**	$ 1,748,484	Westmount station is flowing over capacity, currently without System Reinforcement Plan (SRP) growth. Station capacity is limited by filter, regulator runs and inlet pipe size. Full rebuild required to increase station capacity beyond existing. Heater replaced by investment 745885 in 2024 to be re-used in this rebuilt station (installed heater is adequately sized for future growth). Integrity concerns due to corrosion features found during FIMP inspection would be remediated as part of this rebuild as well. Proposed rebuild would bring station up to current design standards with the addition of SCADA (pressure, temperature and flow) measurement.	Pass		Completed	Pass	CNG, ETEE - CNG potentially could defer project scope, ETEE potentially could eliminate, reduce or defer project scope.	Planned					
Southwest	**Div_01 - Windsor**	Growth	**Pass**		**31004**	SRP2024_(02)Windsor/Chatham_Harrow_Ridge Rd_Reinforcement_NPS6_500m_1040kPa_&_03 C-401R_Upgrade	**2028**	$ 1,667,822	Station modification and pipe reinforcement required to maintain system pressures due to growth 500m NPS 6 - 1040kPa MOP - Main looping to restore pressures Lower minimum inlet to 485 kPa (03C-404R) Increase flow with a max sustainable of 380 kPa (03C-401R)	Pass		Completed	Pass	CNG, ETEE - CNG potentially could defer project scope, ETEE potentially could eliminate, reduce or defer project scope.	Planned					
Southwest	**Div_04 - London**	Growth	**Pass**		**30560**	SRP_Southwest_Sarnia_New STN & Reinforcement_NPS6_1600m_420kPa [IRP Pilot for 743910]	**2025**	$ 1,213,682	A new distribution station off of the existing 1,210 kPa system and a main extension to tie into the 420 kPa system north of Sarnia along the water is required. This project has been selected as one of the IRP Pilots. Refer to Facility Project Code: 743910	Pass		Completed	Pass	CNG, ETEE - Potentially could defer project scope.	N/A - Pilot Project	N/A - Pilot Project	N/A - Pilot Project			
Southeast	**80 - Niagara**	Growth	**Pass**		**31033**	SRP2024_(80)Niagara_Niagara Falls_Reixinger Rd and Ort Rd_Reinforcement_NPS6_1050m_241kPa	**2027**	$ 1,141,343	Pipe reinforcement required to maintain system pressures due to growth 1050m of NPS 6 PE - IP from the existing NPS 6 at the intersection of Stanley Ave and Reixinger Rd running east along Reixinger Rd then north along Ort Rd, tying into the existing NPS 4 main on Ort Rd.	Pass		Completed	Pass	CNG, ETEE - CNG potentially could defer project scope, ETEE potentially could eliminate, reduce or defer project scope.	Planned					

Southeast	**Div_16 - Hamilton**	Growth	**Pass**	**739844**	SRP2024_(16)Hamilton_Mount Hope_15X-106R_Upgrade	**2029**	$	1,045,165	Investment 739844 is continuation of the original investment 102026. Investment 102026 was marked as "Complete" which should not be the case as there is station install work commencing in 2024. Network Analysis identified the need to reinforce the IP system near Hamilton Airport due to growth in that area. The current system would not be able to withstand demand past Winter 2022. Installing the new station at Upper James St & White Church Rd (15X-106R) would reinforce that system. The station inlet will come off the 3450 kPa system in that area and the station outlet pipe will connect to the 420 kPa system. Due to Archaeological work at the station, the installation of the station was delayed in 2022, hence a 6" PE main reinforcement was installed on Cargo Road (Investment 737505) as recommended by Network Analysis in 2022 to get us by for Winter 2023.	Pass	Completed	Pass	CNG - Potentially could defer project scope.	Planned
GTA West	**50 - Barrie**	Growth	**Pass**	**30503**	SRP2024_(50)Barrie_Midhurst_Finlay Mill Rd_Reinforcement_NPS4_1350m_345kPa	**2025**	$	952,715	NW 5346 Midhurst Reinforcement SRP Issue/Concern/Opportunity: Total of 1,300 m NPS 4 is required to increase security of supply for Midhurst, and maintain 140 kPa as Minimum System Pressure in this Maximum Operating Pressure (MOP) 345 kPa system. Assets: Pipe Related Program: Not applicable	Pass	Completed	Pass	CNG, ETEE - CNG potentially could reduce or defer project scope, ETEE potentially could eliminate, reduce or defer project scope.	Planned
GTA West	**30 - Richmond Hill**	Growth	**Pass**	**736532**	SRP2024_(30)Richmond Hill_King City_34014A_Upgrade	**2025**	$	885,996	Issue/Concern/Opportunity: Install 1,280 m of NPS 4 PE Intermediate Pressure (IP) along Jane St. from King Rd., tying into NPS 2 main at Westgate Blvd. System pressures were projected to fall below minimum system pressures in 2022. Station 34014A will need to be upsized due to station drooping and reaching capacity. Assets: Pipe and district station Related Program: Not applicable	Pass	Completed	Pass	CNG, ETEE - CNG potentially could defer project scope, ETEE potentially could reduce project scope.	Planned
Southwest	**Div_04 - London**	Growth	**Pass**	**31003**	SRP2024_(04)London/Sarnia_Bayfield_Hwy 21_Reinforcement_NPS4_3800m_550kPa	**2025**	$	853,316	Pipe reinforcement required to maintain system pressures due to growth. Two options currently being identified. 3800m NPS 4 looping or 4600m of NPS 4 looping to improve pressures in middle section of Bayfield system. Requires pre-work to determine which one is more feasible. Project is required once the Bayfield CNG station is decommissioned. Bayfield CNG is an O&M cost.	Pass	Completed	Pass	CNG, ETEE - CNG potentially could reduce or defer project scope, ETEE potentially could eliminate, reduce or defer project scope.	Planned
Southeast	**Div_07 - Waterloo**	Growth	**Pass**	**31009**	SRP2024_(07)Brantford/Waterloo_Breslau_19T-601R_Upgrade	**2029**	$	834,740	Station modification required to support growth downstream Breslau Station 19T-601R is expected to be flowing 7% over capacity in 2029 based on the recent increase to 6119 m3/h with the upgrades completed this year.	Pass	Completed	Pass	CNG, ETEE - CNG potentially could defer project scope.	Planned
Southeast	**80 - Niagara**	Growth	**Pass**	**31034**	SRP2024_(80)Niagara_Smithville, West Lincoln_New STN	**2029**	$	793,115	New station required to support downstream growth Install a new station with the NPS 4 ST HP on Station St as the inlet and the NPS 2 ST IP on Station St as the outlet.	Pass	Completed	Pass	CNG, ETEE - CNG potentially could defer project scope, ETEE potentially could eliminate, reduce or defer project scope.	Planned
GTA West	**20 - Mississauga**	Growth	**Pass**	**31017**	SRP2024_(20)Missisauga_Southgate_Southgate Sideroad 75_Reinforcement_NPS4_300m_IP_&_3936548_Upgrade	**2025**	$	783,505	The scope of this project is to extend approx. 300m 4" IP PE pipe and upgrade (replace) the existing district station 3936548 in order to maintain system pressure due to the future growth at Southgate Sideroad 75 (NW 2201). The current system pressure within network 2201 fell below MSP in 2022. The reinforcement is targeting to complete in 2025.	Pass	Completed	Pass	CNG, ETEE - CNG potentially could defer project scope, ETEE potentially could reduce or defer project scope.	Planned
Northern & Eastern	**60 - Ottawa**	Growth	**Pass**	**31028**	SRP2024_(60)Ottawa_Ottawa_Barrhaven_Reinforcement_NPS4_1025m_379kPa_&_8514872&6218SA_Upgrade	**2030**	$	777,982	Station modification and pipe reinforcement required to maintain system pressures due to growth Pressure Increase and Station modifications and looping required for low downstream pressures below 140kPa MSP. Station pressure increase is required in 2030 to offset low pressures due to growth. Main reinforcement timing and scope is likely to be influenced by natural growth in region, and may offset need for SRP piping reinforcements if customer driven reinforcement is required. Please note that this project includes costs for the main reinforcement, and for work required at stations 8514872 and 6218A.	Pass	Completed	Pass	CNG - Potentially could reduce or defer project scope.	Planned
GTA West	**20 - Mississauga**	Growth	**Pass**	**31016**	SRP2024_(20)Missisauga_Orangeville_Old Carriage Road_Reinforcement_NPS4_700m_IP	**2025**	$	773,513	Pipe reinforcement required to maintain system pressures due to growth	Pass	Completed	Pass	CNG, ETEE - CNG potentially could defer project scope, ETEE potentially could reduce or defer project scope.	Planned
Southeast	**Div_07 - Waterloo**	Growth	**Pass**	**31012**	SRP2024_(07)Brantford/Waterloo_Elmira_Church St W_Reinforcement_NPS6_850m_420kPa	**2028**	$	660,232	New Station near the intersection of Floradale rd and Church St W. Feeding the Elmira system from the NPS 12 Owen Sound Transmission (4670kPa MOP).	Pass	Completed	Pass	CNG, ETEE - CNG potentially could reduce or defer project scope, ETEE potentially could eliminate, reduce or defer project scope.	Planned
Northern & Eastern	**60 - Ottawa**	Growth	**Pass**	**31024**	SRP2024_(60)Ottawa_Ottawa_Shea Rd & Perth St_Reinforcement_NPS6_150m_379kPa	**2030**	$	354,118	Pipe reinforcement required to maintain system pressures due to growth Looping from station outlet required to account for pressures dropping below MSP on West side of town	Pass	Completed	Pass	Low Cost, Low Value	Planned
GTA East & Toronto	**10 - Toronto**	Growth	**Pass**	**31013**	SRP2024_(10)Toronto_Toronto_15978A_Upgrade	**2030**	$	320,123	The station has high flows that exceed listed parameters. A review was required to confirm if a rebuild is required to support growth downstream This station is critical and requires rebuild as the downtown core increases in load. This station is already on the radar from operations to replace with 2 new stations (existing spot is difficult).	Pass	Completed	Pass	Low Cost, Low Value	Planned
GTA West	**30 - Richmond Hill**	Growth	**Pass**	**2522**	Rodinea Road	**2026**	$	316,554	This station flows ~50,000 m3/hr and this is quite significant for the flows into Downtown Toronto. Issue/Concern/Opportunity: The HP network system needs reinforcement through this proposed piping connection. This project is to address system capacity loss due to a previous transit-related main abandonment in Area 10. Assets: install 223m of 8" steel HP gas main to connect mains at the east and the west side. HDD under the railroad. Related Program: N/A	Pass	Completed	Pass	Low Cost, Low Value	Planned
GTA East & Toronto	**40 - Whitby**	Growth	**Pass**	**736524**	NW 4793 Carnwith Dr. Brooklin Reinforcement SRP	**2025**	$	278,745	Issue/Concern/Opportunity: Pipe reinforcement of 520 m of NPS 6 PE along Carnwith Dr. W. is required due to system pressures below new minimum allowable system pressure. Assets: Pipe Related Investments: Not applicable	Pass	Completed	Pass	Low Cost, Low Value	Planned
Northern & Eastern	**60 - Ottawa**	Growth	**Pass**	**736680**	SRP2024_(60)Ottawa_Ottawa_Laurier_Reinforcement_NPS2_15m_379kPa	**2025**	$	269,849	Issue/Concern/Opportunity: Increase pressures that are below new system min in multiple locations. Pressure less then the 20 psi minimum in multiple locations on the network. Reinforcements are required to bring the system within standards. The system is single-fed and is located at the tail end of the XHP 6580 network that is primarily fed by the Ottawa Gate Station. Assets: Install 30m of 1 1/4" PE IP on Du Chateau Ave from Woods St to 30 m S of Woods St Install 55m of 2" PE IP on Lalonde St from Laurier St to 55 m N of Laurier St Install 100m of 2" PE IP On Notre Dame St from Laurier St to Alma St Related Program: Not applicable	Pass	Completed	Pass	Low Cost, Low Value	Planned
Southeast	**Div_07 - Waterloo**	Growth	**Pass**	**49079**	SRP2024_(07)Brantford/Waterloo_Guelph_Victoria Rd S_Reinforcement_NPS2_450m_420kPa	**2026**	$	261,532	Issue/Concern/Opportunity: System Reinforcement - Loop existing 2-inch PE with 1,300 m 6-inch PE along Victoria Rd. S. from Clair Rd. E. southerly to #1953 Victoria Ave. S. tying into NPS 4 PE main. (WAT FBPR 2022_1) Per Distribution Optimization Engineering (DOE) 2021 System Reinforcement Plan (SRP) review, project was deferred from 2022 to 2026. Asset: 2-inch PE with 1,300 m 6-inch PE along Victoria Rd. S. from Clair Rd. E. southerly to #1953 Victoria Ave. S. tying into NPS 4 PE main. (WAT FBPR 2022_1) Related Program: N/A	Pass	Completed	Pass	Low Cost, Low Value	Planned
GTA East & Toronto	**Div_22 - Kingston**	Growth	**Pass**	**30518**	SRP2024_(22)Eastern_Picton_28103006STN_Upgrade	**2027**	$	249,912	Station upgrades required for growth due to future load and community expansion on downstream networks. A full rebuild of the 1st cut (Station # 28103006 Picton TBS) is required due to capacity limit, pressure drop around the existing heater, and an IOPP issue with the existing relief valve. Note that there are 3 stations/cuts at the same property. The new station (1st cut) will include a new filter, a new CWT-1155 heater (enough to supply heat to all 3 stations on site), and new NPS 4 regulators. The new station capacity will be 15380 m3/h. See "Station Cost Breakdown" for class 5 cost estimate and details of equipment required.	Pass	Completed	Pass	Low Cost, Low Value	Planned
GTA East & Toronto	**Div_22 - Kingston**	Growth	**Pass**	**30512**	SRP_LUG East_Colborne_27401005STN_Rebuild	**2026**	$	244,383	Station upgrades required for growth due to future load on downstream network. A full rebuild of the station is required to remove AFV regulators. The template drawing used for the rebuild shall be 9.S-144 Monitor/Operator. The capacity of the station after the rebuild is 3613 sm3/h at an outlet max sustainable pressure of 380 kPa.	Pass	Completed	Pass	Low Cost, Low Value	Planned
Southwest	**Div_04 - London**	Growth	**Pass**	**31006**	SRP2024_(04)London/Sarnia_London_Colonel Talbot Rd_Reinforcement_NPS4_550m_420kPa	**2032**	$	243,607	Pipe reinforcement required to maintain system pressures due to growth - 550m of 420 kPa MOP - NPS 4 pipe to loop from NPS 4 on Pack Rd to NPS 2 on Clayton Walk - This project supports the low pressure location in south west London on Murray Rd (predicted to be below mins in Winter of 2030/2031)	Pass	Completed	Pass	Low Cost, Low Value	Planned
GTA West	**30 - Richmond Hill**	Growth	**Pass**	**739075**	Bathurst and Major Mackenzie station rebuild	**2026**	$	233,447	Issue/Concern/Opportunity: Reinforcement for Customer additional load. DOE suggested having a district station on Queen Filomena & Bathurst st to backfeed the network and avoid additional loads at Major Mac & Bathurst District Station. Justification: To avoid the existing station to be replaced with boillers with a large Station footprint(21mx15m) Assets: Related Investments:	Pass	Completed	Pass	Low Cost, Low Value	Planned
GTA West	**20 - Mississauga**	Growth	**Pass**	**742778**	CNG Injection - Area 20 - Solmar Erin JT Subdivision	**2025**	$	213,736	Issue/Concern/Opportunity: Network 2103 is experiencing low gas availability issue; it has insufficient supplies to handle more than 10 new customers through wintertime without CNG. We need to start looking for the CNG site as soon as we can because our customer requested 250 new homes for gas by winter 2024. Justification: The CNG investment works as an intern solution before the reinforcement along Charleston Sideroad/Wellington Rd 124 from Hurontario St (Investment 30501) is completed. However, as of now, DOE still hasn't had a timeline or budget to carry out this plan yet. I am working closely with DOE now and try to get a brief idea how much and how long CNG are we going to need to provide service to our customers in the Solmar Subdivision and I will fill you up with more information as soon as I hear anything from them. Assets: Related Investments:	Pass	Completed	Pass	Low Cost, Low Value	Planned

GTA West	**50 - Barrie**	Growth	**Pass**		**31023**	SRP2024_(50)Barrie_Innisfil Heights_8056131_Upgrade	**2034**	$	211,427	Station modification required to support growth downstream Station currently flows 42,500m3/h and maintains max sustainable of 2689 kPa. 2025 sees utilization above 50% and 2031 sees full utilization. 2035 flows (10 year after 50% utilization) see flows of 51,200 m3/h. Reduction of outlet to 360 PSI reduced UF to just above 50% and reduced flow of 51,000 m3/h.	Pass		Completed	Pass	Low Cost, Low Value	Planned
GTA East & Toronto	**40 - Whitby**	Growth	**Pass**		**736665**	Station Rebuild 42183A Brock and 3rd Conc SRP	**2025**	$	207,576	Issue/Concern/Opportunity: Scope: Station 42183A Rebuild Reinforcement - Pressure regulation upgrades are required to meet the downstream forecasted demands. The reason upgrades are required is to meet capacity requirements to feed network. Assets: District station rebuild Related Program: Not applicable	Pass		Completed	Pass	Low Cost, Low Value	Planned
GTA East & Toronto	**Div_22 - Kingston**	Growth	**Pass**		**736858**	King: Elgin and Ontario DRS Upgrade - SRP	**2028**	$	200,000	Rebuild of the Elgin & Ontario Streets (Cobourg) DRS due to growth, triggered by the Golden Plough long term care facility at 555 Courthouse Road. This rebuild was specified by DOE via an SRP	Pass		Completed	Pass	Low Cost, Low Value	Planned
GTA West	**50 - Barrie**	Growth	**Pass**		**31022**	SRP2024_(50)Barrie_Hobart_Highland Dr_Reinforcement_NPS4_400m_345kPa	**2030**	$	168,364	Pipe reinforcement required to maintain system pressures due to growth 400m NPS 4 PE Looping required. Increases security of supply and maintains MSP of 140 kPa within 345 kPa MOP system.	Pass		Completed	Pass	Low Cost, Low Value	Planned
Southeast	**Div_07 - Waterloo**	Growth	**Pass**		**31010**	SRP2024_(07)Brantford/Waterloo_Guelph_Paisley Rd_Reinforcement_NPS4_250m_420kPa	**2032**	$	160,359	Approx. 250m of NPS 4 from the NPS 4 main on Paisley to the NPS 6 main on Stephanie Dr. Connect to NPS 2 main at corner of Paisley rd and Stephanie Dr too 140 kPa MSP is breached in 2030	Pass		Completed	Pass	Low Cost, Low Value	Planned
Northern & Eastern	**60 - Ottawa**	Growth	**Pass**		**31029**	SRP2024_(60)Ottawa_Kanata_6B818A_Upgrade	**2030**	$	153,789	Station modification required to support growth downstream Station flowing over 50% utilization in year 2030 - identified for assessment by stations engineering.	Pass		Completed	Pass	Low Cost, Low Value	Planned
GTA East & Toronto	**Div_22 - Kingston**	Growth	**Pass**		**30515**	Deseronto_28103002STN_Rebuild	**2025**	$	73,673	Modifications required at the station to achieve a future load of 2050 m3/h: increase the orifice sizes on both 2" 627H regulators from 6.4mm to 9.5mm, material # 801539. The current CWT-140 is sufficient for the current load but will need to be upsized to a CWT-385 for the future load.	Pass		Completed	Pass	Low Cost, Low Value	Planned
GTA East & Toronto	**Div_22 - Kingston**	Growth	**Pass**		**738842**	22-22-719 KING: Colborne TBS Line heater (27401001) replacement	**2025**	$	60,000	Risk/Opportunity/Justification: Replacement of existing heater with CWT-385 to meet reinforcement needs on Colborne TBS Site 27401001. Heater replacement also would entail a new fuel train for the upsized heater, updated electrical connections and addition of a bypass valve. Assets: CWT-385 heater, bypass valve, PFM meter set. Related Investments: N/A	Pass		Completed	Pass	Low Cost, Low Value	Planned
Northern & Eastern	**60 - Ottawa**	Growth	**Pass**		**31025**	SRP2024_(60)Ottawa_Cambridge_61260A_Upgrade	**2029**	$	41,484	Station modification required to support growth downstream Station flowing over 50% utilization in year 2029 - identified for assessment by stations engineering.	Pass		Completed	Pass	Low Cost, Low Value	Planned
Northern & Eastern	**60 - Ottawa**	Growth	**Pass**		**31002**	SRP2024_(60)Ottawa_Ottawa_MOP Upgrade_NW6466	**2025**	$	17,792	System pressure increase required to maintain system pressures due to growth Pressures below 20 psi minimum Existing station to check issues with pressure increase. 556 kPa is modeled pressure - min system P on inlet is 485kPa	Pass		Completed	Pass	Low Cost, Low Value	Planned
Northern & Eastern	**60 - Ottawa**	Growth	**Pass**		**736759**	SRP2024_(60)Ottawa_Russell_MOP Upgrade_NW6426	**2025**	$	17,792	Issue/Concern/Opportunity: Reinforcement involves an in-class pressure increase from 45 psi to 55 psi to resolve operational issues and pressure lowpoints on the network below the 20 psig minimum system pressure and to support growth. All pipes installed after 1994. The two adjacent networks are not currently connected, and a future reinforcement will connect them. Eastern network contains ~42 km PE IP to be increased. Western network contains ~5.8 km PE IP to be increased. Station flows are 2022 and 2032 from previous project timing. The network is single-fed exclusively by Metcalfe Gate Station Assets: -Increase pressures at existing district stations on the intersection of Old Towne Ave. and Craig St. (Station ID 3180568) -Increase pressures at existing district station on the intersection of Castor St. and Warner St. (Station ID: 526844) -160 m of NPS 2 PE IP pipe on Craig St from Olde Towne Ave to Forced Rd Related Investments: Not applicable	Pass		Completed	Pass	Low Cost, Low Value	Planned
Northern & Eastern	**Div_46 - North Bay & Orillia**	Growth	**Pass**		**101565**	NBAY: Upgrade Callander TBS (43005001)	**2029**	$	6,550	Issue/Concern/Opportunity: Station unable to provide high enough outlet pressure Justification: Growth will cause downstream pressure to go below minimum requirements Assets: Stn 43005001 Related Investments: N/A	Pass		Completed	Pass	Low Cost, Low Value	Planned
Head Office/All	**00 - Head Office**	Growth	**Pass**		**736975**	Enbridge Gas Distribution System Hydrogen Feasibility Study	**2026**	$	6,579,977	Comprehensive techno-economic feasibility study of blending hydrogen into Enbridge Gas Inc.'s (EGI) existing natural gas distribution and transmission network across Ontario. Evaluate the technical feasibility and maximum limits of blended hydrogen gas in existing networks,identify necessary retrofits or upgrades for varying concentrations of hydrogen, and develop a staged roadmap for transitioning Ontario's gas network to a low-carbon future in line with technical and economic barriers and opportunities. The assessment comprises the entirety of EGI's gas pipeline network in Ontario. By blending hydrogen at strategic locations across EGI's existing gas network, EGI aims to reduce the carbon intensity of its 3.8 million residential, commercial, institutional and industrial customers across over 500 communities in Ontario.	Fail	Hydrogen related projects are required as no IRPAs can replace the hydrogen feasibility assessments and hydrogen blending initiatives.				
Southeast	**Div_07 - Waterloo**	Growth	**Pass**		**49794**	SRP2024_(07)Brantford/Waterloo_Listowel_CNG	**2025**	$	1,024,299	Scope of work: Utilize Certarus CNG to feed into the 1900 kPa MOP system. We would be maintaining ~700 kPa outlet pressure to maintain 485 kPa into Atwood gate downstream. Will utilize 2 year TLU at Atwood Resources with temp fencing and civil work to ensure land is adequate for Certarus CNG trailers	Fail	See investment description, IRPAs not applicable for CNG				
GTA East & Toronto	**Div_22 - Kingston**	Growth	**Pass**		**739857**	28106010 York ST and Pitt St PRS Rebuild-Picton	**2025**	$	60,000	Issue: Existing station is near capacity; we are unable to attach a new apartment building with a load of 250M3/hr Justification: Rebuilding this PRS will enable us attach the customer and future customers Assets: Station Related Investments:	Fail	N/A - Project in construction phase				
Southeast	**Div_07 - Waterloo**	Growth	**Pass**		**101233**	WATE: 22S-401 Drayton Distribution Station, Drayton, Paint Insulation and Telemetry	**2022**	$	24,764	Issue/Concern/Opportunity: Growth driven project. Pulled forward to 2022 due to a large customer load addition. Justification: Station needs to be rebuilt to restore capacity and accommodate future growth. Assets: 22S-401 Drayton Distribution Station Related Investments: N/A	Fail	N/A - Project Completed				
GTA West	**20 - Mississauga**	Growth	**Pass**		**741646**	CNG Injection - Area 20 - Shelburne to Dundalk	**2025**	$	23,557	Issue/Concern/Opportunity: Low pressure in Network 2103 in Area 20, CNG will be injected into the system. Justification: This will allow us to delay pipe reinforcements and allow for Growth projects to connection to the system Assets: Related Investments:	Fail	See investment description, IRPAs not applicable for CNG				
Southeast	**Div_16 - Hamilton**	Growth	**Fail**	Customer Specific Builds	**736259**	Hamilton Reinforcement Project	**2027**	$	196,355,985							
GTA West	**20 - Mississauga**	Growth	**Fail**	Customer Specific Builds	**742201**	Mississauga Industrial Growth Project	**2026**	$	17,372,092							
Northern & Eastern	**Div_33 - Thunder Bay**	Growth	**Fail**	Customer Specific Builds	**741680**	Red Lake New NG Service	**2026**	$	5,806,436							
Southeast	**80 - Niagara**	Growth	**Fail**	Economic Development	**734979**	Grimsby-Lincoln Expansion Project - Natural Gas Expansion Program (NGEP)	**2025**	$	3,900,000							
Southeast	**Div_16 - Hamilton**	Growth	**Fail**	Economic Development	**739267**	SRP2024_(16)Hamilton_Caledonia_15X-401_Upgrade	**2025**	$	-							
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**		**100339**	A10: Wilson Avenue, Toronto, VSM Replacement	**2030**	$	61,031,539	Issue/Concern/Opportunity: Phased replacement of NPS 12 gas main from Bathurst Ave. to Walsh Ave. Main is currently protected by Rectifier. - The main on Wilson Ave. has numerous Pumpkins that have been installed on it. Starting from Wendell Ave. and going east towards Bathurst St. - Corrosion on main has been an issue on Wilson Ave. due to stray current from Toronto Transit Commission (TTC) which continues to be an ongoing concern. - The service connections have field-applied coatings which leaves a concern for future corrosion issues on this main. - Regarding the main in the middle of the road on Wilson Ave., Curbside Valve Tee (CVT) repairs are problematic due to the location of the main. Assets: There is 8.5 km of NPS 12 HP Vintage Steel Main (VSM) installed between 1955 and 1964 on Wilson Ave. between Walsh Ave. and Bathurst St., Toronto. Related Program: N/A	Pass		Planned		Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed	
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**		**735823**	TOR10YR - Lawrence and Kennedy Replacement - Network # 455	**2031**	$	6,571,435	TOR10YR - Lawrence and Kennedy Replacement - Network # 455 IP system running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires upgrades and replacement of some mains and services Scope: Replace gas mains with 800m NPS 12 ST (Like for Like) 17 Service Relays, 7 Service Reconnects (Commercial) Resources: NPL to execute Solution Impact: Gas Plant replacements to meet pressure elevation requirements in system to meet growth requirements Project Timing: TBD	Pass		Planned		Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed	
GTA West	**30 - Richmond Hill**	Distribution Pipe	**Pass**		**30164**	Church St South_2 - GTA East - Area 30 - 1382	**2031**	$	5,763,439	Church St. South 2 - GTA East - Area 30 - 1382 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass		Planned		Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed	
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Pass**		**30236**	Div. 06 - Brant - Park Rd N - VSM - Southeast - Waterloo - 1315	**2032**	$	5,720,405	Div. 06 - Brant - Park Rd N - Southeast - Waterloo - 1315Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization Comments: Added cost for permit and installation of crossing Lots of road reconstruction completed on James Street in 2021 - UPDATED TO REFLECT MORATORIUM UNTIL 2026	Pass		Planned		Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed	

GTA West	**30 - Richmond Hill**	Distribution Pipe	**Pass**	**30167**	Elgin Mills Rd E - GTA East - Area 30 - 1351	**2030**	$	5,715,503	Elgin Mills Rd. E. - GTA East - Area 30 - 1351 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**Div_45 - Timmins**	Distribution Pipe	**Pass**	**30161**	Spruce St-Timmins-1549	**2030**	$	5,491,001	Spruce St-Timmins-1549Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA West	**Div_17 - Halton**	Distribution Pipe	**Pass**	**30414**	Div. 17 - Halton - Burlington - Guelph Line - Hamilton - 2026	**2032**	$	5,293,706	Div. 17 - Halton - Burlington - Guelph Line - Hamilton - 2026 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Pass**	**30155**	Ogden St-Thunder Bay-1568	**2030**	$	3,952,254	Ogden St. - Thunder Bay - 1568 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**733910**	TOR10YR - Browns Line and Jellicoe Replacement- Network # 123_368_373	**2032**	$	3,920,249	TOR10YR - Browns Line and Jellicoe Replacement- Network #123_368_373 Medium Pressure (MP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system requires replacement of MP mains and services. Scope: Replace and upgrade gas mains (like for like) and services with 80 m NPS 8 PE, 950 m NPS 4 PE, 2,275 m NPS 2 PE, 196 service relays, and 145 service reconnects; abandon station and outlet piping. Resources: NPL to execute. Solution Impact: General Main (GM) replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southwest	**Div_04 - London**	Distribution Pipe	**Pass**	**30286**	Dearness Dr - Southwest - London - 1396	**2032**	$	3,884,374	Note: includes bare protected pipe per region. Priority project. Dearness Dr - Southwest - London - 1396Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Pass**	**30148**	Lebel Ave-Kirkland-1545	**2030**	$	3,853,257	Lebel Ave-Kirkland-1545Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**Div_45 - Timmins**	Distribution Pipe	**Pass**	**30137**	Bay St-Timmins-1561	**2030**	$	3,852,856	Bay St. - Timmins - 1561 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735854**	TOR10YR - Fenside and Lynedock Replacement - Network # 455	**2031**	$	3,820,874	TOR10YR - Fenside and Lynedock Replacement - Network #455 Intermediate Pressure (IP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires upgrades and replacement of some mains and services. Scope: Replace and upgrade gas mains and services with 150 m NPS 6 PE, 400 m NPS 4 PE, 2,700 m NPS 2 PE (like for like), 301 service relays, 46 service reconnects, and compression coupling (CC) removals. Resources: NPL to execute. Solution Impact: Gas plant replacements are to meet pressure elevation requirements in system to meet growth requirements. Permit – Creek Crossing	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**Div_45 - Timmins**	Distribution Pipe	**Pass**	**30149**	Leblanc Ave-Timmins-1557	**2030**	$	3,798,602	Leblanc Ave-Timmins-1557Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735855**	TOR10YR - Roywood and York Mills Replacement - Network # 455	**2032**	$	3,778,882	TOR10YR - Roywood and York Mills Replacement - Network #455 Intermediate Pressure (IP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires upgrades and replacement of some mains and services. Scope: Replace and upgrade gas mains and services with 200 m NPS 2 PE (like for like), 569 service relays, 1 service reconnect, and compression coupling (CC) removals. Resources: NPL to execute. Solution Impact: Gas plant replacements are to meet pressure elevation requirements in system to meet growth requirements. Permit: Some services and mains may encroach into regulated area.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Pass**	**30181**	Durham St W - Kawartha Lakes - Area 40 - 1687	**2031**	$	3,757,118	Durham St. W. - Kawartha Lakes - Area 40 - 1687 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735861**	TOR10YR - Sweeney Replacement - Network # 455	**2032**	$	3,753,459	TOR10YR - Sweeney Replacement - Network #455 Intermediate Pressure (IP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires upgrades and replacement of some mains and services. Scope: Replace and upgrade gas mains and services with 750 m NPS 6 PE, 200 m NPS 4 PE, and 2,000 m NPS 2 PE (like for like), 124 service relays, 65 service reconnects, and compression coupling (CC) removals. Resources: NPL to execute. Solution Impact: Gas plant replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined. Permit: Some services and mains may encroach into regulated area.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Pass**	**30160**	Spruce St-Kapuskasing-1565	**2030**	$	3,700,739	Spruce St. - Kapuskasing - 1565 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Pass**	**30143**	Dominion Ave-Kapuskasing-1499	**2030**	$	3,621,407	Dominion Ave. – Kapuskasing - 1499 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed

GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Pass**	**30186**	Poplar Ave 1 - Ajax - Area 40 - 1680	**2031**	$	3,585,598	Poplar Ave. 1 - Ajax - Area 40 – 1680 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: This scope could be broken up into two projects given the conservation authority impacts - project adjusted based on region's comments (Poplar Ave 1 - 1680 and Poplar Ave 2 - 1681).	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Pass**	**30153**	Norah St S-Thunder Bay-1495	**2030**	$	3,522,033	Norah St S-Thunder Bay-1495Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Pass**	**30152**	Mckenzie St-Thunder Bay-1556	**2030**	$	3,463,115	Mckenzie St-Thunder Bay-1556Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Pass**	**30194**	Wellington St - Kawartha Lakes - Area 40 - 1678	**2031**	$	3,336,720	Wellington St. - Kawartha Lakes - Area 40 - 1678 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735820**	TOR10YR - Amethyst and Cass Replacement - Network # 455	**2029**	$	3,261,398	TOR10YR - Amethyst and Cass Replacement - Network #455 Intermediate Pressure (IP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires upgrades and replacement of some mains and services Scope: Replace and upgrade gas mains and services with 2,350 m NPS 2 PE, 1,000 m NPS 4 PE (like for like), 98 service relays, 27 service reconnects, and compression coupling (CC) removals. Resources: NPL to execute. Solution Impact: Gas plant replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Pass**	**30141**	Devonshire Ave-Kapuskasing-1536	**2030**	$	3,206,127	Devonshire Ave-Kapuskasing-1536Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southeast	**80 - Niagara**	Distribution Pipe	**Pass**	**30061**	La Salle Dr STC- Area 80 - 1186	**2030**	$	3,176,409	La Salle Dr - Area 80 - 1186Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization Comments: Plan Year 1, Execute Year 2	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA West	**20 - Mississauga**	Distribution Pipe	**Pass**	**30115**	Clarkson Rd (EXECUTE 2025 - ROAD REHABILITATION WORK PLANNED FOR 2025) - GTA West - Area 20 - 1829	**2029**	$	3,138,795	Clarkson Rd. 1 - GTA West - Area 20 - 1665 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: Two projects were created based on regional comments (Clarkson Rd. 1 - 1665 and Clarkson Rd. 2 - 1666).	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA West	**30 - Richmond Hill**	Distribution Pipe	**Pass**	**30175**	Yonge St - GTA East - Area 30 - 1358	**2029**	$	3,119,050	Yonge St. - GTA East - Area 30 - 1358 Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Pass**	**30135**	8th St-Nipigon-1553	**2030**	$	3,117,996	8th St-Nipigon-1553Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA West	**50 - Barrie**	Distribution Pipe	**Pass**	**30098**	000046, NRP - HNS Grove A1, 2025 - 2027 - 1612	**2027**	$	3,085,043	000046, NRP - HNS Grove A1, 2025 - 2027 - 1612Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**30337**	Bartholomew St - Eastern - Area 60 - 1116	**2028**	$	2,958,491	Bartholomew St - Eastern - Area 60 - 1116 Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**30364**	VSM - LePage Ave (EXECUTE BY 2025 - PAVING PROPOSED BETWEEN 2022_2025) - Eastern - Area 60 - 1214	**2030**	$	2,876,832	LePage Ave. (execute by 2025 - paving proposed between 2022 - 2025) - Eastern - Area 60 - 1214 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: Some road and sewer work was done in 2021, and paving is proposed between 2022 and 2025 - updated to reflect region's comments.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Pass**	**30157**	Kenora- Seventh Ave N-Phase 1 VSM Replacement	**2030**	$	2,807,506	Seventh Ave. N. - Kenora - 1546 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735830**	TOR10YR - Birchmount South Sheppard Replacement - Network # 455	**2029**	$	2,788,127	TOR10YR - Birchmount South Sheppard Replacement - Network #455 Intermediate Pressure (IP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires upgrades and replacement of some mains and services. Scope: Replace and upgrade gas mains and services with 900 m NPS 8 PE (like for like), 17 service relays, 3 service reconnects, 100 m NPS 1.25 header, and compression coupling (CC) removals. Resources: NPL to execute. Solution Impact: Gas plant replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735824**	TOR10YR - Moraine Hill and Sunmount Replacement - Network # 455	**2029**	$	2,788,127	TOR10YR - Moraine Hill and Sunmount Replacement - Network #455 Intermediate Pressure (IP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires upgrades and replacement of some mains and services. Scope: Replace and upgrade gas mains and services with 2,800 m NPS 2 PE, 450 m NPS 4 (like for like), 154 service relays and 34 service reconnects. Resources: NPL to execute. Solution Impact: Gas plant replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed

Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Pass**	**1274**	Sudbury Loop & Sudbury Sec 2b Retrofit	**2030**	$	2,774,984	Project Specific: Install permanent launcher and receiver facilities prior to next scheduled inspection in 2022. Associated 2022 O&M spend. Installing permanent launcher and receiver facilities saves O&M spend which would otherwise be required to install and remove temporary facilities each inspection cycle. Permanent launcher/receiver facilities also provide a high degree of flexibility with respect to the timing of inspections which leads to system optimization and reduces disruption to normal pipeline operations. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of Union's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections. Link to scope in ProjectWise: pw://pwintegration.gtna.gt.ds:TRIM_PROD/Documents/D{8f2c2680-45fc-4271-8fff-54097e05c680}	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA West	**50 - Barrie**	Distribution Pipe	**Pass**	**30093**	Second St - Area 50 - 1194	**2034**	$	2,754,538	Second St. - Area 50 - 1194 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735836**	TOR10YR - Araman and Earlton Replacement - Network # 455	**2029**	$	2,696,336	TOR10YR - Araman and Earlton Replacement - Network #455 Intermediate Pressure (IP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires upgrades and replacement of some mains and services. Scope: Replace and upgrade gas mains and services with 2,800 m NPS 6 PE (like for like), 176 service relays, and 19 service reconnects. Resources: NPL to execute. Solution Impact: Gas plant replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735835**	TOR10YR - Allanford and Pender Replacement - Network # 455	**2030**	$	2,694,919	TOR10YR - Allanford and Pender Replacement - Network #455 Intermediate Pressure (IP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires upgrades and replacement of some mains and services. Scope: Replace and upgrade gas mains and services with 500 m NPS 6 PE, 600 m NPS 4 PE, 1,700 m NPS 2 PE (like for like), 140 service relays and 20 service reconnects. Resources: NPL to execute. Solution Impact: Gas plant replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**30377**	Park Ave - Eastern - Area 60 - 1224	**2034**	$	2,687,798	Park Ave - Eastern - Area 60 - 1224Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization Comments: Busy area of town, could be some road restrictions. CA permit required due to near by river	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Pass**	**30273**	Div. 07 - Meaford - Louisa St - VSM - Southeast - Waterloo - 1278	**2032**	$	2,670,071	Div. 07 - Meaford - Louisa St - Southeast - Waterloo - 1278Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization Comments: Measurement station 12R-201 may be required. Will need to coordinate with Epcor for a planned shutdown	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Pass**	**30420**	Cedar Alley-Ganonoque-1455	**2031**	$	2,623,160	Cedar Alley - Ganonoque - 1455 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735860**	TOR10YR - North Sloane Replacement - Network # 455	**2032**	$	2,615,865	TOR10YR - North Sloane Replacement - Network #455 Intermediate Pressure (IP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires upgrades and replacement of some mains and services. Scope: Replace and upgrade gas mains and services with 100 m NPS 6 PE, 900 m NPS 4 PE, 1,350 m NPS 2 PE (like for like), 62 service relays, 20 service reconnects, and compression coupling (CC) removals. Resources: NPL to execute. Solution Impact: Gas plant replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735862**	TOR10YR - Knighton and Prestbury Replacement - Network # 455	**2032**	$	2,580,301	TOR10YR - Knighton and Prestbury Replacement - Network #455 Intermediate Pressure (IP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires upgrades and replacement of some mains and services. Scope: Replace and upgrade gas mains and services with 200 m NPS 4 PE, 2,100 m NPS 2 PE (like for like) 89 service relays, and 82 service reconnects. Resources: NPL to execute. Solution Impact: Gas plant replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA West	**20 - Mississauga**	Distribution Pipe	**Pass**	**30123**	Joymar Dr 2 (EXECUTE 2024 - ROAD REHABILITATION WORK PLANNED FOR 2024) - GTA West - Area 20 - 1671	**2029**	$	2,561,991	Joymar Dr. 2 - GTA West - Area 20 - 1671 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: Two projects were created based on regional comments (Joyman Dr. 1 - 1670 and Joyman Dr. 2 - 1671).	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Pass**	**30237**	Div. 06 - Brantford - Abigail Ave - VSM - Southeast - Waterloo - 1309	**2032**	$	2,549,399	Div. 06 - Brantford - Abigail Ave - Southeast - Waterloo - 1309 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: Every home will require a new farm tap.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southwest	**Div_04 - London**	Distribution Pipe	**Pass**	**30328**	Windsor Ave (EXECUTE BY 2025 - MUNICIPAL WORK PLANNED FOR 2025) - Southwest - London - 1515	**2028**	$	2,545,605	Windsor Ave. - Southwest - London - 1515 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Pass**	**30245**	Div. 06 - Brantford - Ewing Dr - VSM - Southeast - Waterloo - 1316	**2032**	$	2,469,662	Div. 06 - Brantford - Ewing Dr. - Southeast - Waterloo - 1316 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: City of Brantford is restoring Wood St. and Charing Cross. Project was updated to reflect a moratorium until 2026.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed

GTA West	**30 - Richmond Hill**	Distribution Pipe	**Pass**	**30169**	Ruggles Ave - GTA East - Area 30 - 1706	**2028**	$	2,389,235	Ruggles Ave. - GTA East - Area 30 - 1706 Vintage steel pipes exhibit increased failures as they age, as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: This was updated based on regional feedback (Ruggles Ave. - 1706).	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southeast	**80 - Niagara**	Distribution Pipe	**Pass**	**30072**	Riverside Dr WELL- Area 80 - 1810	**2027**	$	2,375,844	Riverside Dr - Area 80 - 1810Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA West	**20 - Mississauga**	Distribution Pipe	**Pass**	**30122**	Joymar Dr 1 (EXECUTE 2024 - ROAD REHABILITATION WORK PLANNED FOR 2024) - GTA West - Area 20 - 1670	**2029**	$	2,358,032	Joymar Dr. 1 (execute 2024 - road rehabilitation work planned for 2024) - GTA West - Area 20 - 1670 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: Created two projects based on regional comments (Joyman Dr. 1 - 1670 and Joyman Dr. 2 - 1671).	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA West	**50 - Barrie**	Distribution Pipe	**Pass**	**30097**	Yonge St - Area 50 - 1206	**2034**	$	2,346,128	Yonge St - Area 50 - 1206 Vintage steel pipes exhibit increased failures as they age, as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Pass**	**30192**	Simcoe Street-40-Kawartha Lakes-1060	**2029**	$	2,316,823	Simcoe Street - 40 - Kawartha Lakes - 1060 Vintage steel pipes exhibit increased failures as they age, as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA West	**Div_17 - Halton**	Distribution Pipe	**Pass**	**737559**	Halton - Oakville - 6th Line-Phase 2- VSM Replacement	**2032**	$	2,309,977	Div. 17 - Halton - Oakville - 6th Line - Hamilton - 1839 Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southwest	**Div_04 - London**	Distribution Pipe	**Pass**	**30441**	Stratford-Huron St-Matilda to Douglas Phase 2-1758	**2034**	$	2,308,846	Stratford - Huron St. - Matilda to Douglas Phase 2 - 1758 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA West	**50 - Barrie**	Distribution Pipe	**Pass**	**30088**	Market St - Area 50 - 1221	**2034**	$	2,294,900	Market St - Area 50 - 1221 Vintage steel pipes exhibit increased failures as they age, as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Pass**	**100688**	WIND: Riverside Aldyl A - Ph 2, Windsor, Replacement	**2028**	$	2,293,579	This project will replace the approximately 1.7km of 1978 vintage Aldyl-A PE main along Riverside Drive in Windsor, from Bertha Street to Clover Drive. This main is known to be very brittle, has a total of 4 known C leaks, and many lined services. A portion of this 4" PE main is lined in the former 6" S CT main installed in 1968 that continues on either side of Riverside Drive, making maintenance and new service connections extremely difficult. There are approximately 73 services renewals required. Main to be replaced with 700 m of 4" PE IP.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Pass**	**49814**	WIND: Tecumseh Rd E - Ph 2, Windsor, Replacement	**2028**	$	2,267,641	Phase 2 will replace 1,000 m of Prior to Records (PTR) / DL protected NPS 8 Steel (S) main from 10490 to 11168 Tecumseh Rd. E. with 1,000 m of 8-inch S Yellow Jacket (YJ). There are a total of 14 services and 3 main tie-overs. This main is either in too poor condition or laminated, and as a result cannot be welded on. In addition to weldability issues, several leaks have occurred over the last several years which have all resulted in high capital expenditures to repair them. This area requires a substantial amount of anodes to keep it cathodically protected. This area also contains a large amount of growth and development for which the district currently cannot service due to the lacking pipe weldability.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Pass**	**101277**	Replacement - Vintage PE Lined Mains - Peterborough	**2032**	$	2,259,255	Issue/Concern/Opportunity: This is a planned replacement of approximately 320 m of vintage PE pipe (1974) lined in old cast iron mains, installed in back laneways on Elias Ave., Maitland Ave., Pearl Ave., and Boswell Ave. in Peterborough. Justification: Vintage PE mains are reaching their life expectancy. Mains are cased in cast iron, making leaks difficult to pinpoint. Assets: There are 1974 NPS 1 1/4 PE mains (approximately 320 m) to be replaced with new NPS 2 PE mains (approximately 960 m if dual main) and there are approximately 60 service relays. Related Investments: Not applicable.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735856**	TOR10YR - Sloane and Ruscica Replacement - Network # 455	**2032**	$	2,255,229	TOR10YR - Sloane and Ruscica Replacement - Network #455 Intermediate Pressure (IP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires upgrades and replacement of some mains and services. Scope: Replace and upgrade gas mains and services with 30 m NPS 6 PE, 1,100 m NPS 4 PE, 1,000 m NPS 2 PE (like for like), 71 service relays, 34 service reconnects, and compression coupling (CC) removals. Resources: NPL to execute. Solution Impact: Gas plant replacements are to meet pressure elevation requirements in system to meet growth requirements. Permit: Some services and mains may encroach into regulated area.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Pass**	**30238**	Div. 06 - Brantford - Balmoral Dr - VSM - Southeast - Waterloo - 1291	**2032**	$	2,248,009	Div. 06 - Brantford - Balmoral Dr. - Southeast - Waterloo - 1291 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: Station 11T-440 may need to be rebuilt as part of the project.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Pass**	**49256**	NW_Lateral Clamp Cut Outs_ATIKOKAN	**2032**	$	2,218,854	General: The capital expenditure included in this category covers a variety of planned maintenance projects. The projects covered under this expenditure include low-pressure system replacements, distribution pipeline replacements due to historical leakage and integrity concerns, pipeline casing replacements, bridge and water-crossing replacements and repairs, etc. These projects are often identified through planned inspections and pipeline surveys and would then be assessed and planned based on risk and resource availability.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Pass**	**49633**	SUDB: Mackenzie St Replacement, Sudbury	**2028**	$	2,206,366	Issue/Concern/Opportunity: Corroded NPS 6 and NPS 2 420 kPa steel main at Mackenzie street and Ghandi Lane that requires replacement, extent of corroded pipe unknown at this time. Shallow NPS 6 (~19" below side walk) between Patterson Street and Bloor Street. Emergency replacement completed in 2021 of NPS 2 420 kPa main on Ghandi Lane East. Justification: Corroded and shallow main that requires replacement. Assets: 552634692, 552639413, 552636513, 552634695, 552634704, 552635419, 552635414, 552635411, 552636554, 552639138, 801984028 Related Investments: TBD	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Pass**	**30180**	Christena Cres 2 - Ajax - Area 40 - 1704	**2034**	$	2,192,358	Christena Cres 2 - Ajax - Area 40 - 1704Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization Comments: Scope to be broken up into two investments given the large scope and potential conservation concerns and close proximity to MTO row - project adjusted based on regional comments (Christena Cres 1 - 1702, Christena Cres 2, 1704)	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735857**	TOR10YR - Wigmore and Draycott Replacement - Network # 455	**2032**	$	2,188,212	TOR10YR - Wigmore and Draycott Replacement - Network #455 Intermediate Pressure (IP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires upgrades and replacement of some mains and services. Scope: Replace and upgrade gas mains and services with 1,900 m NPS 2 PE, 104 service relays, and 54 service reconnects. Resources: NPL to execute. Solution Impact: Gas plant replacements are to meet pressure elevation requirements in system to meet growth requirements. Permit: Some services and mains may encroach into regulated area.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed

GTA West	**20 - Mississauga**	Distribution Pipe	**Pass**	**30117**	Elizabeth St S 1 - GTA West - Area 20 - 1667	**2028**	$	2,168,387	Elizabeth St. S. 1 - GTA West - Area 20 -1667 Vintage steel pipes exhibit increased failures as they age, as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: Two projects were created based on regional comments (Elizabeth St. S. 1 – 1667 and Elizabeth St. S. 2 - 1668).	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**30361**	James St W - Eastern - Area 60 - 1184	**2034**	$	2,160,709	James St. W. - Eastern - Area 60 - 1184 Vintage steel pipes exhibit increased failures as they age, as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**30344**	Daniel St S - Eastern - Area 60 - 1213	**2034**	$	2,148,680	Daniel St S - Eastern - Area 60 - 1213Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization Comments: Some paving done in 2019 - road restrictions should be lifted by the time VSM gets to it	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**4109**	VSM on College from Huron to Elizabeth	**2031**	$	2,119,608	Early 1960's vintage NPS 8 IP steel main on College St in Toronto that is susceptible to the issues outlined below. Operations field personnel reported poor condition steel main in this area that was observed during previous maintenance activities. The NPS 8 gas main traverses in a highly populated area in downtown Toronto, which could drive up the consequence in the event of a failure. GENERAL CONCERNS: The vintage steel mains have shown signs of declining health due to the cumulative effective of poor manufactured coating performance, construction practices, latent third party damages to pipe coating, and the effect of stray currents from transit infrastructure such as subway and streetcars. The current failure projection model is forecasting an exponential increase in the number of corrosion related failures, while the quantitative risk assessment and the 40-year risk projection are showing an aggressive increase in the safety risk associated with steel main failures. In addition to it age, vintage steel mains are also susceptible to accelerated degradation and/or higher risk of third party damage in the following ways: a. Compression couplings (mechanical fittings which are not welded onto the main) on steel mains that are not properly restrained or unrestrained could cause a loss of containment due to exposed points of thrust. In this case, the weight of the soil is required to hold the fittings in place. When the soil is disturbed, the pipe pulls out of the fitting, resulting in blowing gas through the open pipe end with the potential of full bore release of gas. b. Compression couplings on steel mains that are unknowingly isolated from the corrosion protection system could result in inadequate cathodic protection, leading to the assets' accelerated corrosion and potentially loss of containment. c. The existence of shallow blow-off valve assemblies that could be damaged during excavation activities. d. Reduction in the original depth of cover due to urban development could increase the potential of damages due to excavation activities and increased external loading. According to the codes and standards, a minimum depth of cover is needed to ensure the appropriate distribution of weight of transportation vehicles across pipelines is not exceeded. If the depth of cover is not appropriate, excessive stresses are introduced into the pipe, and failures could result. e. The continuous exposure of road salt and seasonal ground movement on bridge crossing assets that could result in accelerated corrosion and external loading/stresses. f. Lack of cathodic protection with pipe casings that could result in corrosion causing excessive stress or shorts on the carrier pipe that is in contact with the casing, which could lead to the loss of containment. g. Manufacturing defects associated with seam welds and fittings that are weak points in the distribution system and could result in a loss of containment due to prolonged exposure to stress and corrosion. h. Latent damages to pipe coatings that were never reported to EGD for repair and became active corrosion sites, which could hamper the effect of the corrosion protection system and result in accelerated corrosion and potentially loss of containment.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735832**	TOR10YR - Lawrence at Howden Replacement - Network # 455	**2031**	$	2,119,502	TOR10YR - Lawrence at Howden Replacement - Network # 455 IP system running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires upgrades and replacement of some mains and services Scope: Replace gas mains with 300m NPS 12 ST (Like for Like) 10 Service Relays, 1 Service Reconnects, (Commercial/Industrial) CC Removals Resources: NPL to execute Solution Impact: Gas Plant replacements to meet pressure elevation requirements in system to meet growth requirements Project Timing: TBD	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735850**	TOR10YR - Three Valley Dr Replacement - Network # 455	**2031**	$	2,119,456	TOR10YR - Three Valley Dr. Replacement - Network #455 Intermediate Pressure (IP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires upgrades and replacement of some mains and services. Scope: Replace and upgrade gas mains and services with 60 m NPS 6 PE, 900 m NPS 4 PE, 500 m NPS 2 PE (like for like), 148 service relays, and 39 service reconnects. Resources: NPL to execute. Solution Impact: Gas Plant replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined. Permit: Some services and mains may encroach into regulated area.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735487**	TOR10YR - Birchmount & Foxbridge Replacement - Network # 277	**2029**	$	2,053,403	TOR10YR - Birchmount & Foxbridge Replacement - Network # 277 IP system running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires replacement of some mains and services Scope: Install Replace and Upgrade gas mains with 1500m NPS 2 PE, 1000m NPS 4 PE 32 Service Relays, CC removals Resources: NPL to execute Solution Impact: Gas Plant replacements and install to meet pressure elevation requirements in system to meet growth requirements Project Timing: TBD	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Pass**	**30269**	Div. 06 - Tillsonburg - Potters Rd - VSM - Southeast - Waterloo - 1375	**2034**	$	2,047,879	Div. 06 - Tillsonburg - Potters Rd. - Southeast - Waterloo - 1375 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southeast	**80 - Niagara**	Distribution Pipe	**Pass**	**30068**	Oakwood St PTC - Area 80 - 2030	**2028**	$	2,041,480	Oakwood St - Area 80 - 2030 Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735497**	TOR10YR - Kingsdown and Ranstone Replacement - Network # 455	**2029**	$	2,041,369	TOR10YR - Kingsdown and Ranstone Replacement - Network # 455 IP system running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires replacement of some mains and services Scope: Replace and Upgrade gas mains with 1100m NPS 2 PE, 100m NPS 4 (Like for Like) 120 Service Relays, 91 Service Reconnects Resources: NPL to execute Solution Impact: Gas Plant replacements to meet pressure elevation requirements in system to meet growth requirements Project Timing: TBD	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**733448**	TOR10YR - Evans Ave Replacement- Network # 123_368_373	**2029**	$	2,040,298	TOR10YR - Evans Ave. Replacement - Network # 123_368_373 Medium Pressure (MP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system requires replacement of MP mains and services. Scope: Replace and upgrade gas mains (like for like) and services with 1,200m NPS 8 PE, 400 m NPS 4 PE, 70 service relays, 26 service reconnects, and upgrade station to 55 PSI. Resources: NPL to execute. Solution Impact: General Main (GM) replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**30373**	Oak St - Eastern - Area 60 - 1133	**2034**	$	2,036,189	Oak St. - Eastern - Area 60 - 1133 Vintage steel pipes exhibit increased failures as they age, as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed

Southwest	**Div_01 - Windsor**	Distribution Pipe	**Pass**	**49747**	WIND: Tecumseh Rd W, Windsor, Replacement	**2028**	$	2,034,201	This job will replace 1,025 m of NPS 8 steel (S) Prior to Records (PTR) main on Tecumseh Rd. W. from Everts Ave. to Betts Ave. with 1,025 m of 8-inch S Yellow Jacket (YJ). This main is either too poor condition or laminated, and as a result cannot be welded on. In addition to weldability issues, several leaks have occurred over the last several years, which have all resulted in high capital expenditures to repair them. This main also requires many anodes try and maintain cathodic protection levels, all of which must be installed in wall-to-wall concrete. The most recent anodes were installed in the last two to three years meaning by 2025, new ones will need to be installed to replace them. This project will also include the renewal of 16 services.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Pass**	**30432**	North Alley-Ganonoque-1468	**2028**	$	2,009,128	North Alley - Gananoque - 1468 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Pass**	**30418**	Augustus St - Cornwall - Eastern - 1729	**2034**	$	1,999,172	Augustus St - Cornwall - Eastern - 1729Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization Comments: Remove York from 5th to 9th streets. Recently replaced - updated based on region's feedback (Augustus St - 1729) Road work on York in 2021 - removed York from project scope	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southeast	**80 - Niagara**	Distribution Pipe	**Pass**	**30049**	Cattell Dr NFalls- Area 80 - 1170	**2034**	$	1,997,946	Cattell Dr. - Area 80 - 1170 Vintage steel pipes exhibit increased failures as they age, as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Pass**	**30470**	King St. W. - Eastern - 1799	**2034**	$	1,997,017	King St. W. - Eastern - 1799 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735819**	TOR10YR - Bay Mills and Birchmount Services Replacement - Network # 455	**2029**	$	1,964,651	LMH: Jan. 18, 2023 - Adjusted the $50k Forecasted spend from 2023 to 2024. Updated the Alternative for a 2024 start date and WF10 the changes. TOR10YR - Bay Mills and Birchmount Services Replacement - Network #455 Intermediate pressure (IP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires upgrades and replacement of some mains and services. Scope: Replace and upgrade gas services including 274 service relays and compression coupling (CC) removals. Resources: NPL to execute. Solution Impact: Gas plant replacements to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined. Permit: Some services may encroach in regulated area.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**30355**	Hamilton St - Eastern - Area 60 - 1056	**2028**	$	1,949,778	Hamilton St - Eastern - Area 60 - 1056Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization Comments: Potential to dual main Regent St. County Rd 34 Major Rd into Quebec may require MTO permit. Possible CA permit due to proximity to Ottawa River.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**30391**	Victoria St - Eastern - Area 60 - 1138	**2034**	$	1,943,928	Victoria St - Eastern - Area 60 - 1138 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: There is potential for road restrictions due to congested area.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA West	**20 - Mississauga**	Distribution Pipe	**Pass**	**30120**	Gordon St_GTA West_Area 20_1227	**2028**	$	1,939,889	Gordon St._GTA West - Area 20 - 1227 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Pass**	**100849**	HAMI: Powerline Rd Customer Removal Off NPS 10 Dominion Ln, Ancaster	**2027**	$	1,931,993	Issue/Concern/Opportunity: Pipeline Engineering has recommended that customer services no longer be installed directly off the 10" Dominion Line in the Ancaster/Flamborough. To address both the customer connection issue and to eliminate Punch-it tees, a station and IP main installation is proposed. Pipe size TBD.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**733683**	TOR10YR - Weston - Verobeach and Belleglade Replacement	**2028**	$	1,912,052	TOR10YR - Verobeach and Belleglade Replacement Standardization - Network #152_154 The 25 PSI Intermediate Pressure (IP) Pipe system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI requires reinforcing upgrades of mains and services. Scope: Replace gas mains with 690 m of NPS 4 PE and 900 m of NPS 2 PE, relay 135 services, and reconnect 48 services. Resources: NPL to execute. Solution Impact: General Main (GM) replacement will elevate pressure to reinforce system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southwest	**Div_04 - London**	Distribution Pipe	**Pass**	**30440**	Taylor St Shallow Main - Huron St to Cheapside St - Southwest - London - 1793	**2034**	$	1,906,283	Taylor St Shallow Main - Huron St to Cheapside St - Southwest - London - 1793Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Pass**	**30191**	Russel St W-Kawartha Lakes-1105	**2034**	$	1,906,257	Russel St W-Kawartha Lakes-1105Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA West	**50 - Barrie**	Distribution Pipe	**Pass**	**30111**	Z74, NRP - HNS Queens Park B, 2023 - 2025 - 1652	**2029**	$	1,883,706	Z74, NRP - HNS Queens Park B, 2023 – 2025 – 1652 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Pass**	**30267**	Div. 06 - Tillsonburg - Brownsville Rd - VSM - Southeast - Waterloo - 1391	**2034**	$	1,877,680	Div. 06 - Tillsonburg - Brownsville Rd. - Southeast - Waterloo - 1391 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: There are inside regulators and wall-to-wall concrete in downtown core.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA West	**20 - Mississauga**	Distribution Pipe	**Pass**	**30131**	Sproule Dr 2 - GTA West - Area 20 - 1677	**2029**	$	1,869,354	Sproule Dr. 2 - GTA West - Area 20 - 1677 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: Two projects were created based on regional comments (Sproule Dr. 1 – 1676 and Sproule D.r 2 - 1677).	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed

GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735858**	TOR10YR - Elvaston Replacement - Network # 455	**2032**	$	1,858,820	TOR10YR - Elvaston Replacement - Network #455 Intermediate Pressure (IP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires upgrades and replacement of some mains and services. Scope: Replace and upgrade gas mains and services with 1,600 m NPS 2 PE, 102 service relays and 30 service reconnects. Resources: NPL to execute. Solution Impact: Gas plant replacements are to meet pressure elevation requirements in system to meet growth requirements. Toronto and Region Conservation Authority (TRCA) Permit - Some services and mains may encroach into regulated area.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735822**	TOR10YR - Scarden and Tourmaline Replacement - Network # 455	**2030**	$	1,855,993	TOR10YR - Scarden and Tourmaline Replacement - Network #455 Intermediate Pressure (IP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires upgrades and replacement of some mains and services. Scope: Replace and upgrade gas mains and services with 1,600 m NPS 2 PE, 250 m NPS 4, 96 service relays, and 18 service reconnects. Resources: NPL to execute. Solution Impact: Gas plant replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA West	**50 - Barrie**	Distribution Pipe	**Pass**	**30094**	St Paul St - Area 50 - 1220	**2034**	$	1,839,141	St. Paul St. - Area 50 - 1220 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735839**	TOR10YR - Colingwood and Dempster Replacement - Network # 455	**2029**	$	1,820,590	TOR10YR - Colingwood and Dempster Replacement - Network #455 Intermediate Pressure (IP) is system running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires upgrades and replacement of some mains and services. Scope: Replace and upgrade gas mains and services with 50 m NPS 4 PE, 650 NPS 8 PE, 137 service relays and 29 service reconnects. Resources: NPL to execute. Solution Impact: Gas plant replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**30339**	Bell St - Eastern - Area 60 - 1052	**2027**	$	1,805,704	Bell St. - Eastern - Area 60 - 1052 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: No timing comment was provided.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Pass**	**30187**	Poplar Ave 2 - Ajax - Area 40 - 1681	**2029**	$	1,805,660	Poplar Ave. 2 - Ajax - Area 40 - 1681 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: This scope could be broken up into two projects given the conservation authority impacts; project was adjusted based on region's comments (Poplar Ave. 1 - 1680 and Poplar Ave. 2 - 1681)	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735821**	TOR10YR - Aragon and Malamute Replacement - Network # 455	**2029**	$	1,794,712	TOR10YR - Aragon and Malamute Replacement - Network #455 Intermediate Pressure (IP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires upgrades and replacement of some mains and services. Scope: Replace and upgrade gas mains and services with 1,600 m NPS 2 PE, 121 service relays and 17 service reconnects. Resources: NPL to execute. Solution Impact: Gas plant replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Pass**	**30144**	Finlayson St-Thunder Bay-1870	**2034**	$	1,785,208	Finlayson St. - Thunder Bay - 1563 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**733679**	TOR10YR - Albright and Roseland Replacement-Network # 123_368_373	**2031**	$	1,763,881	TOR10YR - Albright and Roseland Replacement - Network #123_368_373 Medium Pressure (MP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system requires replacement of MP mains and services. Scope: Replace and upgrade gas mains and services with 900 NPS 2 PE, 500 NPS 4 PE, 81 service relays and 98 service reconnects. Resources: NPL to execute. Solution Impact: General Main (GM) replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**733447**	TOR10YR - Parklawn - Aldercrest to Lunness North Replacement	**2028**	$	1,749,794	TOR10YR - Aldercrest to Lunness North Replacement - Network #123_368_373 Medium Pressure (MP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system requires replacement of MP mains and services. Scope: Replace and upgrade gas mains and services with 540 NPS 4 PE, 950 NPS 2 PE, 91 service relays and 52 service reconnects. Resources: NPL to execute. Solution Impact: General Main (GM) replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**733669**	TOR10YR - Delma and Ecker Replacement-Network # 123_368_373	**2029**	$	1,749,137	TOR10YR - Delma and Ecker Replacement - Network #123_368_373 Medium Pressure (MP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system requires replacement of MP mains and services. Scope: Replace and upgrade gas mains and services with 320 NPS 4 PE, 1,170 NPS 2 PE, 100 service relays and 32 service reconnects. Resources: NPL to execute. Solution Impact: General Main (GM) replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed

GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735485**	TOR10YR - Foxbridge-Roebuck Replacement - Network # 277	**2029**	$	1,739,808	TOR10YR - Foxbridge-Roebuck Replacement - Network #277 Intermediate Pressure (IP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires replacement of some mains and services. Scope: Replace and upgrade gas mains with 450 m NPS 2 PE, 192 service relays, and 12 service reconnects. Resources: NPL to execute. Solution Impact: Gas plant replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**735489**	TOR10YR - Willowmount & Birchmount Replacement - Network # 277	**2029**	$	1,739,112	TOR10YR - Willowmount and Birchmount Replacement - Network #277 Intermediate Pressure (IP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system from 25 PSI requires replacement of some mains and services. Scope: There are 181 service relays, 73 service reconnects, station removal/abandonment, and compression couplings (CCs) removal. Resources: NPL to execute. Solution Impact: Gas plant replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**733666**	TOR10YR - Bellman to N Carson Replacement-Network # 123_368_373	**2029**	$	1,737,941	TOR10YR - Bellman to N. Carson Replacement - Network #123_368_373 Medium Pressure (MP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system requires replacement of MP mains and services. Scope: Replace and upgrade gas mains and services with 1,400 NPS 2 PE, 119 service relays and 42 service reconnects. Resources: NPL to execute. Solution Impact: General Main (GM) replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**733680**	TOR10YR - Foch and Woodbury Replacement-Network # 123_368_373	**2032**	$	1,737,583	TOR10YR - Foch and Woodbury Replacement - Network #123_368_373 Medium Pressure (MP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system requires replacement of MP mains and services. Scope: Replace and upgrade gas mains and services with 1,220 NPS 2 PE, 220 NPS 4 PE, 98 service relays and 51 service reconnects. Resources: NPL to execute. Solution Impact: General Main (GM) replacements to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**733806**	TOR10YR - Gaydon and Highbury Replacement Standardization - Network # 152_154	**2029**	$	1,736,752	TOR10YR - Gaydon and Highbury Replacement Standardization - Network #152_154 25 PSI Intermediate Pressure (IP) Pipe system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI requires reinforcing upgrades of mains and services. Scope: Install 350 m of NPS 4 PE and replace gas mains with 1,330 m of NPS 2 PE, relay 117 services, reconnect 55 services and upgrade station to 55 PSI. Resources: NPL to execute. Solution Impact: General Main (GM) replacement will elevate pressure to reinforce system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Pass**	**739461**	Grand Marais Rd W - Southwest - Windsor - Phase 2	**2031**	$	1,733,028	Grand Marais Rd W - Southwest - Windsor - 2020 Vintage steel exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (Vintage Steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**733805**	TOR10YR - Starview and Weston Replacement Standardization - Network # 152_154	**2029**	$	1,732,836	TOR10YR - Starview and Weston Replacement Standardization - Network #152_154 25 PSI Intermediate Pressure (IP) Pipe system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI requires reinforcing upgrades of mains and services. Scope: Replace gas mains with 1,330 m of NPS 2 PE, relay 146 services and reconnect 12 services. Resources: NPL to execute. Solution Impact: General Main (GM) replacement will elevate pressure to reinforce system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**30390**	Trenton Ave - Eastern - Area 60 - 1181	**2029**	$	1,728,259	Trenton Ave. - Eastern - Area 60 - 1181 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southwest	**Div_04 - London**	Distribution Pipe	**Pass**	**30294**	Front St - Southwest - London - 1393	**2032**	$	1,727,001	Front St. - Southwest - London - 1393 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Pass**	**49743**	WIND: Riverside Aldyl A - Ph 1, Windsor, Replacement	**2027**	$	1,725,726	This project will replace the approximately 1.1km of 1978 vintage Aldyl-A PE main along Riverside Drive in Windsor, from Bertha Street to Clover Drive. This main is known to be very brittle, has a total of 4 known C leaks, and many lined services. A portion of this 4" PE main is lined in the former 6" S CT main installed in 1968 that continues on either side of Riverside Drive, making maintenance and new service connections extremely difficult. There are approximately 18 services renewals required. Main to be replaced with 1100 m of 4" PE IP.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
Southeast	**80 - Niagara**	Distribution Pipe	**Pass**	**30064**	McCain St PTC - Area 80 - 1136	**2034**	$	1,709,574	McCain St. - Area 80 - 1136 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: Plan Year 1 and execute Year 2.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**733674**	TOR10YR - Eltham and Delma Replacement-Network # 123_368_373	**2031**	$	1,707,090	TOR10YR - Eltham and Delma Replacement - Network #123_368_373 Medium Pressure (MP) system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI system requires replacement of MP mains and services. Scope: Replace and upgrade gas mains and services with 1,550 NPS 2 PE, 76 service relays and 58 service reconnects. Resources: NPL to execute. Solution Impact: General Main (GM) replacements are to meet pressure elevation requirements in system to meet growth requirements. Project Timing: To be determined.	Pass	Planned	Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed

GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**733804**	TOR10YR - Yorkdale and Wallasey Replacement Standardization - Network # 152_154	**2029**	$	1,700,594	TOR10YR - Yorkdale and Wallasey Replacement Standardization - Network #152_154 The 25 PSI Intermediate Pressure (IP) Pipe system is running close to capacity and not meeting growth needs. Plans to elevate pressure to 55 PSI requires reinforcing upgrades of mains and services. Scope: Replace gas mains with 1,160 m of NPS 2 PE, relay 129 services and reconnect 60 services. Resources: NPL to execute. Solution Impact: General Main (GM) replacement will elevate pressure to reinforce system to meet growth requirements. Project Timing: To be determined.	Pass	Planned		Future year replacement projects are in the queue for IRP Evaluation and will be assessed annually when the scope is confirmed
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**11443**	NPS 12 Martin Grove Rd Main Replacement: Lavington to St. Albans Rd.	**2027**	$	24,811,599	Issue/Concern: General Concerns: Vintage steel mains have shown signs of declining health due to the cumulative effects of poorly manufactured coatings, construction practices, latent third-party damages to pipe coatings, and the effect of stray currents from transit infrastructure (such as the subway and streetcars). The current failure projection model forecasts an exponential increase in the number of corrosion-related failures. The C55 value framework and the 40-year risk projection show an aggressive increase in the safety risk associated with steel main failures. In addition to age, vintage steel mains are also susceptible to accelerated degradation and/or higher risk of third-party damage in the following ways: •Compression couplings •Shallow blow-off valve assemblies that could be damaged during excavation activities •Reduction in the original depth of cover •Continuous exposure to road salt and seasonal ground movement on bridge-crossing assets •Lack of cathodic protection on pipe casings that could result in corrosion and could lead to the loss of containment •Manufacturing defects associated with seam welds and fittings that could result in a loss of containment due to prolonged stress and corrosion •Latent damages to pipe coatings that were never reported to EGI for repair and became active corrosion sites, resulting in accelerated corrosion and potential loss of containment. Site-Specific Concerns: Martin Grove to St. Albans Road: Address NPS 12 pipe from Lavington Drive South to Burnhamthorpe Road, then west to Ashbourne Drive, then following Auckland Road south to St. Albans Road. There are over 360 service connections that will be removed from the high-pressure (HP) steel main and an intermediate pressure (IP) polyethylene (PE) subsystem installed to reconnect these customers. Depth of cover (DOC) has been identified as a significant concern for these main segments as identified by 2018 and 2019 DOC surveys that found over 52% of the survey locations had DOC less than 90 cm, with 77 survey locations measuring less than 60 cm of cover. Poor DOC can lead to increased third-party damages. Additional risk factors include two unrestrained compression couplings (CCs), nine restrained CCs, and three suspect valves where, due to their installation dates, may have been tied in using unrestrained CCs (as discovered by an Integrity Assessment showing significant correlation between valves of this vintage with unrestrained CC tie-ins). Cathodic protection history for the past 20 years shows that over 15% of the readings taken each year were below the minimum requirements. Poor cathodic protection levels can lead to corrosion.	Pass	In Progress		Technical Evaluation awaiting further integrity assessment to confirm project scope and timing.
Southwest	**Div_04 - London**	Distribution Pipe	**Pass**	**100295**	Div_04: NPS 8 Port Stanley, London, Replacement	**2026**	$	16,894,259	Issue/Concern/Opportunity: The NPS 8 Port Stanley line is approximately 20 km of NPS 8 built in 1959, with unknown grade and wall thickness, bare and protected, and Dresser construction (some gas welded – such welds are usually susceptible to lack of fusion imperfections). There has been a history of a significant number of leaks due to corrosion on this single-feed system that provides natural gas to Port Stanley and St. Thomas, with about 13,000 customers including the St. Thomas hospital, a psychiatric hospital in St. Thomas and a retirement home in Port Stanley. External corrosion has created difficulties with repairs due to the inability to weld. In one repair case, it took Operations three weeks to locate a suitable weld location for a repair. Repairs often require the use of split sleeves ($8K/each). Depth of cover is a significant risk factor, with two exposed pipe sections being reported over creek crossings in December 2019. There are significant accessibility issues with locations of the pipe, making it difficult for emergency response and condition surveys. Some sections of pipe are heavily overgrown while other locations can be over 500 m from the nearest road. There are three below-grade stations that are considered confined spaces and which often flood, and must be evacuated before inspections and maintenance can occur. Gas supply from Lake Erie (New Dundee Comp) was known to have high moisture content and may contribute to internal corrosion. No isolation is built into the single feed system; so if supply needs to be shut down, all downstream customers would be affected. In 2000, 6.8 km of main were replaced due to corrosion and exposed pipe. In 2003, 230 meters were replaced due to a Class B leak under a river crossing. Three casings on the system are known to be shorted. An attempted pressure increase in 1970 resulted in numerous leaks from compression couplings and pipe; therefore, the pipe cannot be pressure-elevated. Assets: Port Stanley line is approximately 20 km of NPS 8 built in 1959. Related Programs: Not applicable.	Pass	In Progress		Technical Evaluation awaiting further integrity assessment to confirm project scope and timing.
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Pass**	**735948**	AR40: VSM Replacement - Wilson Rd S Oshawa Ph 1B Dieppe Ave to Olive Ave	**2026**	$	1,819,465	Issue/Concern/Opportunity: There is vintage 12-inch steel high-pressure (HP) main with several potential maintenance risks. Justification: Main was ranked as HI 5 in recent Asset Health Review (AHR). It was installed in 1957, has multiple service connections with corrosion risk and possible unknown compression couplings. Assets: There is 950 m 12-inch ST HP main and approximately 30 services in Phase 1 Bloor St. to Olive Ave. Related Investments: Not applicable.	Pass	Completed	Pass	ETEE - Potentially could reduce project scope.	Planned
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Pass**	**30145**	George St-Hearst-1558	**2030**	$	4,028,835	George St. - Hearst - 1558 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. It is recommended to maintain pipe size for trunk mains or system resiliency. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.	
Southwest	**Div_04 - London**	Distribution Pipe	**Pass**	**30291**	Elworthy Ave (MORATORIUM UNTIL 2026) - Southwest - London - 1446	**2032**	$	4,006,273	Elworthy Ave. (moratorium until 2026) - Southwest - London - 1446 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: Majority of this project is scheduled for 2024. Lambeth had city work in 2021 and moratorium is until 2026. This project was updated to reflect moratorium until 2026.	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.	
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Pass**	**100517**	Oshawa LP Replacement Phase 1 Olive Ave	**2029**	$	3,996,049	Issue/Concern/Opportunity: Overall goal is to eventually replace the Oshawa Low Pressure network, reducing the risk of an overpressure on a system with no additional overpressure protection downstream of the district stations. Justification: This phase will follow Phase 1a (Olive Ave. replacement in 2020), and will allow for the abandonment of one of the low-pressure district stations with external sense lines. Assets: Replace approximately 3,000 m of PE and steel low-pressure main, and relay or reconnect approximately 400 services, including installation of regulators at the meter sets. Related Investments: Not applicable.	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. It is recommended to maintain pipe size for trunk mains or system resiliency. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.	
GTA West	**30 - Richmond Hill**	Distribution Pipe	**Pass**	**30173**	Tecumseth St - GTA East - Area 30 - 1362	**2031**	$	3,745,100	Tecumseth St. - GTA East - Area 30 - 1362 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.	
GTA West	**30 - Richmond Hill**	Distribution Pipe	**Pass**	**30170**	Rupert Ave - GTA East - Area 30 - 1815	**2028**	$	3,502,227	Rupert Ave. - GTA East - Area 30 - 1815 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. It is recommended to maintain pipe size for trunk mains or system resiliency. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.	
GTA West	**30 - Richmond Hill**	Distribution Pipe	**Pass**	**30163**	Axminster Dr - GTA East - Area 30 - 1842	**2027**	$	3,424,579	Axminster Dr. - GTA East - Area 30 - 1490 Vintage steel pipes exhibit increased failures as they age, as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.	

GTA West	**30 - Richmond Hill**	Distribution Pipe	**Pass**	**30174**	Wellington St - GTA East - Area 30 - 1417	**2031**	$	3,189,534	Wellington St. - GTA East - Area 30 - 1417 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. It is recommended to maintain pipe size for trunk mains or system resiliency. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
GTA West	**20 - Mississauga**	Distribution Pipe	**Pass**	**30121**	Haggert Ave_GTA West_Area 20_1477	**2028**	$	3,184,998	Haggert Ave. - GTA West - Area 20 - 1477 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. It is recommended to maintain pipe size for trunk mains or system resiliency. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Pass**	**30193**	Tulloch Dr-Ajax-1594	**2031**	$	3,121,227	Tulloch Dr. - Ajax - 1594 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Pass**	**30182**	Euclid Ave-Peterborough-1106	**2030**	$	3,023,494	Euclid Ave. - Peterborough - 1106 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. It is recommended to maintain pipe size for trunk mains or system resiliency. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Pass**	**30178**	Caddy St-Peterborough-1179	**2031**	$	3,009,159	Caddy St. - Peterborough - 1179 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. It is recommended to maintain pipe size for trunk mains or system resiliency. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
GTA West	**30 - Richmond Hill**	Distribution Pipe	**Pass**	**30168**	Paliser Cres S - GTA East - Area 30 - 1389	**2030**	$	2,628,208	Paliser Cres. S. - GTA East - Area 30 - 1389 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
GTA West	**30 - Richmond Hill**	Distribution Pipe	**Pass**	**30172**	Taylor Mills Dr S - GTA East - Area 30 - 1843	**2031**	$	2,603,153	Taylor Mills Dr. S. - GTA East - Area 30 - 1435 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Pass**	**30013**	Edgar St - Southwest - Windsor - 1277	**2032**	$	2,535,316	Edgar St. - Southwest - Windsor - 1277 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. It is recommended to maintain pipe size for trunk mains or system resiliency. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
Southwest	**Div_02 - Chatham**	Distribution Pipe	**Pass**	**49859**	CHAT: Tweedsmuir LP, Chatham, Replacement	**2027**	$	2,438,969	Replace 2,300 m of 4-inch steel, bare, protected gas main (2.5 kPa) with 4,300 m of 2-inch plastic gas main (420 kPa) in the Tweedsmuir subdivision in the Municipality of Chatham-Kent. There are 167 services that will need to be replaced.	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Pass**	**30179**	Christena Cres 1 - Ajax - Area 40 - 1702	**2030**	$	2,409,344	Christena Cres. 1 - Ajax - Area 40 - 1702 Vintage steel pipes exhibit increased failures as they age, as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: Scope is to be broken up into two investments given the large scope and potential conservation concerns and close proximity to MTO right-of-way (ROW). Project will be adjusted based on regional comments (Christena Cres. 1 - 1702 and Christena Cres. 2 - 1704).	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
GTA West	**30 - Richmond Hill**	Distribution Pipe	**Pass**	**30162**	Ashlar Rd - GTA East - Area 30 - 1841	**2028**	$	2,374,494	Ashlar Rd. - GTA East - Area 30 - 1489 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
Southwest	**Div_04 - London**	Distribution Pipe	**Pass**	**30300**	Greenwood Ave - Southwest - London - 1428	**2032**	$	2,261,078	Greenwood Ave. - Southwest - London - 1428 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
GTA West	**30 - Richmond Hill**	Distribution Pipe	**Pass**	**103420**	30: VSM - Major Mackenzie, Cedar to Newkirk, Replacement	**2026**	$	2,254,282	Issue/Concern/Opportunity: Replace 40 m NPS 12 SC IP gas main, 645 m of NPS 6 SC IP gas main, 40 m of NPS 4 SC IP gas main, 100 m of NPS 2 SC IP, 40 m NPS 1.25 SC IP gas main, one district station (#8442841) and approximately 55 service relays. Justification: Richmond Hill Replacement Project Assets: Related Investments:	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. It is recommended to maintain pipe size for trunk mains or system resiliency. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**101343**	A60: Sparks St, Ottawa, Replacement	**2028**	$	2,218,676	Issue/Concern: Sparks Street's NPS 12 steel main is approaching end of life and a replacement is necessary. This main was installed in the 1960s and 1970s and has compression couplings, Dresser-style fittings, drips and blow-off valves. Sparks Street is a pedestrian path through the downtown core of Ottawa with no vehicular access; therefore, performing maintenance activities or accessing the site during emergencies is a challenge. Replacement work is timed ahead of planned third-party road construction work along Sparks and Albert Street that could create third-party damage to these components and result in loss of containment. It will also provide an opportunity to coordinate development and design work with the Sparks Business Improvement Area (BIA) along with planned utility work on Albert Street. Assets: Approximately 1,100 m of NPS 12 intermediate pressure (IP) steel pipe on Albert Street, 900 m of NPS 4 IP Polyethylene (PE) pipe on Sparks Street, and 175 m of NPS 4 PE pipe from Lyons to Wellington. Related Programs: Not applicable.	Pass	Completed	Fail	ETEE - Potentially could reduce project scope. Project has failed the technical evaluation as this is a trunk main which should not be downsized due to security of supply.
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**30359**	Irene Cres - Eastern - Area 60 - 1141	**2034**	$	2,171,398	Irene Cres. - Eastern - Area 60 - 1141 Vintage steel pipes exhibit increased failures as they age, as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Pass**	**30026**	Malden Rd 2 - Southwest - Windsor - 1660	**2034**	$	2,144,999	Malden Rd. 2 - Southwest - Windsor - 1660 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: This project will be split into a smaller project based on feedback from the region (Malden Rd. 1, 2, 3).	Pass	Completed	Fail	Potential project scope could be replaced with NPS 2. It is recommended to maintain pipe size for trunk mains or system resiliency. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.

Southeast	**80 - Niagara**	Distribution Pipe	**Pass**	**30062**	Lavinia St FE - Area 80 - 1171	**2034**	$	2,130,528	Lavinia St. - Area 80 - 1171 Vintage steel pipes exhibit increased failures as they age, as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: Plan Year 1 and execute Year 2.	Pass		Completed	Fail	Potential project scope could be replaced with NPS 2. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**30354**	Grant St - Eastern - Area 60 - 1098	**2034**	$	2,018,244	Grant St. - Eastern - Area 60 - 1098 Vintage steel pipes exhibit increased failures as they age, as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: Possible CA permit may be required due to proximity to Tay River.	Pass		Completed	Fail	Potential project scope could be replaced with NPS 2. It is recommended to maintain pipe size for trunk mains or system resiliency. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**30345**	Drummond St W - Eastern - Area 60 - 1142	**2034**	$	1,840,380	Drummond St. W. - Eastern - Area 60 - 1142 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass		Completed	Fail	Potential project scope could be replaced with NPS 2. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**30346**	Elm St E - Eastern - Area 60 - 1147	**2034**	$	1,838,942	Elm St. E. - Eastern - Area 60 - 1147 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: There are possible road restrictions on County Rd 29 and 15.	Pass		Completed	Fail	Potential project scope could be replaced with NPS 2. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
GTA West	**30 - Richmond Hill**	Distribution Pipe	**Pass**	**30166**	Dunning Ave - GTA East - Area 30 - 1710	**2031**	$	1,827,523	Dunning Ave. - GTA East - Area 30 - 1710 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass		Completed	Fail	Potential project scope could be replaced with NPS 2. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**30349**	Emily St - Eastern - Area 60 - 1101	**2027**	$	1,763,503	Emily St. - Eastern - Area 60 - 1101 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Comments: There are possible road restrictions.	Pass		Completed	Fail	Potential project scope could be replaced with NPS 2. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Pass**	**30196**	Windsor Dr-Ajax-1193	**2028**	$	1,720,852	Windsor Dr. - Ajax - 1193 Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization.	Pass		Completed	Fail	Potential project scope could be replaced with NPS 2. IRPAs not applicable and scope to be confirmed when project enters the detailed design phase.
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**13612**	Service Relay Blanket - Area 10	**2025**	$	189,157,538	General: A distribution service refers to the pipe between the distribution main and the customer's meter set. Over the years, different materials have been used for this asset, including steel, copper, and varying resins of plastic, each with unique characteristics that contribute to their performance over time. Services can be repaired or replaced depending on asset condition and the nature of the issue exhibited. Generally, replacement is the preferred approach to mitigate unacceptable asset condition.	Fail	See investment description, IRPAs not applicable			
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Pass**	**48397**	WATE: Dist-Repl-Contr-Mains Municipal	**2025**	$	125,726,363	General: Projects in the relocation category are capital expenditures required to replace or relocate segments of pipeline in order to accommodate municipal infrastructure work. The cost sharing for this work is managed through the Franchise Agreements established with municipalities. A consultative approach is used between the municipality and EGI to avoid conflicts with municipal infrastructure early in the planning stage. If a conflict is unavoidable, pipeline assets are typically relocated or replaced.	Fail	See investment description, IRPAs not applicable			
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Pass**	**48428**	HAMI: Dist-Repl-Contr-Mains Municipal	**2025**	$	99,265,355	General: Projects in the relocation category are capital expenditures required to replace or relocate segments of pipeline in order to accommodate municipal infrastructure work. The cost sharing for this work is managed through the Franchise Agreements established with municipalities. A consultative approach is used between the municipality and EGI to avoid conflicts with municipal infrastructure early in the planning stage. If a conflict is unavoidable, pipeline assets are typically relocated or replaced.	Fail	See investment description, IRPAs not applicable			
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Pass**	**48288**	WIND: Dist-Repl-Contr-Mains Municipal	**2025**	$	79,653,819	General: Projects in the relocation category are capital expenditures required to replace or relocate segments of pipeline in order to accommodate municipal infrastructure work. The cost sharing for this work is managed through the Franchise Agreements established with municipalities. A consultative approach is used between the municipality and EGI to avoid conflicts with municipal infrastructure early in the planning stage. If a conflict is unavoidable, pipeline assets are typically relocated or replaced.	Fail	See investment description, IRPAs not applicable			
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**742622**	St. Laurent NPS 12 XHP North	**2026**	$	65,847,367	Issue/Concern/Opportunity: Full replacement of the main comprising Network 6584 is required - the NPS 12 St. Laurent Ottawa North line is 13.3 km and operates at 275 psi as Network 6584. It runs from south of St. Laurent Control Station (6584:653:1969) to Rockcliffe Control Station (Station #6B558A). It does not include the main south from St. Laurent Control Station to Industrial Avenue as well as the NPS 12 lateral main to Trans Alta (6584:1234:1235) but does include the NPS 12 lateral main along Tremblay Road (and does not include the crossing at the Rideau River to Station #61171A). General Concerns: Vintage steel mains have shown signs of declining health due to the cumulative effect of poor manufactured coating performance, construction practices, latent third-party damages to pipe coating, and the effect of stray currents from transit infrastructure such as subway and streetcars. The current failure projection model is forecasting an exponential increase in the number of corrosion-related failures, while the CS5 value framework and the 40-year risk projection are showing an increase in the safety risk associated with steel main failures. In addition to age, vintage steel mains are also susceptible to accelerated degradation and/or higher risk of third-party damage in the following ways: •Compression couplings •Shallow blow-off valve assemblies that could be damaged during excavation activities •Reduction in the original depth of cover •Continuous exposure to road salt and seasonal ground movement on bridge crossing assets •Lack of cathodic protection with pipe casings that could result in corrosion, causing excessive stress or shorts on the carrier pipe that is in contact with the casing, which could lead to the loss of containment •Manufacturing defects associated with seam welds and fittings that are weak points in the distribution system and could result in a loss of containment due to prolonged exposure to stress and corrosion •Latent damages to pipe coatings that were never reported to EGI for repair and became active corrosion sites, which could hamper the effect of the corrosion protection system and result in accelerated corrosion and potential loss of containment. Additional drivers from the recent Integrity and Risk program are being captured and prepared as part of the re-filing of the LTC project. This portion of the project replacing the main will ensure the continued operation of EGI's gas distribution system and will mitigate safety risks to employees, contractors, and the general public. This project will install 5.3 km NPS 12 Steel Gas Main and 321 m NPS 6 Steel Gas Main in 2025 and transfer services back on to the XHP on St Laurent from Brittany to Sandridge and on Sandridge.	Fail	An OEB leave to construct proceeding for the project is currently in progress			
GTA West	**20 - Mississauga**	Distribution Pipe	**Pass**	**13605**	Service Relay Blanket - Area 20	**2025**	$	61,470,978	General: A distribution service refers to the pipe between the distribution main and the customer's meter set. Over the years, different materials have been used for this asset, including steel, copper, and varying resins of plastic, each with unique characteristics that contribute to their performance over time. Services can be repaired or replaced depending on asset condition and the nature of the issue exhibited. Generally, replacement is the preferred approach to mitigate unacceptable asset condition.	Fail	See investment description, IRPAs not applicable			
GTA West	**20 - Mississauga**	Distribution Pipe	**Pass**	**4763**	AMP Fitting Replacement - Area 20	**2025**	$	61,026,901	AMP Fittings are a below grade transition fittings. The inserted portion of copper tubing can fail due to internal corrosion. In these cases leaks develop immediately downstream of the AMP Fitting.	Fail	See investment description, IRPAs not applicable			
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**13609**	Service Relay Blanket - Area 60	**2025**	$	60,137,303	General: A distribution service refers to the pipe between the distribution main and the customer's meter set. Over the years, different materials have been used for this asset, including steel, copper, and varying resins of plastic, each with unique characteristics that contribute to their performance over time. Services can be repaired or replaced depending on asset condition and the nature of the issue exhibited. Generally, replacement is the preferred approach to mitigate unacceptable asset condition.	Fail	See investment description, IRPAs not applicable			
Southwest	**Div_04 - London**	Distribution Pipe	**Pass**	**48348**	LOND: Dist-Repl-Contr-Mains Municipal	**2025**	$	57,601,499	General: Projects in the relocation category are capital expenditures required to replace or relocate segments of pipeline in order to accommodate municipal infrastructure work. The cost sharing for this work is managed through the Franchise Agreements established with municipalities. A consultative approach is used between the municipality and EGI to avoid conflicts with municipal infrastructure early in the planning stage. If a conflict is unavoidable, pipeline assets are typically relocated or replaced.	Fail	See investment description, IRPAs not applicable			
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**4760**	AMP Fitting Replacement - Area 10	**2025**	$	55,230,037	AMP Fittings are a below grade transition fittings. The inserted portion of copper tubing can fail due to internal corrosion. In these cases leaks develop immediately downstream of the AMP Fitting.	Fail	See investment description, IRPAs not applicable			
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**4660**	Replacement Blanket - Area 10	**2025**	$	50,616,656	Through out the year there is a need to expedite short main replacement projects which typically have short notice. Examples of these types of jobs include cutting out a section of main/fitting which is leaking, removing blow-offs that require immediate attention, on going municipal works where we encounter unexpected gas plant - catch basin placements, structures, temporary main cut-out to access municipal plant - water mains etc.	Fail	See investment description, IRPAs not applicable			
GTA West	**30 - Richmond Hill**	Distribution Pipe	**Pass**	**13606**	Service Relay Blanket - Area 30	**2025**	$	37,475,412	General: A distribution service refers to the pipe between the distribution main and the customer's meter set. Over the years, different materials have been used for this asset, including steel, copper, and varying resins of plastic, each with unique characteristics that contribute to their performance over time. Services can be repaired or replaced depending on asset condition and the nature of the issue exhibited. Generally, replacement is the preferred approach to mitigate unacceptable asset condition.	Fail	See investment description, IRPAs not applicable			

Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**736844**	Independent Asset Integrity Review (IAIR) - (LUG)	**2027**	$	33,346,097	Dynamic Risk completed an independent review of TIMP to establish uncertainty levels in the fitness-for-service conclusions for all TIMP assets. This first phase of the project was completed last year. TIMP is currently developing plans to mitigate high and moderate uncertainties in the fitness-for-service conclusions by leveraging existing integrity activities and potentially introducing new ones.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**10294**	St. Laurent NPS 12 XHP East/West	**2025**	$	33,133,938	Full replacement of the main comprising Network 6584 is required - the NPS 12 St. Laurent Ottawa North line is 13.3 km and operates at 275 psi as Network 6584. It runs from south of St. Laurent Control Station (6584:653:1969) to Rockcliffe Control Station (Station #6B558A). It does not include the main south from St. Laurent Control Station to Industrial Avenue as well as the NPS 12 lateral main to Trans Alta (6584:1234:1235) but does include the NPS 12 lateral main along Tremblay Road (and does not include the crossing at the Rideau River to Station #61171A). General Concerns: Vintage steel mains have shown signs of declining health due to the cumulative effect of poor manufactured coating performance, construction practices, latent third-party damages to pipe coating, and the effect of stray currents from transit infrastructure such as subway and streetcars. The current failure projection model is forecasting an exponential increase in the number of corrosion-related failures, while the CS5 value framework and the 40-year risk projection are showing an increase in the safety risk associated with steel main failures. In addition to age, vintage steel mains are also susceptible to accelerated degradation and/or higher risk of third-party damage in the following ways: •Compression couplings •Shallow blow-off valve assemblies that could be damaged during excavation activities •Reduction in the original depth of cover •Continuous exposure to road salt and seasonal ground movement on bridge crossing assets •Lack of cathodic protection with pipe casings that could result in corrosion, causing excessive stress or shorts on the carrier pipe that is in contact with the casing, which could lead to the loss of containment •Manufacturing defects associated with seam welds and fittings that are weak points in the distribution system and could result in a loss of containment due to prolonged exposure to stress and corrosion •Latent damages to pipe coatings that were never reported to EGI for repair and became active corrosion sites, which could hamper the effect of the corrosion protection system and result in accelerated corrosion and potential loss of containment. Additional drivers from the recent Integrity and Risk program are being captured and prepared as part of the re-filing of the LTC project. This portion of the project will install approx 3.2 km NPS 12 XHP Steel Gas Main and 0.6 km of 4-inch SC and abandon approx. 2.5 km of NPS 12 SC and transfer service 9 to the new NPS 12 XHP since the Plastic is not being installed on Coventry. Installation to be done in 2024	Fail	An OEB leave to construct proceeding for the project is currently in progress
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**10293**	St. Laurent NPS 16 XHP North	**2025**	$	30,716,375	Full replacement of the main comprising Network 6584 is required - the NPS 12 St. Laurent Ottawa North line is 13.3 km and operates at 275 psi as Network 6584. It runs from south of St. Laurent Control Station (6584:653:1969) to Rockcliffe Control Station (Station #6B558A). It does not include the main south from St. Laurent Control Station to Industrial Avenue as well as the NPS 12 lateral main to Trans Alta (6584:1234:1235) but does include the NPS 12 lateral main along Tremblay Road (and does not include the crossing at the Rideau River to Station #61171A). General Concerns: Vintage steel mains have shown signs of declining health due to the cumulative effect of poor manufactured coating performance, construction practices, latent third-party damages to pipe coating, and the effect of stray currents from transit infrastructure such as subway and streetcars. The current failure projection model is forecasting an exponential increase in the number of corrosion-related failures, while the CS5 value framework and the 40-year risk projection are showing an increase in the safety risk associated with steel main failures. In addition to age, vintage steel mains are also susceptible to accelerated degradation and/or higher risk of third-party damage in the following ways: •Compression couplings •Shallow blow-off valve assemblies that could be damaged during excavation activities •Reduction in the original depth of cover •Continuous exposure to road salt and seasonal ground movement on bridge crossing assets •Lack of cathodic protection with pipe casings that could result in corrosion, causing excessive stress or shorts on the carrier pipe that is in contact with the casing, which could lead to the loss of containment •Manufacturing defects associated with seam welds and fittings that are weak points in the distribution system and could result in a loss of containment due to prolonged exposure to stress and corrosion •Latent damages to pipe coatings that were never reported to EGI for repair and became active corrosion sites, which could hamper the effect of the corrosion protection system and result in accelerated corrosion and potential loss of containment. Additional drivers from the recent Integrity and Risk program are being captured and prepared as part of the re-filing of the LTC project. This portion of the project replacing the main will ensure the continued operation of EGI's gas distribution system and will mitigate safety risks to employees, contractors, and the general public. This project will install 2.4 km NPS 16 Steel Gas Main in 2024. The NPS 12 north section now has a new Project number CS5 742622 20024458.	Fail	An OEB leave to construct proceeding for the project is currently in progress
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**1294**	2025 Integrity Dig Program	**2025**	$	30,088,216	2025 forecast: 44 ILI digs estimated based on previous years inspection plan. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of Union's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
GTA West	**Div_17 - Halton**	Distribution Pipe	**Pass**	**48453**	HALT: Dist-Repl-Contr-Mains Municipal	**2025**	$	28,418,541	General: Projects in the relocation category are capital expenditures required to replace or relocate segments of pipeline in order to accommodate municipal infrastructure work. The cost sharing for this work is managed through the Franchise Agreements established with municipalities. A consultative approach is used between the municipality and EGI to avoid conflicts with municipal infrastructure early in the planning stage. If a conflict is unavoidable, pipeline assets are typically relocated or replaced.	Fail	See investment description, IRPAs not applicable
GTA West	**30 - Richmond Hill**	Distribution Pipe	**Pass**	**4764**	AMP Fitting Replacement - Area 30	**2025**	$	25,169,535	AMP Fittings are a below grade transition fittings. The inserted portion of copper tubing can fail due to internal corrosion. In these cases leaks develop immediately downstream of the AMP Fitting.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**4767**	AMP Fitting Replacement - Area 60	**2025**	$	25,025,733	AMP Fittings are a below grade transition fittings. The inserted portion of copper tubing can fail due to internal corrosion. In these cases leaks develop immediately downstream of the AMP Fitting.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**4665**	Replacement Blanket - Area 60	**2025**	$	23,845,133	Through out the year there is a need to expedite short main replacement projects which typically have short notice. Examples of these types of jobs include cutting out a section of main/fitting which is leaking, removing blow-offs that require immediate attention, on going municipal works where we encounter unexpected gas plant - catch basin placements, structures, temporary main cut-out to access municipal plant - water mains etc. ***Regional replacement blanket investment is funding GL1072 Tenth Line & Innes Valve Replacement for leak repair, investment # 739106, in the amount of $381,024.	Fail	See investment description, IRPAs not applicable
Southeast	**80 - Niagara**	Distribution Pipe	**Pass**	**13611**	Service Relay Blanket - Area 80	**2025**	$	22,628,275	General: A distribution service refers to the pipe between the distribution main and the customer's meter set. Over the years, different materials have been used for this asset, including steel, copper, and varying resins of plastic, each with unique characteristics that contribute to their performance over time. Services can be repaired or replaced depending on asset condition and the nature of the issue exhibited. Generally, replacement is the preferred approach to mitigate unacceptable asset condition.	Fail	See investment description, IRPAs not applicable
GTA West	**50 - Barrie**	Distribution Pipe	**Pass**	**13608**	Service Relay Blanket - Area 50	**2025**	$	21,138,306	This Business Case is created to group all Blanket Relay IDFs for all 7 areas into one IDF and one Business Case to simplify the Risk Assessment process. Financial tracking will be done on the individual Blanket Relay IDFs to provide area financial reporting.	Fail	See investment description, IRPAs not applicable
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Pass**	**13607**	Service Relay Blanket - Area 40	**2025**	$	21,018,874	This Business Case is created to group all Blanket Relay IDFs for all 7 areas into one IDF and one Business Case to simplify the Risk Assessment process. Financial tracking will be done on the individual Blanket Relay IDFs to provide area financial reporting.	Fail	See investment description, IRPAs not applicable
GTA West	**50 - Barrie**	Distribution Pipe	**Pass**	**102423**	Relocation Program - Area 50	**2025**	$	20,989,750	General: Projects in the relocation category are capital expenditures required to replace or relocate segments of pipeline in order to accommodate municipal infrastructure work. The cost sharing for this work is managed through the Franchise Agreements established with municipalities. A consultative approach is used between the municipality and EGI to avoid conflicts with municipal infrastructure early in the planning stage. If a conflict is unavoidable, pipeline assets are typically relocated or replaced.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**10288**	St. Laurent IP PE - Lower Section	**2025**	$	20,490,340	Issue/Concern: General Concerns: Vintage steel mains have shown signs of declining health due to the cumulative effective of poor manufactured coating performance, construction practices, latent third-party damages to pipe coating, and the effect of stray currents from transit infrastructure such as subway and streetcars. The current failure projection model is forecasting an exponential increase in the number of corrosion-related failures, while the CS5 value framework and the 40-year risk projection are showing an increase in the safety risk associated with steel main failures. In addition to age, vintage steel mains are also susceptible to accelerated degradation and/or higher risk of third-party damage in the following ways: •Compression couplings •Shallow blow-off valve assemblies that could be damaged during excavation activities •Reduction in the original depth of cover •Continuous exposure of road salt and seasonal ground movement on bridge crossing assets •Lack of cathodic protection with pipe casings that could result in corrosion causing excessive stress or shorts on the carrier pipe that is in contact with the casing, which could lead to the loss of containment •Manufacturing defects associated with seam welds and fittings that are weak points in the distribution system and could result in a loss of containment due to prolonged exposure to stress and corrosion •Latent damages to pipe coatings that were never reported to EGI for repair and became active corrosion sites, which could hamper the effect of the corrosion protection system and result in accelerated corrosion and potentially loss of containment. Site-Specific Concerns: Unable to determine leaks due to the close proximity of the NPS 12 470 psi system. Cathodic protection was not installed until the early 1970s. Approximately 429 services are off this network. Full replacement of main comprising Network 6584 is required - the NPS 12 St. Laurent Ottawa North line is 13.3 km and operates at 275 psi as Network 6584. It runs from south of St. Laurent Control Station (6584:653:1969) to Rockcliffe Control Station (Station #6B558A). It does not include the main south from St. Laurent Control Station to Industrial Avenue as well as the NPS 12 lateral main to Trans Alta (6584:1234:1235) but does include the NPS 12 lateral main along Tremblay Road (and does not include the crossing at the Rideau River to Station #61171A). In 2018, pressure increase to Avenue O was completed. In 2019/2020, approximately 3.1 km of plastic pipe was installed on Tremblay and the Avenues	Fail	An OEB leave to construct proceeding for the project is currently in progress
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Pass**	**48290**	WIND: Dist-Repl-Contr-Services	**2025**	$	18,669,546	The service relay account is for the annual district capital blanket budgeted for maintenance requirements associated with individual customer services that require replacement or repair due to their age and condition.	Fail	See investment description, IRPAs not applicable

Southwest	**Div_04 - London**	Distribution Pipe	**Pass**	**48350**	LOND: Dist-Repl-Contr-Services	**2025**	$ 16,597,184	The service relay account is for the annual district capital blanket budgeted for maintenance requirements associated with individual customer services that require replacement or repair due to their age and condition.	Fail	See investment description, IRPAs not applicable
GTA West	**Div_17 - Halton**	Distribution Pipe	**Pass**	**48455**	HALT: Dist-Repl-Contr-Services	**2025**	$ 15,889,237	The service relay account is for the annual district capital blanket budgeted for maintenance requirements associated with individual customer services that require replacement or repair due to their age and condition.	Fail	See investment description, IRPAs not applicable
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Pass**	**102422**	Relocation Program - Area 40	**2025**	$ 15,839,810	General: Projects in the relocation category are capital expenditures required to replace or relocate segments of pipeline in order to accommodate municipal infrastructure work. The cost sharing for this work is managed through the Franchise Agreements established with municipalities. A consultative approach is used between the municipality and EGI to avoid conflicts with municipal infrastructure early in the planning stage. If a conflict is unavoidable, pipeline assets are typically relocated or replaced.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**49935**	Depth of Cover Mitigation Program	**2025**	$ 15,432,873	General: In compliance with the TSSA Code Adoption Document, EGI has an annual depth of cover survey program for all 30 per cent SMYS pipelines. These surveys may identify locations where remediation is required. The current cycle of depth of cover surveys will be completed in 2023 at which time a prioritized list of capital replacements will be created to plan for any identified required remediation.	Fail	See investment description, IRPAs not applicable
Head Office/All	**00 - Head Office**	Distribution Pipe	**Pass**	**736833**	TIMP Geohazard Mitigation (LUG)	**2026**	$ 14,983,081	General: The Geohazard Mitigation program has been designed to comply with all applicable codes and standards. The program consists of the assessment and maintenance of the integrity of EGI's pipeline systems which may be impacted by geohazards. The assessment ensures asset's continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS.	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Distribution Pipe	**Pass**	**100444**	Integrity Retrofit Program >30% SMYS	**2028**	$ 14,269,895	General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
GTA West	**30 - Richmond Hill**	Distribution Pipe	**Pass**	**102421**	Relocation Program - Area 30	**2025**	$ 14,192,459	General: Projects in the relocation category are capital expenditures required to replace or relocate segments of pipeline in order to accommodate municipal infrastructure work. The cost sharing for this work is managed through the Franchise Agreements established with municipalities. A consultative approach is used between the municipality and EGI to avoid conflicts with municipal infrastructure early in the planning stage. If a conflict is unavoidable, pipeline assets are typically relocated or replaced.	Fail	See investment description, IRPAs not applicable
Southeast	**80 - Niagara**	Distribution Pipe	**Pass**	**102425**	Relocation Program - Area 80	**2025**	$ 13,854,495	General: Projects in the relocation category are capital expenditures required to replace or relocate segments of pipeline in order to accommodate municipal infrastructure work. The cost sharing for this work is managed through the Franchise Agreements established with municipalities. A consultative approach is used between the municipality and EGI to avoid conflicts with municipal infrastructure early in the planning stage. If a conflict is unavoidable, pipeline assets are typically relocated or replaced.	Fail	See investment description, IRPAs not applicable
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Pass**	**48398**	WATE: Dist-Repl-Contr-Services	**2025**	$ 13,564,319	The service relay account is for the annual district capital blanket budgeted for maintenance requirements associated with individual customer services that require replacement or repair due to their age and condition.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**102746**	2027 Integrity Dig Program	**2027**	$ 13,159,062	Forecast: not provided for 2026-2030 at this time, using average of 2020-2025 as placeholder General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Pass**	**48293**	WIND: Dist-Repl-Compy-Services	**2025**	$ 12,947,570	The service relay account is for the annual district capital blanket budgeted for maintenance requirements associated with individual customer services that require replacement or repair due to their age and condition.	Fail	See investment description, IRPAs not applicable
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Pass**	**48472**	KING: Dist-Repl-Contractor Services	**2025**	$ 12,579,047	The service relay account is for the annual district capital blanket budgeted for maintenance requirements associated with individual customer services that require replacement or repair due to their age and condition.	Fail	See investment description, IRPAs not applicable
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Pass**	**4766**	AMP Fitting Replacement - Area 40	**2025**	$ 12,114,062	AMP Fittings are a below grade transition fittings. The inserted portion of copper tubing can fail due to internal corrosion. In these cases leaks develop immediately downstream of the AMP Fitting.	Fail	See investment description, IRPAs not applicable
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Pass**	**48430**	HAMI: Dist-Repl-Contr-Services	**2025**	$ 11,636,700	The service relay account is for the annual district capital blanket budgeted for maintenance requirements associated with individual customer services that require replacement or repair due to their age and condition.	Fail	See investment description, IRPAs not applicable
Southwest	**Div_04 - London**	Distribution Pipe	**Pass**	**48355**	LOND: Dist-Repl-Compy-Services	**2025**	$ 10,866,784	The service relay account is for the annual district capital blanket budgeted for maintenance requirements associated with individual customer services that require replacement or repair due to their age and condition.	Fail	See investment description, IRPAs not applicable
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Pass**	**740712**	HAMI: Leakage Replacement Blanket	**2025**	$ 10,558,458	Through out the year there is a need to expedite short main replacement projects which typically have short notice. Examples of these types of jobs include cutting out a section of main/fitting which is leaking, removing blow-offs that require immediate attention, on going municipal works where we encounter unexpected gas plant - catch basin placements, structures, temporary main cut-out to access municipal plant - water mains etc.	Fail	See investment description, IRPAs not applicable
Southwest	**Div_02 - Chatham**	Distribution Pipe	**Pass**	**48323**	CHAT: Dist-Repl-Contr-Services	**2025**	$ 10,181,792	The service relay account is for the annual district capital blanket budgeted for maintenance requirements associated with individual customer services that require replacement or repair due to their age and condition.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**10290**	St. Laurent IP PE Ogilvie/St. Laurent	**2026**	$ 9,828,848	Full replacement of the main comprising Network 6584 is required - the NPS 12 St. Laurent Ottawa North line is 13.3 km and operates at 275 psi as Network 6584. It runs from south of St. Laurent Control Station (6584:653:1969) to Rockcliffe Control Station (Station #6B558A). It does not include the main south from St. Laurent Control Station to Industrial Avenue as well as the NPS 12 lateral main to Trans Alta (6584:1234:1235) but does include the NPS 12 lateral main along Tremblay Road (and does not include the crossing at the Rideau River to Station #61171A). General Concerns: Vintage steel mains have shown signs of declining health due to the cumulative effect of poor manufactured coating performance, construction practices, latent third-party damages to pipe coating, and the effect of stray currents from transit infrastructure such as subway and streetcars. The current failure projection model is forecasting an exponential increase in the number of corrosion-related failures, while the CSS value framework and the 40-year risk projection are showing an increase in the safety risk associated with steel main failures. In addition to age, vintage steel mains are also susceptible to accelerated degradation and/or higher risk of third-party damage in the following ways: •Compression couplings •Shallow blow-off valve assemblies that could be damaged during excavation activities •Reduction in the original depth of cover •Continuous exposure to road salt and seasonal ground movement on bridge crossing assets •Lack of cathodic protection with pipe casings that could result in corrosion, causing excessive stress or shorts on the carrier pipe that is in contact with the casing, which could lead to the loss of containment •Manufacturing defects associated with seam welds and fittings that are weak points in the distribution system and could result in a loss of containment due to prolonged exposure to stress and corrosion •Latent damages to pipe coatings that were never reported to EGI for repair and became active corrosion sites, which could hamper the effect of the corrosion protection system and result in accelerated corrosion and potential loss of containment. Additional drivers from the recent Integrity and Risk program are being captured and prepared as part of the re-filing of the LTC project. This portion of the project is to install 800 m NPS 6, 525 m NPS 2 IP, transfer 27 services to IP from XHP, and abandon 1 station on Coventry and Cummings. In 2018, a pressure increase to Avenue O was completed. In 2019/2020, approximately 3.1 km of plastic pipe was installed on Tremblay and the Avenues and the services were transferred over to IP. Due to a road moratorium, a 2 km of 6-inch PE IP main on St. Laurent between Donald St. and Montreal	Fail	An OEB leave to construct proceeding for the project is currently in progress
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**102744**	2026 Integrity Dig Program	**2026**	$ 9,132,333	Forecast: not provided for 2026-2030 at this time, using average of 2020-2025 as placeholder General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Pass**	**48580**	NE: Dist-Repl-Contr-Mains Municipal	**2025**	$ 8,732,420	Project Specific: General: Projects in the relocation category are capital expenditures required to replace or relocate segments of pipeline in order to accommodate municipal infrastructure work. The cost sharing for this work is managed through the Franchise Agreements established with municipalities. A consultative approach is used between the municipality and Union to avoid conflicts with municipal infrastructure early in the planning stage. If a conflict is unavoidable, Union's pipeline assets are typically relocated or replaced.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**102424**	Relocation Program - Area 60	**2025**	$ 8,405,247	General: Projects in the relocation category are capital expenditures required to replace or relocate segments of pipeline in order to accommodate municipal infrastructure work. The cost sharing for this work is managed through the Franchise Agreements established with municipalities. A consultative approach is used between the municipality and EGI to avoid conflicts with municipal infrastructure early in the planning stage. If a conflict is unavoidable, pipeline assets are typically relocated or replaced.	Fail	See investment description, IRPAs not applicable
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**102419**	Relocation Program - Area 10	**2025**	$ 8,395,900	General: Projects in the relocation category are capital expenditures required to replace or relocate segments of pipeline in order to accommodate municipal infrastructure work. The cost sharing for this work is managed through the Franchise Agreements established with municipalities. A consultative approach is used between the municipality and EGI to avoid conflicts with municipal infrastructure early in the planning stage. If a conflict is unavoidable, pipeline assets are typically relocated or replaced.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**742761**	St. Laurent NPS 12 XHP South	**2026**	$ 8,351,279	Issue/Concern/Opportunity: Replace Vintage Steel out of St Laurent Control south to north of Industrial Ave. Justification: Vintage Steel Program Assets: M119260689 Related Investments: 10288, 10290, 20292, 10293, 10294, 742622	Fail	An OEB leave to construct proceeding for the project is currently in progress
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**102747**	2028 Integrity Dig Program	**2028**	$ 8,077,010	Forecast: not provided for 2026-2030 at this time, using average of 2020-2025 as placeholder General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Pass**	**48477**	King: Relocation Mains - Municipal	**2025**	$ 8,001,630	Replacement, relocation and lowering of mains and associated services due to municipal/FN's/provincial/federal re-construction projects. Cost recovery mechanism in place as per Franchise Agreement	Fail	See investment description, IRPAs not applicable

Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**742789**	2033 Integrity Dig Program	**2033**	$	7,857,689	Forecast: not provided for 2028-2034 at this time, using average of 2020-2025 as placeholder General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**742797**	2034 Integrity Dig Program	**2034**	$	7,852,727	Forecast: not provided for 2028-2034 at this time, using average of 2020-2025 as placeholder General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**733992**	2032 Integrity Dig Program	**2032**	$	7,851,717	Forecast: not provided for 2026-2032 at this time, using average of 2020-2025 as placeholder General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**102748**	2029 Integrity Dig Program	**2029**	$	7,844,617	Forecast: not provided for 2026-2030 at this time, using average of 2020-2025 as placeholder General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**733990**	2031 Integrity Dig Program	**2031**	$	7,843,562	Forecast: not provided for 2026-2032 at this time, using average of 2020-2025 as placeholder General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**102750**	2030 Integrity Dig Program	**2030**	$	7,833,720	Forecast: not provided for 2026-2032 at this time, using average of 2020-2025 as placeholder General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Pass**	**48409**	WATE: Anodes	**2025**	$	6,679,991	General: The anodes program within the corrosion program includes the required expenditure to install anodes in order to reduce the amount of down plant within EGI's system. These installations and replacements are based on the internal Standard Operating Practice established to maintain the appropriate level of cathodic protection on steel pipeline assets.	Fail	See investment description, IRPAs not applicable
Southwest	**Div_04 - London**	Distribution Pipe	**Pass**	**48364**	LOND: Anodes	**2025**	$	6,652,460	General: The anodes program within the corrosion program includes the required expenditure to install anodes in order to reduce the amount of down plant within EGI's system. These installations and replacements are based on the internal Standard Operating Practice established to maintain the appropriate level of cathodic protection on steel pipeline assets.	Fail	See investment description, IRPAs not applicable
Southeast	**80 - Niagara**	Distribution Pipe	**Pass**	**14063**	Copper Service Replacement - Area 80	**2025**	$	6,605,527	The proactive Copper Services Replacement program aims to remove all outstanding active copper services and replace these assets with new plastic services and anodeless risers as part of the Service Relay program. Additionally, EGI will be monitoring condition-based and customer-related drivers that trigger the need to replace these assets. Condition-based drivers are monitored through existing activities of the DIMP, as well as the Leak and Corrosion Survey programs. Copper services are also replaced through proactive vintage mains replacement programs and relocation projects.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Pass**	**48517**	THUN: Anodes	**2025**	$	6,601,329	General: The anodes program within the corrosion program includes the required expenditure to install anodes in order to reduce the amount of down plant within EGI's system. These installations and replacements are based on the internal Standard Operating Practice established to maintain the appropriate level of cathodic protection on steel pipeline assets.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Pass**	**102212**	INTE: Sault Ste Marie/Baseline: Retrofit ECDA to ILI	**2025**	$	6,438,630	Project Specific: ECDA to ILI program, supporting refinement of pipeline risk profile. Associated 2022 O&M spend for ILI General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of Union's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Southwest	**Div_02 - Chatham**	Distribution Pipe	**Pass**	**744272**	CHAT: Leakage Replacement Blanket	**2025**	$	6,416,522	Through out the year there is a need to expedite short main replacement projects which typically have short notice. Examples of these types of jobs include cutting out a section of main/fitting which is leaking, removing blow-offs that require immediate attention, on going municipal works where we encounter unexpected gas plant - catch basin placements, structures, temporary main cut-out to access municipal plant - water mains etc.	Fail	See investment description, IRPAs not applicable
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Pass**	**740717**	WIND: Leakage Replacement Blanket	**2025**	$	6,416,522	Through out the year there is a need to expedite short main replacement projects which typically have short notice. Examples of these types of jobs include cutting out a section of main/fitting which is leaking, removing blow-offs that require immediate attention, on going municipal works where we encounter unexpected gas plant - catch basin placements, structures, temporary main cut-out to access municipal plant - water mains etc.	Fail	See investment description, IRPAs not applicable
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**3430**	Anode Blanket - Area 10	**2025**	$	6,400,653	General: The anodes program within the corrosion program includes the required expenditure to install anodes in order to reduce the amount of down plant within EGI's system. These installations and replacements are based on the internal Standard Operating Practice established to maintain the appropriate level of cathodic protection on steel pipeline assets.	Fail	See investment description, IRPAs not applicable
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Pass**	**48302**	WIND: Anodes	**2025**	$	6,293,658	General: The anodes program within the corrosion program includes the required expenditure to install anodes in order to reduce the amount of down plant within EGI's system. These installations and replacements are based on the internal Standard Operating Practice established to maintain the appropriate level of cathodic protection on steel pipeline assets.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**4671**	Anode Blanket - Area 60	**2025**	$	5,764,554	Justification: The Corrosion Department conducts pipe-to-soil readings each year on EGI's steel pipelines. When a corrosion area is identified as having fallen below EGI's minimum specifications, an order for a anode installation is processed. The capital request is for 12 months.	Fail	See investment description, IRPAs not applicable
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Pass**	**1183**	INTE: Destec Retrofit	**2026**	$	5,655,658	Issue/Concern: Project Specific Concern: External Corrosion Direct Assessment (ECDA) to ILI program, supporting refinement of pipeline risk profile. Associated 2023 O&M spend for ILI. General Concerns: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of pipeline systems in the Union rate zone to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 3% SMYS. It includes installation costs for permanent in-line inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections. Assets: NPS 8 Destec Lateral Related Programs: Integrity Management Program Link to scope in ProjectWise: pw://pwintegration.gtna.gt.ds:TRIM_PROD/Documents/D{9187fae1-c1f5-49bc-990d-f753f776aafc}	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**102454**	2027 Class Location Replacement Program	**2027**	$	5,529,018	General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS, unless previously designed, tested, operated, and maintained for a Class 4 location. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development which occurs in close proximity to EGI's pipelines typically triggers class location changes. An annual budget is required for EGI's pipeline system in order to meet the current standard requirements. Remediation includes pressure testing, installation of valves, remediating depth of cover issues, and pipeline replacement. This work ensures EGI is compliant and fosters the safety of the public and EGI's pipeline system.	Fail	See investment description, IRPAs not applicable
Head Office/All	**00 - Head Office**	Distribution Pipe	**Pass**	**736845**	Independent Asset Integrity Review (IAIR) - (LEG)	**2027**	$	5,391,278	Dynamic Risk completed an independent review of TIMP to establish uncertainty levels in the fitness-for-service conclusions for all TIMP assets. This first phase of the project was completed last year. TIMP is currently developing plans to mitigate high and moderate uncertainties in the fitness-for-service conclusions by leveraging existing integrity activities and potentially introducing new ones.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**102455**	2028 Class Location Replacement Program	**2028**	$	5,187,547	General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS, unless previously designed, tested, operated, and maintained for a Class 4 location. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development which occurs in close proximity to EGI's pipelines typically triggers class location changes. An annual budget is required for EGI's pipeline system in order to meet the current standard requirements. Remediation includes pressure testing, installation of valves, remediating depth of cover issues, and pipeline replacement. This work ensures EGI is compliant and fosters the safety of the public and EGI's pipeline system.	Fail	See investment description, IRPAs not applicable

Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**503431**	Bridge Crossing Repair Program	**2025**	$	5,104,274	Issue/Concern/Opportunity: Bridge crossing inspection results in different levels of action which can include replacement, recoating, or hanger repair/replacement work. This program is for recoating work and hanger repair. Justification: The integrated Corrosion Operating Standard ST-17-B13A-DDA9 was released 2020-11-25 and requires the following surveys: Annual visual, 5 year detailed. The standard outlines the following time frames: Bridge crossing – replace Per Engineering assessment per project plan; Bridge crossing – replace expansion joint / Ins flange within 24 months; Bridge crossing / paint pipe / repair hangers / replace casing end seal within 12 months. Assets: Related Investments: 2024 Work Planned ($298k): EASTERN-15: $52,000 - replace 7 hangers and add FRP EASTERN-6: $84,000 - replace 23 hangers NORTHEAST-15New$37,250 This may be pulled forward to 2024 due to detailed inspection NORTHWEST-07New$127,000 This may be pulled forward to 2024 due to detailed inspection NORTHWEST-08New$67,850 This may be pulled forward to 2024 due to detailed inspection NORTHWEST-15/16New$75,000 This may be pulled forward to 2024 due to detailed inspection EASTERN-16: $162,000 - Replace all hangers and full tape coat - 741578 - This was moved to general mains replacement	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**742468**	2033 Class Location Replacement Program	**2033**	$	5,046,685	General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS, unless previously designed, tested, operated, and maintained for a Class 4 location. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development which occurs in close proximity to EGI's pipelines typically triggers class location changes. An annual budget is required for EGI's pipeline system in order to meet the current standard requirements. Remediation includes pressure testing, installation of valves, remediating depth of cover issues, and pipeline replacement. This work ensures EGI is compliant and fosters the safety of the public and EGI's pipeline system.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**742469**	2034 Class Location Replacement Program	**2034**	$	5,043,499	General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS, unless previously designed, tested, operated, and maintained for a Class 4 location. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development which occurs in close proximity to EGI's pipelines typically triggers class location changes. An annual budget is required for EGI's pipeline system in order to meet the current standard requirements. Remediation includes pressure testing, installation of valves, remediating depth of cover issues, and pipeline replacement. This work ensures EGI is compliant and fosters the safety of the public and EGI's pipeline system.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**733984**	2032 Class Location Replacement Program	**2032**	$	5,042,850	General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS, unless previously designed, tested, operated, and maintained for a Class 4 location. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development which occurs in close proximity to EGI's pipelines typically triggers class location changes. An annual budget is required for EGI's pipeline system in order to meet the current standard requirements. Remediation includes pressure testing, installation of valves, remediating depth of cover issues, and pipeline replacement. This work ensures EGI is compliant and fosters the safety of the public and EGI's pipeline system.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**102456**	2029 Class Location Replacement Program	**2029**	$	5,038,290	General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS, unless previously designed, tested, operated, and maintained for a Class 4 location. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development which occurs in close proximity to EGI's pipelines typically triggers class location changes. An annual budget is required for EGI's pipeline system in order to meet the current standard requirements. Remediation includes pressure testing, installation of valves, remediating depth of cover issues, and pipeline replacement. This work ensures EGI is compliant and fosters the safety of the public and EGI's pipeline system.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**733983**	2031 Class Location Replacement Program	**2031**	$	5,037,612	General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS, unless previously designed, tested, operated, and maintained for a Class 4 location. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development which occurs in close proximity to EGI's pipelines typically triggers class location changes. An annual budget is required for EGI's pipeline system in order to meet the current standard requirements. Remediation includes pressure testing, installation of valves, remediating depth of cover issues, and pipeline replacement. This work ensures EGI is compliant and fosters the safety of the public and EGI's pipeline system.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**102457**	2030 Class Location Replacement Program	**2030**	$	5,031,291	General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS, unless previously designed, tested, operated, and maintained for a Class 4 location. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development which occurs in close proximity to EGI's pipelines typically triggers class location changes. An annual budget is required for EGI's pipeline system in order to meet the current standard requirements. Remediation includes pressure testing, installation of valves, remediating depth of cover issues, and pipeline replacement. This work ensures EGI is compliant and fosters the safety of the public and EGI's pipeline system.	Fail	See investment description, IRPAs not applicable
Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Pass**	**744286**	SARN: Leakage Replacement Blanket	**2025**	$	4,978,063	Through out the year there is a need to expedite short main replacement projects which typically have short notice. Examples of these types of jobs include cutting out a section of main/fitting which is leaking, removing blow-offs that require immediate attention, on going municipal works where we encounter unexpected gas plant - catch basin placements, structures, temporary main cut-out to access municipal plant - water mains etc.	Fail	See investment description, IRPAs not applicable
Southwest	**Div_04 - London**	Distribution Pipe	**Pass**	**740714**	LOND: Leakage Replacement Blanket	**2025**	$	4,978,063	Through out the year there is a need to expedite short main replacement projects which typically have short notice. Examples of these types of jobs include cutting out a section of main/fitting which is leaking, removing blow-offs that require immediate attention, on going municipal works where we encounter unexpected gas plant - catch basin placements, structures, temporary main cut-out to access municipal plant - water mains etc.	Fail	See investment description, IRPAs not applicable
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Pass**	**733738**	NPS 8 Port Elgin South Hampton	**2025**	$	4,952,793	Project-Specific: External Corrosion Direct Assessment (ECDA) to In-Line Inspection (ILI) Program, supporting refinement of pipeline risk profile. Associated 2026 Operations and Maintenance (O&M) spend for ILI. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30% Specified Minimum Yield Strength (SMYS). It includes installation costs for permanent ILI tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**1291**	2025 Integrity Retrofit Program	**2026**	$	4,692,271	Project Specific: Integrity Retrofit program, supporting refinement of pipeline risk profile. The purpose of this program is to gain a more complete level of pipeline risk by making additional pipelines accessible for Inline Inspection. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of Union's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
GTA West	**20 - Mississauga**	Distribution Pipe	**Pass**	**4661**	Replacement Blanket - Area 20	**2025**	$	4,304,023	Through out the year there is a need to expedite short main replacement projects which typically have short notice. Examples of these types of jobs include cutting out a section of main/fitting which is leaking, removing blow-offs that require immediate attention, on going municipal works where we encounter unexpected gas plant - catch basin placements, structures, temporary main cut-out to access municipal plant - water mains etc.	Fail	See investment description, IRPAs not applicable
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Pass**	**740713**	KING: Leakage Replacement Blanket	**2025**	$	4,223,922	Through out the year there is a need to expedite short main replacement projects which typically have short notice. Examples of these types of jobs include cutting out a section of main/fitting which is leaking, removing blow-offs that require immediate attention, on going municipal works where we encounter unexpected gas plant - catch basin placements, structures, temporary main cut-out to access municipal plant - water mains etc.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Pass**	**2143**	NPS 10 Sudbury Lateral - Yellek	**2026**	$	4,125,276	Project Specific Concerns: Sudbury Section 1 - Yellek - 2500m of NPS 10. 3 road crossings. Class 1 to 2. General Concerns: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30% SMYS. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development occurs in close proximity to EGI's pipelines which triggers annual class location changes; this work ensures EGI is compliant and fosters the safety of the public and the pipeline system. Assets: Sudbury Section 1 - Yellek - 2500m of NPS 10 pipe. Related Programs: N/A	Fail	See investment description, IRPAs not applicable
Head Office/All	**00 - Head Office**	Distribution Pipe	**Pass**	**736835**	TIMP Geohazard Mitigation (LEGD)	**2025**	$	4,086,558	General: The Geohazard Mitigation Program has been designed to comply with all applicable codes and standards. The program consists of the assessment and maintenance of the integrity of EGI's pipeline systems which may be impacted by geohazards. The assessment ensures asset's continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30% SMYS.	Fail	See investment description, IRPAs not applicable
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Pass**	**4669**	Anode Blanket - Area 40	**2025**	$	4,066,679	General Description: The anodes program within the corrosion program includes the required expenditure to install anodes in order to reduce the amount of down plant within the EGI system. These installations and replacements are based on the Corrosion Operating Standard established to maintain the appropriate level of cathodic protection on steel pipeline assets.	Fail	See investment description, IRPAs not applicable
GTA West	**Div_17 - Halton**	Distribution Pipe	**Pass**	**503196**	HALT: Anodes	**2025**	$	3,918,499	General: The anodes program within the corrosion program includes the required expenditure to install anodes in order to reduce the amount of down plant within EGI's system. These installations and replacements are based on the internal Standard Operating Practice established to maintain the appropriate level of cathodic protection on steel pipeline assets.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_45 - Timmins**	Distribution Pipe	**Pass**	**733718**	NPS 6 Kapuskasing Retrofit	**2026**	$	3,890,663	Project-Specific: External Corrosion Direct Assessment (ECDA) to In-Line Inspection (ILI) Program, supporting refinement of pipeline risk profile. Associated 2027 Operations and Maintenance (O&M) spend for ILI. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30% Specified Minimum Yield Strength (SMYS). It includes installation costs for permanent ILI tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_45 - Timmins**	Distribution Pipe	**Pass**	**733719**	NPS 6 Cochrane Loop	**2026**	$	3,890,663	Project-Specific: External Corrosion Direct Assessment (ECDA) to In-Line Inspection (ILI) Program, supporting refinement of pipeline risk profile. Associated 2026 Operations and Maintenance (O&M) spend for ILI. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30% Specified Minimum Yield Strength (SMYS). It includes installation costs for permanent ILI tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable

Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Pass**	**10292**	St. Laurent IP PE - Montreal to Rockcliffe	**2026**	$	3,788,031	General Concerns: Vintage steel mains have shown signs of declining health due to the cumulative effective of poor-manufactured coating performance, construction practices, latent third-party damages to pipe coating, and the effect of stray currents from transit infrastructure such as subway and streetcars. The current failure projection model is forecasting an exponential increase in the number of corrosion-related failures, while the CSS value framework and the 40-year risk projection show an increase in the safety risk associated with steel main failures. In addition to age, vintage steel mains are also susceptible to accelerated degradation and/or higher risk of third-party damage in the following ways: •Compression couplings •Shallow blow-off valve assemblies that could be damaged during excavation activities •Reduction in the original depth of cover •Continuous exposure of road salt and seasonal ground movement on bridge crossing assets •Lack of cathodic protection with pipe casings that could result in corrosion causing excessive stress or shorts on the carrier pipe that is in contact with the casing, which could lead to the loss of containment •Manufacturing defects associated with seam welds and fittings that are weak points in the distribution system and could result in a loss of containment due to prolonged exposure to stress and corrosion •Latent damages to pipe coatings that were never reported to EGI for repair and became active corrosion sites, which could hamper the effect of the corrosion protection system and result in accelerated corrosion and potentially loss of containment. Site-Specific Concerns: An inability to determine leaks due to the close proximity of the NPS 12 470 psi system is a concern. Cathodic protection was not installed until the early 1970s. Approximately 429 services are off this network. Full replacement of main comprising Network 6584 is required - the NPS 12 St. Laurent Ottawa North line is 13.3 km and operates at 275 psi as Network 6584. It runs from south of St. Laurent Control Station (6584:653:1969) to Rockcliffe Control Station (Station #6B558A). It does not include the main south from St. Laurent Control Station to Industrial Avenue as well as the NPS 12 lateral main to Trans Alta (6584:1234:1235) but does include the NPS 12 lateral main along Tremblay Road (and does not include the crossing at the Rideau River to Station #61171A). In 2018, pressure increase to Avenue O was completed. In 2019/2020, approximately 3.1 km of plastic pipe was installed on Tremblay and the Avenues and the services transferred over to IP. Due to a road moratorium, 2 km of 6-inch PE IP main on St. Laurent between Donald St. and Montreal was brought forward from 2021 to 2019/2020 and approximately 80 services.	Fail	An OEB leave to construct proceeding for the project is currently in progress
Head Office/All	**01 - All**	Distribution Pipe	**Pass**	**102762**	2027 Integrity Dig Program	**2027**	$	3,762,793	Forecast: Forecast not provided for 2026-3030; average of 2020-2025 used as a placeholder. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Pass**	**501116**	WATE: Dist-Repl-Compy-Services	**2025**	$	3,733,486	The service relay account is for the annual district capital blanket budgeted for maintenance requirements associated with individual customer services that require replacement or repair due to their age and condition.	Fail	See investment description, IRPAs not applicable
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Pass**	**744287**	WATE: Leakage Replacement Blanket	**2025**	$	3,711,238	Through out the year there is a need to expedite short main replacement projects which typically have short notice. Examples of these types of jobs include cutting out a section of main/fitting which is leaking, removing blow-offs that require immediate attention, on going municipal works where we encounter unexpected gas plant - catch basin placements, structures, temporary main cut-out to access municipal plant - water mains etc.	Fail	See investment description, IRPAs not applicable
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Pass**	**740710**	BRAN: Leakage Replacement Blanket	**2025**	$	3,711,238	Through out the year there is a need to expedite short main replacement projects which typically have short notice. Examples of these types of jobs include cutting out a section of main/fitting which is leaking, removing blow-offs that require immediate attention, on going municipal works where we encounter unexpected gas plant - catch basin placements, structures, temporary main cut-out to access municipal plant - water mains etc.	Fail	See investment description, IRPAs not applicable
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Pass**	**733743**	NPS 12 Guelph Reinf-Guelph Tie-over	**2026**	$	3,704,933	Project-Specific: External Corrosion Direct Assessment (ECDA) to In-Line Inspection (ILI) Program, supporting refinement of pipeline risk profile. Associated 2027 Operations and Maintenance (O&M) spend for ILI. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30% Specified Minimum Yield Strength (SMYS). It includes installation costs for permanent ILI tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Pass**	**48590**	NBAY: Anodes	**2025**	$	3,683,841	General: The anodes program within the corrosion program includes the required expenditure to install anodes in order to reduce the amount of down plant within EGI's system. These installations and replacements are based on the internal Standard Operating Practice established to maintain the appropriate level of cathodic protection on steel pipeline assets.	Fail	See investment description, IRPAs not applicable
Southeast	**80 - Niagara**	Distribution Pipe	**Pass**	**4673**	Anode Blanket - Area 80	**2025**	$	3,652,199	General Description: The anodes program within the corrosion program includes the required expenditure to install anodes in order to reduce the amount of down plant within the EGI system. These installations and replacements are based on the Corrosion Operating Standard established to maintain the appropriate level of cathodic protection on steel pipeline assets.	Fail	See investment description, IRPAs not applicable
Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Pass**	**733734**	NPS 6 Dupont	**2026**	$	3,538,742	Project-Specific: External Corrosion Direct Assessment (ECDA) to In-Line Inspection (ILI) Program, supporting refinement of pipeline risk profile. Associated 2025 Operations and Maintenance (O&M) spend for ILI. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30% Specified Minimum Yield Strength (SMYS). It includes installation costs for permanent ILI tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Distribution Pipe	**Pass**	**503432**	Bridge Crossing Repair Program	**2025**	$	3,530,267	Issue/Concern/Opportunity: Bridge crossing inspection results in different levels of action which can include replacement, recoating, or hanger repair/replacement work. This program is for recoating work and hanger repair. Justification: The integrated Corrosion Operating Standard ST-17-B13A-DDA9 was released November 25, 2022 and requires the following surveys: Annual visual and 5-year detailed. The standard outlines the following time frames: •Bridge crossing – replace per Engineering assessment per project plan •Bridge crossing – replace expansion joint / Ins flange within 24 month •Bridge crossing – paint pipe / repair hangers / replace casing end seal within 12 months. 2024 Planned Work ($827k): 20-B018$142,000 - Replace all supports and coating/wrapping repair 30-B008$45,000 - Replace all supports and coating/wrapping repair 60-B016$84,000.00 - Replace all 12 supports and localized coating repair (deferring to 2025) 60-B017$117,000.00 - Replace all supports and localized coating repair (deferring to 2025) 60-B018$310k - Affiliate Billed 60-B-EV10$65,000.00 - Replace all supports and localized coating repair 60-B-SV7$151,000 - Replace all supports and full coating repair 2025 Planned Work ($540k) 20-B008 $296,000 20-B014 $244,000	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_45 - Timmins**	Distribution Pipe	**Pass**	**733717**	NPS 6 Iroquois Falls Retrofit	**2026**	$	3,519,203	Project-Specific: External Corrosion Direct Assessment (ECDA) to In-Line Inspection (ILI) Program, supporting refinement of pipeline risk profile. Associated 2027 Operations and Maintenance (O&M) spend for ILI. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30% Specified Minimum Yield Strength (SMYS). It includes installation costs for permanent ILI tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**102753**	2028 Integrity Retrofit Program	**2028**	$	3,423,781	Project Specific: Forecast note provided for 2026-2030, using average of 2023-2025 as placeholder. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**741485**	NPS 4 Tupperville IAIR Abandonment	**2025**	$	3,343,135	Project Specific: Abandon the existing main - approximately 3600m in length and install a new 750m long transmission lateral from Dresden South Line to Chatham D Pool & new Tupperville transmission station. Dynamic Risk completed an independent review of TIMP to establish uncertainty levels in the fitness-for-service conclusions for all TIMP assets. This first phase of the project was completed last year. TIMP is currently developing plans to mitigate high and moderate uncertainties in the fitness-for-service conclusions by leveraging existing integrity activities and potentially introducing new ones.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**742790**	2033 Integrity Retrofit Program	**2033**	$	3,330,812	Project Specific: Forecast note provided for 2026-2032, using average of 2023-2025 as placeholder. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**742798**	2034 Integrity Retrofit Program	**2034**	$	3,328,709	Project Specific: Forecast note provided for 2028-2034, using average forecast as placeholder. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable

Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**733997**	2032 Integrity Retrofit Program	**2032**	$	3,328,281	Project Specific: Forecast note provided for 2026-2032, using average of 2023-2025 as placeholder. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**102754**	2029 Integrity Retrofit Program	**2029**	$	3,325,271	Project Specific: Forecast note provided for 2026-2030, using average of 2023-2025 as placeholder. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**733996**	2031 Integrity Retrofit Program	**2031**	$	3,324,824	Project Specific: Forecast note provided for 2026-2032, using average of 2023-2025 as placeholder. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**102755**	2030 Integrity Retrofit Program	**2030**	$	3,320,652	Project Specific: Forecast note provided for 2026-2032, using average of 2023-2025 as placeholder. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
GTA West	**20 - Mississauga**	Distribution Pipe	**Pass**	**4667**	Anode Blanket - Area 20	**2025**	$	3,305,945	General Description: The anodes program within the corrosion program includes the required expenditure to install anodes in order to reduce the amount of down plant within the EGI system. These installations and replacements are based on the Corrosion Operating Standard established to maintain the appropriate level of cathodic protection on steel pipeline assets.	Fail	See investment description, IRPAs not applicable
GTA West	**Div_17 - Halton**	Distribution Pipe	**Pass**	**740711**	HALT: Leakage Replacement Blanket	**2025**	$	3,270,699	Through out the year there is a need to expedite short main replacement projects which typically have short notice. Examples of these types of jobs include cutting out a section of main/fitting which is leaking, removing blow-offs that require immediate attention, on going municipal works where we encounter unexpected gas plant - catch basin placements, structures, temporary main cut-out to access municipal plant - water mains etc.	Fail	See investment description, IRPAs not applicable
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Pass**	**48442**	HAMI: Anodes	**2025**	$	3,180,787	General: The anodes program within the corrosion program includes the required expenditure to install anodes in order to reduce the amount of down plant within EGI's system. These installations and replacements are based on the internal Standard Operating Practice established to maintain the appropriate level of cathodic protection on steel pipeline assets.	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Distribution Pipe	**Pass**	**102761**	2026 Integrity Dig Program	**2026**	$	3,126,908	Forecast: Forecast not provided for 2026-3030; average of 2020-2025 used as a placeholder. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Pass**	**4663**	Replacement Blanket - Area 40	**2025**	$	3,014,444	Through out the year there is a need to expedite short main replacement projects which typically have short notice. Examples of these types of jobs include cutting out a section of main/fitting which is leaking, removing blow-offs that require immediate attention, on going municipal works where we encounter unexpected gas plant - catch basin placements, structures, temporary main cut-out to access municipal plant - water mains etc.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Pass**	**744288**	SUDB: Leakage Replacement Blanket	**2025**	$	2,975,685	Through out the year there is a need to expedite short main replacement projects which typically have short notice. Examples of these types of jobs include cutting out a section of main/fitting which is leaking, removing blow-offs that require immediate attention, on going municipal works where we encounter unexpected gas plant - catch basin placements, structures, temporary main cut-out to access municipal plant - water mains etc.	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Distribution Pipe	**Pass**	**102763**	2028 Integrity Dig Program	**2028**	$	2,955,635	Forecast: Forecast not provided for 2026-3030; average of 2020-2025 used as a placeholder. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Southwest	**Div_04 - London**	Distribution Pipe	**Pass**	**733736**	NPS 6 London Retrofit	**2026**	$	2,903,325	Project-Specific: External Corrosion Direct Assessment (ECDA) to In-Line Inspection (ILI) Program, supporting refinement of pipeline risk profile. Associated 2024 Operations and Maintenance (O&M) spend for ILI. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30% Specified Minimum Yield Strength (SMYS). It includes installation costs for permanent ILI tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**100091**	Corrosion Program Rectifier Groundbed	**2025**	$	2,866,420	General: The corrosion program includes the expenditure other than anodes required to reduce the amount of down plant within Union's system. These installations and replacements are based on the internal Standard Operating Practice established to maintain the appropriate level of cathodic protection on steel pipeline assets. Individual projects will be set up to use these program dollars based on identification of rectifier and groundbed sites by the Corrosion group. Previously held 2020: $644,827 - individual projects now set up.	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Distribution Pipe	**Pass**	**742769**	2033 Integrity Dig Program	**2033**	$	2,843,189	Forecast: Forecast not provided for 2026- 2030; average of 2020-2025 used as a placeholder. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Distribution Pipe	**Pass**	**742770**	2034 Integrity Dig Program	**2034**	$	2,842,149	Forecast: Forecast not provided for 2026- 2030; average of 2020-2025 used as a placeholder. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Distribution Pipe	**Pass**	**733994**	2032 Integrity Dig Program	**2032**	$	2,837,899	Forecast: Forecast not provided for 2026- 2030; average of 2020-2025 used as a placeholder. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Southeast	**80 - Niagara**	Distribution Pipe	**Pass**	**4768**	AMP Fitting Replacement - Area 80	**2025**	$	2,837,702	AMP Fittings are a below grade transition fittings. The inserted portion of copper tubing can fail due to internal corrosion. In these cases leaks develop immediately downstream of the AMP Fitting.	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Distribution Pipe	**Pass**	**102764**	2029 Integrity Dig Program	**2029**	$	2,833,057	Forecast: Forecast not provided for 2026-2030; average of 2020-2025 used as a placeholder. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Distribution Pipe	**Pass**	**733993**	2031 Integrity Dig Program	**2031**	$	2,832,978	Forecast: Forecast not provided for 2026- 2030; average of 2020-2025 used as a placeholder. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Distribution Pipe	**Pass**	**102765**	2030 Integrity Dig Program	**2030**	$	2,832,946	Forecast: Forecast not provided for 2026- 2030; average of 2020-2025 used as a placeholder. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Pass**	**48507**	THUN: Dist-Repl-Compy-Mains Municipal	**2025**	$	2,832,136	Project Specific: General: Projects in the relocation category are capital expenditures required to replace or relocate segments of pipeline in order to accommodate municipal infrastructure work. The cost sharing for this work is managed through the Franchise Agreements established with municipalities. A consultative approach is used between the municipality and Union to avoid conflicts with municipal infrastructure early in the planning stage. If a conflict is unavoidable, Union's pipeline assets are typically relocated or replaced.	Fail	See investment description, IRPAs not applicable
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Pass**	**48382**	BRAN: Dist-Repl-Contr-Services	**2025**	$	2,613,517	The service relay account is for the annual district capital blanket budgeted for maintenance requirements associated with individual customer services that require replacement or repair due to their age and condition.	Fail	See investment description, IRPAs not applicable

Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Pass**	**733553**	NPS 6 Imperial Oil Retrofit	**2025**	$	2,476,396	Project-Specific: External Corrosion Direct Assessment (ECDA) to In-Line Inspection (ILI) Program, supporting refinement of pipeline risk profile. Associated 2025 Operations and Maintenance (O&M) spend for ILI. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30% Specified Minimum Yield Strength (SMYS). It includes installation costs for permanent ILI tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Distribution Pipe	**Pass**	**100225**	Rectifier Program - All Areas	**2025**	$	2,435,031	Issue/Concern: This business case is created to group all Anode Blanket projects for all seven operations areas into one program business case to simplify the Risk Assessment process. Financial tracking will be done on the individual Blanket Anode project to provide financial reporting per area. Justification: The Corrosion Department conducts pipe to soil readings each year on our steel pipelines. When they identify a corrosion area which has fallen below our minimum specifications, they process an order for a anode installation which is completed. The capital request is for 12 months. Engineering has confirmed the Anode Installation as a compliance project. The Corrosion Prevention Program consists of the annual anode replacement to ensure the steel main system is receiving sufficient cathodic protection. The Program utilizes pipe-to-soil survey results to determine which steel main networks require additional or replacement anodes to improve the level of cathodic protection. In addition to active steel mains, the Corrosion Prevention Programs also cover the corrosion control on steel casings. Assets: Steel Mains Related Programs/Business Cases: N/A	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Pass**	**48534**	SUDB: Dist-Repl-Contr-Services	**2025**	$	2,409,470	The service relay account is for the annual district capital blanket budgeted for maintenance requirements associated with individual customer services that require replacement or repair due to their age and condition.	Fail	See investment description, IRPAs not applicable
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Pass**	**733612**	NPS 12 Ontario Hydro Retrofit	**2026**	$	2,346,136	Project-Specific: External Corrosion Direct Assessment (ECDA) to In-Line Inspection (ILI) Program, supporting refinement of pipeline risk profile. Associated 2025 Operations and Maintenance (O&M) spend for ILI. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30% Specified Minimum Yield Strength (SMYS). It includes installation costs for permanent ILI tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
GTA West	**20 - Mississauga**	Distribution Pipe	**Pass**	**502423**	A20: Homark Dr., Mississauga - 1" ST Replacement	**2027**	$	2,337,678	Issue/Concern/Opportunity: Recent service abandonments for residential demolitions have necessitated cut outs on the main due to corrosion concerns. 45 of the 91 services are Copper and therefore require replacement. Request to replace 1" VSM with PE and associated service upgrades. Justification: Value framework attached, completed Spring 2021 Assets: Related Investments:	Fail	See investment description, IRPAs not applicable
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Pass**	**2147**	Brantford North - McLean School Road	**2026**	$	2,336,871	Project Specific: Brantford North - McLean School Road - 530m of NPS 12. Campground. Class 1 to 2. General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development occurs in close proximity to EGI's pipelines which triggers annual class location changes; this work ensures EGI is compliant and fosters the safety of the public and the pipeline system.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Pass**	**740716**	THUN: Leakage Replacement Blanket	**2025**	$	2,332,920	Through out the year there is a need to expedite short main replacement projects which typically have short notice. Examples of these types of jobs include cutting out a section of main/fitting which is leaking, removing blow-offs that require immediate attention, on going municipal works where we encounter unexpected gas plant - catch basin placements, structures, temporary main cut-out to access municipal plant - water mains etc.	Fail	See investment description, IRPAs not applicable
Southwest	**Div_02 - Chatham**	Distribution Pipe	**Pass**	**48325**	CHAT: Dist-Repl-Compy-Services	**2025**	$	2,279,907	The service relay account is for the annual district capital blanket budgeted for maintenance requirements associated with individual customer services that require replacement or repair due to their age and condition.	Fail	See investment description, IRPAs not applicable
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Pass**	**48479**	KING: Dist-Replacement Company Services	**2025**	$	2,272,887	The service relay account is for the annual district capital blanket budgeted for maintenance requirements associated with individual customer services that require replacement or repair due to their age and condition.	Fail	See investment description, IRPAs not applicable
Southwest	**Div_04 - London**	Distribution Pipe	**Pass**	**48856**	LOND - PH 2 Stevenson & Brydges BU - London	**2026**	$	2,266,313	General: The bare unprotected program is to replace all the bare and unprotected steel mains within Union's franchise. These mains are more susceptible to leaks as they have not been cathodically protected since installation. Removing these mains from service will reduce potential for leaks due to corrosion. If this project spend is reduced or deferred, more maintenance dollars will have to be spent repairing leaks on pipe which is nearing end-of-life. Proposed : 1300.0m of 2" PE and 72 Services Abandon : 1190.0m of 3" Bare Unprotected (1952) Outstanding Leaks : 1"C" Leak History : Unknown	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**	**742687**	NPS 10 Panhandle Walker Road Crawler Retrofit	**2025**	$	2,228,757	Scope: The inspection plan will require the insertion of a Crawler Tool at Walker Rd Station (06B-502) and inspection towards the NPS 16 Panhandle take-off. The retrofit work will modify inlet/outlet valve nest riser to accommodate a vertical crawler connection with a blind flange. Dynamic Risk completed an independent review of TIMP to establish uncertainty levels in the fitness-for-service conclusions for all TIMP assets. This first phase of the project was completed last year. TIMP is currently developing plans to mitigate high and moderate uncertainties in the fitness-for-service conclusions by leveraging existing integrity activities and potentially introducing new ones.	Fail	See investment description, IRPAs not applicable
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**	**100497**	VSM - Firestone Road - 2" ST - PH1	**2025**	$	2,216,441	Issue/Concern/Opportunity: General Concerns: Vintage steel pipes exhibit increased failures as they age as steel mains are susceptible to external corrosion when barriers of pipe coatings and cathodic protection are compromised. The current pipe replacement rate (mains and services) is inadequate to prevent the average age of the population from increasing and hence reaching the end of their useful life. EGI has determined that a long-term proactive replacement program targeting higher-risk steel pipes installed on or before 1970 (vintage steel) is required to manage the increasing number of expected leaks that create increasing risk for the organization. Assets: Approximately 1623.3 m 2-inch SC Intermediate Pressure (IP) to be replaced by 2-inch PE IP. Related Investments: Investment code #735792.	Fail	NPS 2, cannot downsize or retire
GTA West	**30 - Richmond Hill**	Distribution Pipe	**Pass**	**4668**	Anode Blanket - Area 30	**2025**	$	2,183,576	General Description: The anodes program within the corrosion program includes the required expenditure to install anodes in order to reduce the amount of down plant within the EGI system. These installations and replacements are based on the Corrosion Operating Standard established to maintain the appropriate level of cathodic protection on steel pipeline assets.	Fail	See investment description, IRPAs not applicable
Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Pass**	**48336**	SARN: Dist-Repl-Contr-Services	**2025**	$	2,168,104	The service relay account is for the annual district capital blanket budgeted for maintenance requirements associated with individual customer services that require replacement or repair due to their age and condition.	Fail	See investment description, IRPAs not applicable
GTA West	**50 - Barrie**	Distribution Pipe	**Pass**	**502369**	A50: Big Bay Point VPM Aldyl A	**2026**	$	2,165,519	Project Specific: Replace 3655m of vintage Aldyl A main and 231 services with Amp fittings (services 1/2 Copper 1/2 PE). Leak surveyed in 2020 9 leaks confirmed on main and services. Copper tracer wire is badly corroded and main not possible to accurately locate. General: General: Vintage Plastic Replacement Program: Proactive replacement program to renew aging vintage plastic pipe assets before reaching end-of-life. Vintage plastic Aldyl A mains are the earliest plastic mains used within the distribution system; the installation period of Aldyl A plastics started in the late 1960s on a field trial basis and was concluded by the end of 1976 for the EGD rate zone and 1984 for the Union rate zone. It is well known and studied in the North American gas industry that Aldyl A plastic mains have brittle-like cracking properties. The oxidation of the inner wall surface during manufacturing (also known as Low Ductile Inner Wall (LDIW)) and the large spherulites found in its microstructure causes pipe to be susceptible to cracking and premature failure in the presence of stress intensifiers such as a large number of connections, squeeze-off locations, and the presence of rock impingement points caused by rocky soil types.	Fail	See investment description, IRPAs not applicable
Southwest	**Div_04 - London**	Distribution Pipe	**Pass**	**48891**	LOND - Fellner & Langmuir, Ashland & Wilton BU - London	**2027**	$	2,156,317	General: The bare unprotected program is to replace all the bare and unprotected steel mains within Union's franchise. These mains are more susceptible to leaks as they have not been cathodically protected since installation. Removing these mains from service will reduce potential for leaks due to corrosion. If this project spend is reduced or deferred, more maintenance dollars will have to be spent repairing leaks on pipe which is nearing end-of-life.	Fail	See investment description, IRPAs not applicable
GTA West	**30 - Richmond Hill**	Distribution Pipe	**Pass**	**4662**	Replacement Blanket - Area 30	**2025**	$	2,156,023	Through out the year there is a need to expedite short main replacement projects which typically have short notice. Examples of these types of jobs include cutting out a section of main/fitting which is leaking, removing blow-offs that require immediate attention, on going municipal works where we encounter unexpected gas plant - catch basin placements, structures, temporary main cut-out to access municipal plant - water mains etc.	Fail	See investment description, IRPAs not applicable
GTA West	**50 - Barrie**	Distribution Pipe	**Pass**	**734062**	Campbell St Station (ILI receiver site)	**2028**	$	2,113,563	Issue/Concern: Existing station footprint could not facilitate future in-line inspection (ILI) work. Receiver will need to extend outside of station onto adjacent private property. New property owner plans to build hostel on the property which might not be able to accommodate EGI's temporary working space needs for any ILI activities beyond 2018/2019. New station must be in place by 2024 (or 6 years from the next successful ILI). For permanent relocation of station to a location upstream from current location: Land of at least 30mx40m to accommodate removal of pigs from the receiver and room for parking on-site to support current operations; a new station will be rebuilt in the new location to meet current and future flows; a boiler and heat exchanger system is required to preheat the gas; NPS 6 ST IP and/or NPS 6/8 XHP main extension (length TBD) is required to tie the new site tie back to the existing network; the section of NPS 8 XHP downstream of the new station location will NOT be replaced and will be inspected using a crawler tool. Inspection using crawler tool would impact the O&M budget of approx. $200,000 every seven-year cycle (or whenever this pipeline needs to be inspected). Assets: Campbell St Station, NPS 8 Barrie to Collingwood line Related Programs: Integrity Management Program	Fail	See investment description, IRPAs not applicable
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Pass**	**48487**	KING: Anodes	**2025**	$	2,039,268	General: The anodes program within the corrosion program includes the required expenditure to install anodes in order to reduce the amount of down plant within EGI's system. These installations and replacements are based on the internal Standard Operating Practice established to maintain the appropriate level of cathodic protection on steel pipeline assets.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Pass**	**740715**	NBAY: Leakage Replacement Blanket	**2025**	$	1,983,789	Through out the year there is a need to expedite short main replacement projects which typically have short notice. Examples of these types of jobs include cutting out a section of main/fitting which is leaking, removing blow-offs that require immediate attention, on going municipal works where we encounter unexpected gas plant - catch basin placements, structures, temporary main cut-out to access municipal plant - water mains etc.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Pass**	**48509**	THUN: Dist-Repl-Compy-Services	**2025**	$	1,939,671	The service relay account is for the annual district capital blanket budgeted for maintenance requirements associated with individual customer services that require replacement or repair due to their age and condition.	Fail	See investment description, IRPAs not applicable

Southwest	**Div_01 - Windsor**	Distribution Pipe	**Pass**		**733723**	NPS 8 Dover Centre Retrofit	**2025**	$	1,857,297	Project-Specific: External Corrosion Direct Assessment (ECDA) to In-Line Inspection (ILI) Program, supporting refinement of pipeline risk profile. Associated 2026 Operations and Maintenance (O&M) spend for ILI. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30% Specified Minimum Yield Strength (SMYS). It includes installation costs for permanent ILI tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Pass**		**742685**	NPS 4 Smooth Rock Falls MOP Downgrade	**2025**	$	1,857,297	Dynamic Risk completed an independent review of TIMP to establish uncertainty levels in the fitness-for-service conclusions for all TIMP assets. This first phase of the project was completed last year. TIMP is currently developing plans to mitigate high and moderate uncertainties in the fitness-for-service conclusions by leveraging existing integrity activities and potentially introducing new ones.	Fail	See investment description, IRPAs not applicable
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Pass**		**733714**	NPS 6 Hawtrey Trans. Station Take-off Replacement	**2027**	$	1,849,548	Project Specific: TIMP Integrity Management Program pipeline. The preferred replacement alternative will replace approximately 300m of NPS 6 pipe from 1965 that is primarily uncoated/bare pipe. If this is not completed the other alternative would require 2 ECDA digs and ongoing inspections costs. Replacement with new pipe which would eliminate these TIMP Integrity Management Program requirements in order to comply with the Integrity Management Program. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of Union's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections. Link to Scope in ProjectWise: pw://pwintegration.gtna.gt.ds:TRIM_PROD/Documents/P{daf36d75-7d09-46be-8c67-c0708b01d32f}/	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Pass**		**48576**	NBAY: Dist-Repl-Contr-Services	**2025**	$	1,836,572	The service relay account is for the annual district capital blanket budgeted for maintenance requirements associated with individual customer services that require replacement or repair due to their age and condition.	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Distribution Pipe	**Pass**		**102760**	2025 Integrity Dig Program	**2025**	$	1,779,223	2025 forecast: 3 ILI digs estimated based on previous years inspection plan. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Pass**		**735641**	Brantford Transmission Station Take-off Retrofit ECDA to ILI 2027	**2027**	$	1,776,012	Project-Specific: External Corrosion Direct Assessment (ECDA) to In-Line Inspection (ILI) Program, supporting refinement of pipeline risk profile. Associated 2029 Operations and Maintenance (O&M) spend for ILI. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30% Specified Minimum Yield Strength (SMYS). It includes installation costs for permanent ILI tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Pass**		**733722**	NPS 12 Kirkwall-Dominion Tie-over	**2027**	$	1,776,012	General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30% Specified Minimum Yield Strength (SMYS). It includes installation costs for permanent In-line Inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Southeast	**80 - Niagara**	Distribution Pipe	**Pass**		**8258**	A80: Woodington Rd, NFalls . VS Replacement	**2026**	$	1,773,722	Issue/Concern: 1-inch Steel and Copper Risers Replace existing 3,302 m of existing steel main and 151 services in area defined.	Fail	NPS 2, cannot downsize or retire
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Pass**		**1290**	Millhaven Retrofit	**2025**	$	1,764,432	Project Specific: ECDA to ILI program, supporting refinement of pipeline risk profile. Associated 2026 O&M spend for ILI General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of Union's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections. Link to scope in ProjectWise: pw://pwintegration.gtna.gt.ds:TRIM_PROD/Documents/D{9187fae1-c1f5-49bc-990d-f753f776aafc}	Fail	See investment description, IRPAs not applicable
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Pass**		**735792**	VSM - Firestone Road - 2" ST - PH2	**2026**	$	1,753,095	Issue/Concern/Opportunity:The vintage steel mains have shown signs of declining health due to the cumulative effective of poor manufactured coating performance, construction practices, latent third party damages to pipe coating, and the effect of stray currents from transit infrastructure such as subway and streetcars. The current failure projection model is forecasting an exponential increase in the number of corrosion related failures, while the quantitative risk assessment and the 40-yr risk projection are showing an aggressive increase in the safety risk associated with steel main failure. In addition to age, vintage steel mains are also susceptible to accelerated degradation and/or higher risk of third party damage in the following ways: a. Compression couplings (mechanical fittings which are not welded onto the main) that are not properly restrained or unrestrained could cause a loss of containment due to exposed points of thrust. In this case, the weight of the soil is required to hold the fittings in place. When the soil is disturbed, the pipe pulls out of the fitting, resulting in blowing gas through the open pipe end with the potential of full bore release of gas. b. Compression couplings on steel mains that are unknowingly isolated from the corrosion protection system could result in inadequate cathodic protection, leading to the assets' accelerated corrosion and potentially loss of containment. c. The existence of shallow blow-off valve assemblies that could be damaged during excavation activities. d. Reduction in the original depth of cover due to urban development could increase the potential of damages due to excavation activities and increased external loading. According to the codes and standards, a minimum depth of cover is needed to ensure the appropriate distribution of weight of transportation vehicles across pipelines is not exceeded. If the depth of cover is not appropriate, excessive stresses are introduced into the pipe, and failures could result. e. The continuous exposure of road salt and seasonal ground movement on bridge crossing assets that could result in accelerated corrosion and external loading/stresses. f. Lack of cathodic protection with pipe casings that could result in corrosion causing excessive stress or shorts on the carrier pipe that is in contact with the casing, which could lead to the loss of containment. g. Manufacturing defects associated with seam welds and fittings that are weak points in the distribution system and could result in a loss of containment due to prolonged exposure to stress and corrosion. h. Latent damages to pipe coatings that were never reported to EGD for repair and became active corrosion sites, which could hamper the effect of the corrosion protection system and result in accelerated corrosion and potentially loss of containment. Justification: Approx. Assets: Approx. 1362.5 m 2" SC IP to be replaced by 2" PE IP Related Investments: Investment code#100497 & #739942	Fail	NPS 2, cannot downsize or retire
GTA West	**50 - Barrie**	Distribution Pipe	**Pass**		**4765**	AMP Fitting Replacement - Area 50	**2025**	$	1,740,456	AMP Fittings are a below grade transition fittings. The inserted portion of copper tubing can fail due to internal corrosion. In these cases leaks develop immediately downstream of the AMP Fitting.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Pass**		**2146**	Sudbury Lateral - East of Jocko Point	**2025**	$	1,733,477	Project Specific: Sudbury Lateral - East of Jocko Point - 500m NPS 10 river crossing Class 1 to 2. General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development occurs in close proximity to EGI's pipelines which triggers annual class location changes; this work ensures EGI is compliant and fosters the safety of the public and the pipeline system.	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Pass**		**48242**	Kelly Lake Inco Line	**2029**	$	2,045,044	General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. This program replaces segements of pipelines with identified Class Location Change.	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Distribution Pipe	**Fail**	Dollar Threshold	**6124**	Depth of Cover Mitigation Program	**2028**	$	3,567,474			
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Emergent Safety	**739785**	HAMI: Hamilton 17-1&2 Rainham Rd Dunn/Byng Bridge, Dunnville, Replacement	**2026**	$	2,352,577			
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Fail**	Emergent Safety	**48524**	TBAY: 33-21-600 Centennial Park Exposed NPS 8	**2026**	$	2,094,467			
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**736506**	A10: Wilson Avenue, Toronto, PE Main Installs	**2025**	$	1,724,652			
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**7604**	A10: Kipling Ave & Lake Shore Blvd W, Etobicoke, PH2 Replacement	**2026**	$	1,704,786			
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735847**	TOR10YR - Birchmount North Ellesmere Replacement - Network # 455	**2031**	$	1,690,043			
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733673**	TOR10YR - Mitcham and Fulham Replacement - Network # 123_368_373	**2031**	$	1,688,371			
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733681**	TOR10YR - Weston - St Lucie Replacement	**2027**	$	1,682,694			
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**30071**	Queen St LINC - Area 80 - 1150	**2034**	$	1,681,457			
GTA West	**30 - Richmond Hill**	Distribution Pipe	**Fail**	Dollar Threshold	**30165**	Colborne Ave - GTA East - Area 30 - 1705	**2033**	$	1,677,603			
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**30210**	Georgina Ave 1 - Northeast - 1693	**2033**	$	1,672,671			
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735501**	TOR10YR - Ionview South Replacement - Network # 455	**2029**	$	1,670,067			
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**30037**	Spring Garden Rd - Southwest - Windsor - 1658	**2033**	$	1,660,653			
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Fail**	Dollar Threshold	**734812**	SUDB: RR 15 Property Line, Chelmsford, Replacement	**2027**	$	1,658,705			
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**30353**	Gore St W - Eastern - Area 60 - 1097	**2034**	$	1,654,939			
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**30033**	Rholaine Dr - Southwest - Windsor - 1299	**2033**	$	1,651,684			
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733668**	TOR10YR - Savona and Bisset Replacement-Network # 123_368_373	**2030**	$	1,647,877			

GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735852**	TOR10YR - Valentine and York Mills Replacement - Network # 455	**2031**	$	1,645,776
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**30393**	William St - Eastern - Area 60 - 1092	**2028**	$	1,643,688
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**30206**	Ferguson Ave 1 - Northeast - 1686	**2033**	$	1,641,712
GTA West	**50 - Barrie**	Distribution Pipe	**Fail**	Dollar Threshold	**30086**	Jeffrey St - Area 50 - 1199	**2034**	$	1,639,946
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733671**	TOR10YR - Browns and Finsbury Replacement- Network # 123_368_373	**2031**	$	1,629,026
GTA West	**50 - Barrie**	Distribution Pipe	**Fail**	Dollar Threshold	**30089**	Oak St 1 - Area 50 - 1654	**2033**	$	1,627,847
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Fail**	Dollar Threshold	**742686**	NPS 4 New Liskeard MOP Downgrade	**2025**	$	1,609,658
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**30229**	Presley St 2 - Northeast - 1714	**2033**	$	1,604,921
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**30070**	Parkway WELL - Area 80 - 1155	**2033**	$	1,599,791
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**503167**	TOR10YR - Parklawn - Lanor and Valermo Replacement	**2028**	$	1,599,149
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48811**	LOND - Jacqueline BU - London	**2026**	$	1,595,346
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**30204**	Eyre St - Northeast - 1286	**2034**	$	1,593,389
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735859**	TOR10YR - Eccleston and Tinder Replacement - Network # 455	**2032**	$	1,588,342
GTA West	**50 - Barrie**	Distribution Pipe	**Fail**	Dollar Threshold	**30110**	Z1193, NRP - HNS Brock Park B, 2024 - 2025 - 1613	**2027**	$	1,587,370
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733678**	TOR10YR - Sunset and Burlington Replacement- Network # 123_368_373	**2031**	$	1,583,112
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**30213**	Hilda St 2 - Northeast - 1698	**2033**	$	1,578,286
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735888**	TOR10YR - Tower and Timgren Replacement - Network # 455	**2034**	$	1,576,551
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**30374**	Ogden Ave - Eastern - Area 60 - 1076	**2034**	$	1,573,629
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**30333**	Ainsley Dr - Eastern - Area 60 - 1723	**2029**	$	1,571,210
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733917**	TOR10YR - Lakeshore and Miles Replacement- Network # 123_368_373	**2031**	$	1,565,866
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**30466**	Queen St E - Southwest - London - 1804	**2033**	$	1,564,967
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**48994**	WIND: Laird & Centre MIP, Essex, Replacement	**2028**	$	1,562,134
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735841**	TOR10YR - Electro and Sherwood Replacement - Network # 455	**2033**	$	1,558,811
Northern & Eastern	**Div_45 - Timmins**	Distribution Pipe	**Fail**	Dollar Threshold	**744289**	TIMM: Leakage Replacement Blanket	**2025**	$	1,555,280
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**30058**	Hixon St LINC - Area 80 - 1153	**2034**	$	1,549,383
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Fail**	Dollar Threshold	**1289**	Thurlow Township Retrofit	**2025**	$	1,547,748
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Fail**	Dollar Threshold	**102671**	Campbellford Replacement Phase 3 Front St	**2025**	$	1,543,171
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**30387**	Spring St - Eastern - Area 60 - 1047	**2029**	$	1,542,392
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735842**	TOR10YR - Danube and Wayne Replacement - Network # 455	**2033**	$	1,540,674
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**30243**	Div. 06 - Brantford - Dundas St E - Southeast - Waterloo - 1827	**2033**	$	1,537,067
Southwest	**Div_02 - Chatham**	Distribution Pipe	**Fail**	Dollar Threshold	**49742**	CHAT: Ridgetown LP, Ridgetown, Replacement	**2027**	$	1,532,211
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733916**	TOR10YR - Lakeshore and Royal York Replacement- Network # 123_368_373	**2031**	$	1,524,517
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735828**	TOR10YR - Flora Dr Replacement - Network # 455	**2033**	$	1,521,250
GTA West	**50 - Barrie**	Distribution Pipe	**Fail**	Dollar Threshold	**30090**	Oak St 2 - Area 50 - 1655	**2034**	$	1,519,637
GTA West	**20 - Mississauga**	Distribution Pipe	**Fail**	Dollar Threshold	**7656**	VSM - Bramalea and Balmoral Rd	**2026**	$	1,514,875
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**49812**	WIND: Oak St - Ph 2, Leamington, Replacement	**2030**	$	1,514,433
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Fail**	Dollar Threshold	**30272**	Div. 06 - Tillsonburg - Victoria St - VSM - Southeast - Waterloo - 1324	**2034**	$	1,511,938
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Fail**	Dollar Threshold	**735465**	SUDB: Copper Cliff Replacement	**2025**	$	1,511,840
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Fail**	Dollar Threshold	**1282**	Owen Sound Section 2 Retrofit	**2029**	$	1,511,487
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48917**	LOND - Cheapside, Gammage & Linwood BU - London	**2025**	$	1,502,251
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733682**	TOR10YR - Weston - Gulfstream Replacement	**2027**	$	1,500,858
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**30313**	Old Lakeshore Rd - Southwest - London - 1572	**2033**	$	1,495,009
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**503161**	TOR10YR - Parklawn A1 D - Beta and Aldercrest Replacement	**2027**	$	1,493,870
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**48433**	HAMI: Dist-Repl-Compy-Services	**2025**	$	1,491,175
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**503168**	TOR10YR - Parklawn - Beta and Gamma North Replacement	**2028**	$	1,489,138
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735849**	TOR10YR - Larabee and Tetbury Replacement - Network # 455	**2031**	$	1,488,429
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**30202**	Edmund St 1 - Northeast - 1684	**2033**	$	1,486,275
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**30223**	Mary St 2 - Northeast - 1709	**2033**	$	1,483,222
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**30057**	Hillcrest Ave STC - Area 80 - 1176	**2029**	$	1,478,634
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733670**	TOR10YR - Westhead Replacement- Network # 123_368_373	**2029**	$	1,476,273
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**30211**	Georgina Ave 2 - Northeast - 1695	**2033**	$	1,473,625
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**30220**	Maher St 1 - Northeast - 1701	**2033**	$	1,473,622
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**503165**	TOR10YR - Parklawn - Hallmark to Lunness Replacement	**2028**	$	1,457,415
GTA West	**50 - Barrie**	Distribution Pipe	**Fail**	Dollar Threshold	**30084**	Cumberland St - Area 50 - 1200	**2033**	$	1,457,336
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733622**	HAMI: Rainham Rd Ph1, Dunn, BU Replacement	**2025**	$	1,456,121
GTA West	**50 - Barrie**	Distribution Pipe	**Fail**	Dollar Threshold	**4664**	Replacement Blanket - Area 50	**2025**	$	1,450,151
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735883**	TOR10YR - Pharmacy North Lawrence Replacement - Network # 455	**2033**	$	1,448,812
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735496**	TOR10YR - Canlish and Ellendale Replacement - Network # 455	**2033**	$	1,448,239
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**502929**	TOR10YR - Keelesgate and Cuffley Replacement Standardization - Network # 161_169_172	**2031**	$	1,443,068
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735878**	TOR10YR - Roanoke Replacement - Network # 455	**2033**	$	1,435,213
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**741614**	A80: Black Creek PH 4 MP (RL) main replacement	**2026**	$	1,429,664
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733915**	TOR10YR - Royal York and Drummond Replacement- Network # 123_368_373	**2031**	$	1,418,764
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**30348**	Elmsley St N - Eastern - Area 60 - 1725	**2033**	$	1,416,114
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**30067**	Niagara Wine Route 2 NOTL- Area 80 - 1191	**2034**	$	1,414,994
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**30357**	Herriott St - Eastern - Area 60 - 1089	**2033**	$	1,406,385
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**503158**	TOR10YR - Parklawn - Parklawn A1 F-Sheldon and Lunness Replacement	**2028**	$	1,404,172
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735845**	TOR10YR - Lawrence and Warden East Replacement - Network # 455	**2032**	$	1,403,466
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**30217**	King St 2 - Northeast - 1718	**2033**	$	1,397,782
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Fail**	Dollar Threshold	**733619**	NPS 12 Owen Sound Reinforcement Retrofit	**2026**	$	1,395,941
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**734080**	TOR10YR - Lakeshore and Islington Replacement- Network # 123_368_373	**2032**	$	1,388,159
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735866**	TOR10YR - Pharmacy and Dewey Replacement - Network # 455	**2032**	$	1,383,421
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**502935**	TOR10YR - Bayford to Dubray Replacement Standardization - Network # 161_169_172	**2031**	$	1,373,444
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733675**	TOR10YR - Browns Line at Horner Replacement- Network # 123_368_373	**2031**	$	1,369,851

Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Fail**	Dollar Threshold	**48549**	SUDB: Anodes	**2025**	$	1,362,665
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**30048**	A80: Burleigh Hill Dr STC - VS Replacement	**2028**	$	1,347,290
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**30413**	Div. 16 - Hamilton - Wentworth St S 2 - VSM - Hamilton - 1743	**2033**	$	1,343,477
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735491**	TOR10YR - Treverton & Stratton Replacement - Network # 455	**2029**	$	1,334,399
GTA West	**20 - Mississauga**	Distribution Pipe	**Fail**	Dollar Threshold	**1193**	Erin Mills and Leanne Vital	**2027**	$	1,332,147
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735837**	TOR10YR - Frey Cr Replacement - Network # 455	**2033**	$	1,330,196
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735495**	TOR10YR - Moorecroft and Sedgewick Replacement - Network # 455	**2029**	$	1,327,678
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735486**	TOR10YR - Lewiston and Shropshire Replacement - Network # 455	**2033**	$	1,321,793
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735840**	TOR10YR - Lancefield and Lingarde Replacement - Network # 455	**2033**	$	1,319,701
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Fail**	Dollar Threshold	**102672**	Campbellford Replacement Phase 4 Kent St	**2026**	$	1,313,493
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Fail**	Dollar Threshold	**30184**	Howard Ave 2 - Kawartha Lakes - Area 40 - 1694	**2031**	$	1,313,410
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735831**	TOR10YR - Howden Replacement - Network # 455	**2033**	$	1,311,853
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Fail**	Dollar Threshold	**30467**	Arthur St N - VSM - Southeast - Waterloo - 1800	**2034**	$	1,311,090
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**30022**	Lanoue St - Southwest - Windsor - 1354	**2033**	$	1,308,338
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735851**	TOR10YR - Groveland and Lacewood Replacement - Network # 455	**2031**	$	1,306,632
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Fail**	Dollar Threshold	**734921**	NPS 8 Augusta	**2026**	$	1,296,888
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733623**	HAMI: Rainham Rd Ph2, Dunn, BU Replacement	**2026**	$	1,290,375
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**502932**	TOR10YR - Toro to Cataford Replacement Standardization - Network # 161_169_172	**2031**	$	1,287,509
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**30342**	Carling Ave - Eastern - Area 60 - 1104	**2034**	$	1,282,262
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Fail**	Dollar Threshold	**100693**	King - King Street Replacement: VSM and Patches (Prescott)	**2029**	$	1,267,142
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**30201**	Colborne St W 2 - Northeast - 1683	**2033**	$	1,261,093
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**30394**	Wilson St E - Eastern - Area 60 - 1094	**2027**	$	1,260,815
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**30412**	Div. 16 - Hamilton - Wentworth St S 1 - VSM - Hamilton - 1742	**2033**	$	1,257,498
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735848**	TOR10YR - Laurentide and Silverdale Replacement - Network # 455	**2033**	$	1,250,966
Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Fail**	Dollar Threshold	**101214**	SARN - Eastlawn Ave and Kember Ave Leakage - Sarnia BU	**2025**	$	1,250,778
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733802**	TOR10YR - Lilac and Griffith Replacement Standardization - Network # 152_154	**2029**	$	1,244,357
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**100924**	HAMI: Jackson Street Leakage, Hamilton, Leakage	**2025**	$	1,243,760
GTA West	**30 - Richmond Hill**	Distribution Pipe	**Fail**	Dollar Threshold	**30176**	Yonge St 2 - GTA East - Area 30 - 1707	**2029**	$	1,242,708
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**503160**	TOR10YR - Parklawn -A1 B-Delta Replacement	**2027**	$	1,236,122
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**30400**	Div. 16 - Haldimand - Fisherville - Erie Ave N 2 - VSM - Hamilton - 1730	**2033**	$	1,235,447
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**102257**	WIND: County Rd 27 Ph 2, Lakeshore, Replacement	**2028**	$	1,230,131
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735882**	TOR10YR - Goldsmith and Townley Replacement - Network # 455	**2033**	$	1,226,347
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733667**	TOR10YR - Browns Evans Gair Replacement- Network # 123_368_373	**2030**	$	1,226,238
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735853**	TOR10YR - Fenelon and Graydon Hall Replacement - Network # 455	**2031**	$	1,223,329
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**734079**	TOR10YR - Royal York and Struthers Replacement- Network # 123_368_373	**2032**	$	1,222,102
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735881**	TOR10YR - Deanvar and Glasworthy Replacement - Network # 455	**2033**	$	1,220,953
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**30052**	Erie St STC - Area 80 - 1159	**2034**	$	1,220,558
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Fail**	Dollar Threshold	**2142**	Sudbury Section 1 Sturgeon River	**2026**	$	1,214,125
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735490**	TOR10YR - Vauxhall and Bergen Replacement - Network # 455	**2033**	$	1,212,871
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**30285**	Creston Ave - Southwest - London - 1734	**2029**	$	1,205,381
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735865**	TOR10YR - Anewen and Kenewen Replacement - Network # 455	**2033**	$	1,193,175
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**30205**	Farah Ave - Northeast - 1288	**2033**	$	1,176,156
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735834**	TOR10YR - Kilpatrick Replacement - Network # 455	**2033**	$	1,171,408
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735826**	TOR10YR - MacGregor and Radnor Replacement - Network # 455	**2033**	$	1,167,551
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**30352**	George St - Eastern - Area 60 - 1088	**2028**	$	1,164,369
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735498**	TOR10YR - Bertrand and Birchmount Replacement - Network # 455	**2029**	$	1,164,262
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**48796**	WIND: County Rd 27 Ph 1, Lakeshore, Replacement	**2028**	$	1,152,318
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**30077**	Summer St NFalls- Area 80 - 1137	**2029**	$	1,149,197
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**49889**	WIND: Caille Ave, Lakeshore, VSM Replacement	**2027**	$	1,148,934
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**100512**	Invergordon Ave, Toronto 3" PE Replacement	**2026**	$	1,148,415
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735488**	TOR10YR - Wye Valley Replacement - Network # 455	**2033**	$	1,146,113
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**30388**	Stanley Ave - Eastern - Area 60 - 1069	**2029**	$	1,139,835
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**7646**	HR - 160-260 Chester Lee Blvd	**2027**	$	1,123,477
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**101177**	WIND: Tecumseh Rd E - Ph6, Windsor, Replacement	**2025**	$	1,114,378
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**101175**	WIND: Tecumseh Rd E - Ph4, Windsor, Replacement	**2025**	$	1,114,378
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**734548**	VSM-HWY 7 Dufferin St Perth	**2027**	$	1,113,797
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**502862**	Young St LP Replacement	**2026**	$	1,111,151
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Fail**	Dollar Threshold	**49510**	Darlington Bay Bridge - NPS 2 Replacement	**2027**	$	1,105,804
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735493**	TOR10YR - Portsdown and Merryfield Replacement - Network # 455	**2033**	$	1,097,843
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**503156**	TOR10YR - Parklawn - Parklawn A1 C-Gamma Replacement	**2027**	$	1,097,641
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735825**	TOR10YR - Flintridge and Leahann Replacement - Network # 455	**2033**	$	1,085,571
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Fail**	Dollar Threshold	**49628**	SSM: Goulais Rd Main replacement SSM	**2031**	$	1,062,936
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**734078**	TOR10YR - Hillsdale and George Replacement- Network # 123_368_373	**2032**	$	1,059,937
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735492**	TOR10YR - Mooregate and Treverton Replacement - Network # 455	**2029**	$	1,054,773
Southwest	**Div_02 - Chatham**	Distribution Pipe	**Fail**	Dollar Threshold	**49721**	CHAT: Base Line, Wallaceburg, Replacement	**2025**	$	1,052,468
GTA West	**50 - Barrie**	Distribution Pipe	**Fail**	Dollar Threshold	**30109**	Pr#65, NRP - 2026 - Peel Street - Collingwood - 1617	**2028**	$	1,050,330
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733803**	TOR10YR - Westin and Jasmine Replacement Standardization - Network # 152_154	**2029**	$	1,045,515
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735833**	TOR10YR - Crockford Replacement - Network # 455	**2031**	$	1,041,500

GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Fail**	Dollar Threshold	**30189**	Prospect St-Bowmanville-1086	**2030**	$	1,036,277
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Fail**	Dollar Threshold	**30261**	Div. 06 - Norfolk County - Atherton - Lynedoch Rd - VSM - Southeast - Waterloo - 1267	**2033**	$	1,025,696
GTA West	**30 - Richmond Hill**	Distribution Pipe	**Fail**	Dollar Threshold	**103419**	30: VSM - Major Mackenzie, Sussex To Newkirk, Replacement	**2025**	$	1,006,367
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**30065**	Neff St PTC - Area 80 - 1165	**2029**	$	992,079
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Fail**	Dollar Threshold	**1794**	NPS 10 Sudbury Lateral - Michaud Rd	**2028**	$	990,670
GTA West	**20 - Mississauga**	Distribution Pipe	**Fail**	Dollar Threshold	**11127**	Copper Service Replacement - Area 20	**2025**	$	987,254
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733677**	TOR10YR - Browns and Owen Replacement-Network # 123_368_373	**2033**	$	986,657
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733672**	TOR10YR - Horner and Orianna Replacement-Network # 123_368_373	**2031**	$	983,340
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**502017**	A80: Ridge Rd.N Fort Erie, VS Replacement	**2028**	$	974,427
GTA West	**Div_17 - Halton**	Distribution Pipe	**Fail**	Dollar Threshold	**48458**	HALT: Dist-Repl-Compy-Services	**2025**	$	964,174
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**503159**	TOR10YR - Parklawn - A1 E-Alderbrae and Hallmark Replacement	**2027**	$	959,370
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735846**	TOR10YR - Compton and Guild Hall Replacement - Network # 455	**2033**	$	954,623
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**30376**	Othello Ave - Eastern - Area 60 - 1096	**2029**	$	943,492
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**30014**	Elinor St - Southwest - Windsor - 1279	**2033**	$	937,006
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735838**	TOR10YR - Marble Arch Replacement - Network # 455	**2031**	$	936,015
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**735537**	HAMI: Steel Riser Replacement Proposal	**2025**	$	934,840
Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Fail**	Dollar Threshold	**1267**	Imperial Oil Cogen Retrofit	**2025**	$	928,649
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**30410**	Div. 16 - Hamilton - Province St N - Hamilton - 1416	**2033**	$	922,448
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**30358**	Highgate Rd - Eastern - Area 60 - 1166	**2029**	$	922,153
Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Fail**	Dollar Threshold	**48951**	SARN - Errol Rd W & Newell St. Leakage - Sarnia BU	**2026**	$	911,943
Northern & Eastern	**Div_45 - Timmins**	Distribution Pipe	**Fail**	Dollar Threshold	**48572**	TIMM: Indirect Materials-Replacements	**2025**	$	903,889
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**30063**	Lockhart St NOTL - Area 80 - 1189	**2034**	$	885,057
Northern & Eastern	**Div_45 - Timmins**	Distribution Pipe	**Fail**	Dollar Threshold	**102490**	TIMM: Anodes	**2025**	$	877,110
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**48928**	BRAN - Schafer Side Rd. Repl. BU - Norfolk	**2026**	$	876,048
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735864**	TOR10YR - Tiffany and Woodthorpe Replacement - Network # 455	**2033**	$	872,383
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733665**	TOR10YR - Evans Industrial Replacement-Network # 123_368_373	**2030**	$	860,515
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Fail**	Dollar Threshold	**102673**	Campbellford Replacement Phase 5 Pellissier St & Bridge St	**2026**	$	856,889
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733654**	HAMI:Upper Gage Ave, Hamilton, BU Replacement	**2027**	$	849,257
GTA West	**Div_17 - Halton**	Distribution Pipe	**Fail**	Dollar Threshold	**49456**	HALT-BronteCreekBridge-Oakville	**2026**	$	839,408
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Fail**	Dollar Threshold	**100470**	Bannerman Crt. and Nordic Crt, Whitby	**2026**	$	833,134
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**30343**	Centre St - Eastern - Area 60 - 1085	**2033**	$	830,576
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**30080**	Welland St PTC- Area 80 - 1173	**2028**	$	812,046
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733799**	TOR10YR - Weston - Verobeach and Palms Replacement	**2028**	$	806,160
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**48849**	BRAN - Otterville Rd. (James to Middleton) Repl. BU - Otterville	**2027**	$	805,335
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**30221**	Maher St 2 - Northeast - 1703	**2033**	$	798,861
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**30464**	Downie St 3 - Southwest - London - 1808	**2033**	$	795,901
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**503169**	TOR10YR - Parklawn - Delta North Replacement	**2029**	$	782,831
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**733414**	Bridge Crossing Hwy. 12 Northeast-01	**2025**	$	771,397
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**30347**	Elm St W - Eastern - Area 60 - 1726	**2028**	$	770,826
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**30079**	Victoria St STC- Area 80 - 1148	**2028**	$	765,615
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Fail**	Dollar Threshold	**30469**	Grand River St S - VSM - Southeast - Waterloo - 1805	**2033**	$	760,081
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Fail**	Dollar Threshold	**30183**	Howard Ave 1 - Kawartha Lakes - Area 40 - 1692	**2028**	$	759,149
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**48851**	WIND: County Rd 31 & Essex County Rd 2, Lakeshore, Replacement	**2027**	$	758,148
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733918**	TOR10YR - Royal York and Symons Replacement-Network # 123_368_373	**2032**	$	749,828
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**48781**	WIND: Laird IP, Essex, Replacement	**2027**	$	730,503
Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Fail**	Dollar Threshold	**101193**	SARN - Lakeshore Rd. and Modeland Rd Leakage - Sarnia BU	**2025**	$	727,148
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Fail**	Dollar Threshold	**737756**	Replacment-Taunton Rd W and Coronation	**2028**	$	726,615
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**101543**	LOND - SCLAIR Pipe Replacement- Mount Brydges	**2032**	$	721,112
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**48954**	HAMI: Rainham Road, Walpole BU Repl	**2027**	$	718,330
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**48955**	BRAN -Northern Ave. (Adams to Connaught) Repl. BU - Delhi	**2026**	$	709,883
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**102262**	WIND: Woodslee, Lakeshore, Replacement	**2027**	$	702,858
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Fail**	Dollar Threshold	**30190**	Regent St - Kawartha Lakes - Area 40 - 1697	**2028**	$	682,176
GTA West	**50 - Barrie**	Distribution Pipe	**Fail**	Dollar Threshold	**4670**	Anode Blanket - Area 50	**2025**	$	681,543
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**49752**	WIND: Tecumseh Rd E - Ph3, Windsor, Replacement	**2027**	$	669,684
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**30227**	Milford Crescent 2 - Northeast - 1712	**2033**	$	659,961
GTA West	**Div_17 - Halton**	Distribution Pipe	**Fail**	Dollar Threshold	**503061**	Halt: Harrop drive, Milton, BU Replacement	**2025**	$	650,054
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**502933**	TOR10YR - Dubray to Cornelius Replacement Standardization - Network # 161_169_172	**2031**	$	648,433
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733913**	TOR10YR - Torlake MP Replacement- Network # 123_368_373	**2031**	$	622,136
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**1273**	Marten River Retrofit	**2025**	$	619,099
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733664**	TOR10YR - Silvercrest to Aldercrest Replacement-Network # 123_368_373	**2030**	$	617,328
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Fail**	Dollar Threshold	**48936**	WATE - Hamilton St. Repl. BU - Cambridge	**2025**	$	616,145
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Fail**	Dollar Threshold	**739316**	WATE - Knightswood Blvd Guelph General Replacement	**2025**	$	612,908
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**48866**	HAMI: Glassco Ave N, Hamilton, BU Replacement	**2027**	$	608,192
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**11794**	A60: City Centre Complex - Ottawa	**2026**	$	601,930
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**30076**	A80: Shurie Rd LINC, VS Replacement	**2028**	$	586,369
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**503164**	TOR10YR - Parklawn A1 A - Horner Replacement	**2028**	$	577,487
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**2698**	Weston Rd & Imogene trespassing main	**2025**	$	575,579
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**23126**	Concord St Isolated Steel Replace with Main St PE, Ottawa	**2025**	$	569,351
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Fail**	Dollar Threshold	**100690**	King - Block Valve Assembly Maintenance (Various Locations))	**2029**	$	566,582
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Fail**	Dollar Threshold	**49511**	WATE_Waterloo-3 Concession St. Bridge Crossing Cambridge General Replacement	**2025**	$	557,189
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**739942**	VSM - Firestone Road - 2" ST - Eastside	**2025**	$	553,244
GTA West	**50 - Barrie**	Distribution Pipe	**Fail**	Dollar Threshold	**30099**	000071, NRP - Wellington D2 - 2023 - 2025 - 1651	**2027**	$	552,903
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**503325**	A80: Lundys Lane Reg. Rd 20 Niagara Falls, VS Replacement	**2026**	$	552,370
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**502861**	Morrison THP Replacement	**2025**	$	549,314

Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**48930**	HAMI: Lock St E, Dunnville, BU Replacement	**2026**	$	542,656
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**7651**	121 – 151 L'Amoreaux Dr Steel Header Replacements	**2026**	$	526,040
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**30074**	A80: Rose St STC, VS Replacement	**2028**	$	525,900
Southwest	**Div_02 - Chatham**	Distribution Pipe	**Fail**	Dollar Threshold	**48256**	INTE: Dominion East NPS 8: Retrofit for 2021 ILI	**2026**	$	522,345
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**1702**	Bloor St. W. & The Kingsway Replacement	**2026**	$	522,142
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**48845**	BRAN - Maple Blvd and Willow Beach Repl. - Port Ryerse	**2027**	$	506,998
GTA West	**50 - Barrie**	Distribution Pipe	**Fail**	Dollar Threshold	**30108**	Pr#62, NRP - 2025 - Cameron Street - Collingwood - 1616	**2029**	$	506,258
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**30053**	Food City Plaza STC - Area 80 - 1161	**2034**	$	500,980
Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Fail**	Dollar Threshold	**48771**	SARN - Highway Dr and Lynwood Ave - Sarnia BU	**2026**	$	492,688
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735829**	TOR10YR - Birchmount and Underwriters Replacement - Network # 455	**2033**	$	476,107
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**49722**	WIND: Bertha Ave, Windsor, Replacement	**2027**	$	464,774
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735817**	TOR10YR - Bay Mills and Birchmount Replacement - Network # 455	**2029**	$	461,015
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**48976**	HAMI: Gardiner Ave E, Dunnville, BU Replacement	**2025**	$	457,452
GTA West	**50 - Barrie**	Distribution Pipe	**Fail**	Dollar Threshold	**30104**	Pr#57, NRP - 2024 - Collins Street - Collingwood - 1614	**2027**	$	456,481
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**7639**	A10: 46-68 Goodview Rd (North), North York, Noded Header Replacement	**2025**	$	440,825
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**735880**	TOR10YR - Railside and Lawrence Replacement - Network # 455	**2033**	$	438,830
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**734590**	Viewmount Dr Main Lowering	**2032**	$	434,906
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**100505**	HR - 200-250 Bridletowne Circle	**2026**	$	430,915
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733621**	HAMI: Main St E, Dunnville, BU Replacement	**2026**	$	428,529
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**735150**	NE: Hwy 11 and Barnett, North Bay, Grasshopper Valves Replacement	**2031**	$	428,197
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**30332**	Adelaide St - Eastern - Area 60 - 1828	**2029**	$	420,407
GTA West	**20 - Mississauga**	Distribution Pipe	**Fail**	Dollar Threshold	**736516**	3665 Flamewood Replacement Copper Relay	**2025**	$	415,152
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**30066**	Niagara Wine Route NOTL - Area 80 - 1167	**2033**	$	410,625
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**48817**	HAMI: Sydenham Rd BU Main Repl	**2026**	$	410,574
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Fail**	Dollar Threshold	**48515**	THUN: Indirect Materials-Replacements	**2025**	$	408,254
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**100506**	HR - 1040 Bridletowne Circle	**2026**	$	399,957
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**2562**	Sheppard & Markham Compression Couplings	**2026**	$	388,227
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Fail**	Dollar Threshold	**734593**	SUDB: Bancroft Dr and Bellevue Ave, Valves Replacement	**2025**	$	388,175
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**48956**	BRAN - Connaught Ave. (Hwy 3 to Delcrest) Repl. BU - Delhi	**2026**	$	382,344
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**49746**	WIND: County Rd 27 Ph 3, Lakeshore, Replacement	**2027**	$	382,175
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**102476**	NE: Ski Club Rd., North Bay	**2033**	$	376,751
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**501115**	BRAN: Dist-Repl-Compy-Services	**2025**	$	373,387
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48826**	LOND- Whetter & Wellington BU - London	**2025**	$	368,581
Southeast	**Div_07 - Waterloo**	Distribution Pipe	**Fail**	Dollar Threshold	**48937**	WATE - Glen Morris (Selkirk to Stanley) Repl. BU - Cambridge	**2025**	$	363,053
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**4666**	Replacement Blanket - Area 80	**2025**	$	360,192
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**49750**	WIND: Trenton St, Windsor, Replacement	**2032**	$	357,533
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Fail**	Dollar Threshold	**48553**	NE: Whittaker St., Sudbury, Replacement	**2027**	$	356,729
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**49734**	WIND: Glenwood Line & Port Rd, Chatham-Kent, Replacement	**2032**	$	353,499
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**48782**	WIND: Lacasse (St Denis to Tecumseh Rd E), Windsor, Replacement	**2025**	$	340,504
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48923**	LOND - Tecumseh Ave BU - London	**2026**	$	328,459
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**737082**	A80: Forkes Rd E, Port Colborne, VPE Replacement	**2025**	$	322,275
Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Fail**	Dollar Threshold	**48337**	SARN: Dist-Repl-Compy-Services	**2025**	$	321,085
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**734170**	A10: Victoria St, Toronto, Main Replacement	**2025**	$	320,260
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**30034**	River View Line - Southwest - Windsor - 1381	**2034**	$	316,917
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**733733**	NPS 10 Ford Essex Engine	**2025**	$	309,550
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**739779**	HAMI: Hamilton-20 Westbrook Rd Bridge, Hamilton, Bridgecon Coating Repl	**2025**	$	309,550
Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Fail**	Dollar Threshold	**740848**	SARN Oil Springs Line (Sarnia 10) Aerial Crossing Replacement- St Clair	**2025**	$	309,550
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**48933**	BRAN - Water St. and Rebecca St. Repl. BU - Vittoria	**2025**	$	302,931
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**103520**	Red Maple Dr Lincoln - 1-inch steel main replacement	**2028**	$	300,636
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**2334**	Meadowvale & Sheppard CC Replacement	**2026**	$	295,345
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48860**	LOND - Cathcart & Alma BU - Ingersoll	**2027**	$	287,509
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**49729**	WIND: Devonshire Rd, Windsor, Replacement	**2027**	$	281,763
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Fail**	Dollar Threshold	**49653**	SUDB: Regent St grasshopper, Sudbury	**2031**	$	277,069
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733645**	HAMI: Rifle Range Rd, Hamilton, BU Replacement	**2025**	$	271,413
GTA West	**50 - Barrie**	Distribution Pipe	**Fail**	Dollar Threshold	**736572**	Shallow Main - High Street from Dunlop to Park St	**2025**	$	266,995
Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Fail**	Dollar Threshold	**741926**	SARNIA-04 Petrolia Line at Bear Creek Bridge Crossing - Petrolia	**2027**	$	265,393
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**48977**	HAMI: Haldimand Rd 55, Walpole BU Repl	**2026**	$	253,383
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**48850**	BRAN - Norfolk St. (Dover to Dead End) Repl. BU - Otterville	**2025**	$	246,299
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**741950**	LOND - Parkway, Huron & Sunset St BU- London	**2027**	$	243,277
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**30225**	Matchedash St N 2 (MORATORIUM UNTIL 2026) - Northeast - 1720	**2033**	$	241,720
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**741855**	BRAN- Mohawk Street Repl BU, Brantford	**2027**	$	237,748
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48797**	LOND - Kent & Central BU - London	**2027**	$	237,748
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**741805**	WIND: Concession Rd 6 and Middle Leakage, Replacement, Amherstburg	**2025**	$	229,067
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48918**	LOND - Wharncliffe & Baseline BU - London	**2025**	$	227,828
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**740351**	LOND - Briscoe St W at Mackay Ave, St Thomas BU	**2025**	$	227,519
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**48986**	HAMI: Cheapside Rd, Walpole, BU Replacement	**2025**	$	225,662
Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Fail**	Dollar Threshold	**101194**	SARN - Christina St at Highbury Pk Leakage - Sarnia BU	**2025**	$	225,550
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**503048**	HAMI: West Hamilton, Hamilton, BU Replacement	**2025**	$	222,876
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**48779**	WIND: Maidstone Ave & Talbot St, Essex, Replacement	**2027**	$	221,497
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**48833**	BRAN - Concession Rd. 12 Repl. BU - Norfolk	**2027**	$	216,877
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733642**	HAMI: Seneca Dr, Ancaster, BU Replacement	**2026**	$	213,498
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**48898**	BRAN - Grey St. and George St. Repl. BU - Langton	**2025**	$	206,457
Southwest	**Div_02 - Chatham**	Distribution Pipe	**Fail**	Dollar Threshold	**49893**	CHAT: Water St & Talbot Trail, Chatham-Kent, Replacement	**2032**	$	205,239
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**1693**	Bayview & Steeles CC Replacement	**2025**	$	202,831
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**48865**	WIND: County Rd 2 & Riverside Rd, Lakeshore, Replacement	**2027**	$	199,381
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Fail**	Dollar Threshold	**738990**	33-23-604 TBAY - Oliver Rd - NPS4 - Exposed Main	**2025**	$	194,088
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48759**	LOND - Talbot Line BU - Talbotville	**2027**	$	193,516

Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**734459**	LOND - 7113 to 7079 Longwoods Rd. - London	**2031**	$	186,788
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Fail**	Dollar Threshold	**734743**	King: Bath and Gardiners Valve Replacement (Kingston)	**2028**	$	181,564
Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Fail**	Dollar Threshold	**733836**	SARN - Oil Heritage Rd and Douglas Line Exposed Main	**2032**	$	181,543
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**48863**	BRAN - Wellington St. E. (Dover to Oxford) Repl. BU - Otterville	**2025**	$	179,648
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**102255**	WIND: Bayshore Dr, Leamington, Replacement	**2025**	$	179,539
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**502019**	A80: Regional Rd 65, West Lincoln. Replacement	**2028**	$	175,284
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48828**	LOND-Sycamore & St Julien - London	**2027**	$	171,400
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Fail**	Dollar Threshold	**734615**	SUDB: Second Ave & Centre St, Espanola, Valve Replacement	**2028**	$	169,739
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**48953**	HAMI: Hamilton Mountain East Ph1, Hamilton, BU Replacement	**2025**	$	165,919
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48829**	LOND - Dalmage & Wood BU - London	**2027**	$	165,871
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**48903**	BRAN - Head N. (Windham to Maple) Repl. BU - Simcoe	**2025**	$	164,243
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**1692**	Bayview & St. Leonards Compression Couplings	**2026**	$	161,016
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Fail**	Dollar Threshold	**49641**	SUDB: Gagnon St Lateral, Azilda	**2032**	$	151,285
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**49625**	NBAY: 247 Whitewood Ave, New Liskeard Main Relocation	**2031**	$	151,128
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**2563**	Sheppard Ave & Brimley Rd (Compression Couplings)	**2026**	$	139,171
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**743385**	60-B017 Ottawa River - Booth St @Albert Island Repair	**2025**	$	138,779
Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Fail**	Dollar Threshold	**502679**	SARN- Brigden Rd and Duncan St Leakage - Moore Twp	**2025**	$	133,725
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Fail**	Dollar Threshold	**48495**	King - District Casing Upgrade	**2027**	$	132,696
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**7649**	HR - 201 Bridletowne Circle	**2025**	$	129,881
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**736400**	A80: Johnston St, Port Colborne. VS Replacement	**2025**	$	128,579
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**734460**	LOND - Breck Ave. & Eastgate Cres. - London	**2028**	$	128,482
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**741854**	BRAN- Dundas Street Repl BU, Brantford	**2027**	$	127,167
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**100843**	HAMI: 295 Dundas St E 6" ST IP Shallow Main Waterdown	**2028**	$	125,494
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733649**	HAMI: Osler Dr @ Rail Trail, Dundas, BU Replacement	**2025**	$	125,306
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**48910**	HAMI: South Coast Dr, Walpole BU Repl	**2025**	$	124,216
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**48935**	BRAN - Colborne St. at Johnson Rd. Repl. BU - Brantford	**2025**	$	124,183
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**739782**	HAMI: Hamilton 31 Park St E Bridge, Dundas, Replacement	**2025**	$	123,820
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733626**	HAMI: Haldimand Rd 20, Walpole, BU Replacement	**2027**	$	123,408
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**30356**	A60: Havelock St , Brockville, VSM Replacement	**2033**	$	122,765
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48881**	LOND - Riverside Dr & Wharncliffe BU - London	**2027**	$	121,638
Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Fail**	Dollar Threshold	**739745**	Sarnia Industrial Line Environmental Monitoring	**2027**	$	120,547
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**48824**	BRAN - St Patrick St. Replacement BU - Port Dover	**2025**	$	119,203
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**48958**	BRAN - Churchill (Connaught to Argyle) Repl. BU - Delhi	**2026**	$	118,201
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**736468**	A60: Boyce HP to IP	**2026**	$	117,259
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Fail**	Dollar Threshold	**738989**	SSM: 293 Bay Street, Sault Ste Marie, Rooftop Main	**2028**	$	117,093
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Fail**	Dollar Threshold	**49673**	Kingsmount Blvd, Bannister Tees Replacement, SSM	**2025**	$	116,453
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48808**	LOND - Church & Water BU - Beachville	**2027**	$	115,048
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**48929**	BRAN - Lawrence Rd Repl. BU - Norfolk	**2025**	$	110,253
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Fail**	Dollar Threshold	**734616**	NE: Wellington St, SSM, Replacement	**2027**	$	109,779
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**503339**	LOND - Wonham St Leakage, Ingersoll	**2026**	$	107,922
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733632**	HAMI: Port Maitland/Secord Rd, Dunnville, BU Repl	**2025**	$	106,980
Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Fail**	Dollar Threshold	**48846**	SARN - Errol Rd E Leakage - Sarnia BU	**2025**	$	106,485
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Fail**	Dollar Threshold	**14147**	Copper Service Replacement - Area 40	**2025**	$	105,734
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733650**	HAMI: Fleming Ave, Dundas, BU Replacement	**2025**	$	104,752
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**48581**	NBAY: Dist-Repl-Comp-Services	**2025**	$	104,199
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**734070**	HAMI: 71 Main St Replacement, Dundas, Corrosion	**2028**	$	103,751
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**48939**	HAMI: Haldimand Rd 12, Rainham, BU Replacement	**2026**	$	102,057
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Fail**	Dollar Threshold	**737504**	33-22-610 TBAY - Margaret St at Balsam St - NPS6 Valve Repl	**2025**	$	100,923
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Fail**	Dollar Threshold	**49509**	Atikokan Steep Rock Mine Valve Nest Retirement	**2032**	$	100,857
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48852**	LOND - St Neots & Ridout BU - London	**2026**	$	99,711
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**743384**	60-B016 Ottawa River - Booth St @Bronson Channel Repair	**2025**	$	99,637
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48876**	LOND - Summit & Oxford BU - London	**2027**	$	99,522
Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Fail**	Dollar Threshold	**48831**	SARN-Point Edward LP Leakage - Sarnia BU	**2025**	$	99,056
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48878**	LOND - Grand & Wellington BU - London	**2026**	$	97,637
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**48970**	HAMI: Conc 10, Walpole, BU Replacement	**2025**	$	95,279
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**100899**	HAMI - Warren/Mohawk Rectifier Bed Replacement	**2025**	$	94,208
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Fail**	Dollar Threshold	**100748**	King: 22-22-617 Rooftop Piping 945 Gardiners Road - Cataraqui Town Centre	**2027**	$	93,993
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**741361**	BRAN- Bostwick Road Exposed Main Repl. Norfolk County	**2026**	$	93,845
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733652**	HAMI: Hamilton Mountain East Ph2, Hamilton, BU Replacement	**2026**	$	93,845
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Fail**	Dollar Threshold	**100737**	SUDB: Southview & Martindale, Sudbury, Valve Nest protection	**2025**	$	90,574
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**739780**	HAMI: Hamilton 29 Alma St Bridge, Dundas, Replacement	**2025**	$	90,388
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**49624**	NBAY: 198 Hughes Rd, North Bay	**2029**	$	89,887
Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Fail**	Dollar Threshold	**735710**	SARN- Zone St Leakage BU- Wyoming	**2026**	$	88,684
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Fail**	Dollar Threshold	**742942**	KING: 22-24-XXX Rawdon St - Bridge Crossing Stirling (Eastern-07)	**2025**	$	88,636
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Fail**	Dollar Threshold	**734741**	King: Fifth & McConnell Concrete Encased Main Replacement (Cornwall)	**2028**	$	88,188
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Fail**	Dollar Threshold	**736571**	Wilson Rd and Taunton Rd, Oshawa Corrosion	**2025**	$	84,918
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**49638**	NBAY: 205 Main St E, North Bay	**2025**	$	84,105
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Fail**	Dollar Threshold	**738993**	33-23-605 TBAY - Ford St at Victoria Ave - NPS4 Valve Repl	**2026**	$	83,234
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**49623**	NBAY: 955 McKeown Ave, North Bay	**2027**	$	82,935
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**734382**	A:60 Bellfield St - Main Replacement	**2025**	$	81,711
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**1691**	Bayview & Post Compression Couplings	**2026**	$	81,580
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48919**	LOND - Putnam Rd. BU - London	**2027**	$	80,533
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**48904**	BRAN - Windham St. Repl. BU - Simcoe	**2025**	$	79,205
GTA West	**20 - Mississauga**	Distribution Pipe	**Fail**	Dollar Threshold	**738889**	Isolation Valve Mississauga	**2026**	$	78,173
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48913**	LOND - Borden St. BU - London	**2027**	$	77,406

Southwest	**Div_02 - Chatham**	Distribution Pipe	**Fail**	Dollar Threshold	**102251**	CHAT: Gordon St & Elm St, Chatham-Kent, Replacement	**2026**	$	76,575
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**743426**	A46 Sudbury Net New Rectifier Install	**2025**	$	74,292
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Fail**	Dollar Threshold	**743425**	A22 Port Hope Rectifier	**2025**	$	74,292
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Fail**	Dollar Threshold	**739598**	33-23-606 TBAY - Main St - NPS4 Valve Repl - Geraldton	**2026**	$	73,598
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733658**	HAMI: Stoney Creek, BU Replacement	**2026**	$	71,792
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733629**	HAMI: Victoria Ave E, Dunnville, BU Replacement	**2026**	$	71,792
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733634**	HAMI: Peacock Point, BU Replacement	**2026**	$	71,792
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48877**	LOND - Pall Mall & William BU - London	**2027**	$	69,029
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48875**	LOND - Malcolm Street BU - London	**2027**	$	69,029
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48873**	LOND - Seeley & Burslem BU - London	**2027**	$	69,029
Northern & Eastern	**Div_45 - Timmins**	Distribution Pipe	**Fail**	Dollar Threshold	**742738**	45-27-600 TIMM - Rea St - NPS6 Valve & Flange Repl - Timmins	**2027**	$	68,560
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**48964**	BRAN - Clyde St. and North Court St. Repl. BU - Norwich	**2027**	$	68,219
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**30015**	WIND: Elm Ave, Windsor, VSM Replacement	**2033**	$	64,815
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733656**	HAMI:Barnaby St /Waterloo St, Hamilton, BU Replacement	**2025**	$	62,405
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**48984**	HAMI: Mohawk Rd E, Hamilton, BU Replacement	**2025**	$	62,405
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**741857**	WATE- Blair Road Repl. BU, Cambridge	**2027**	$	61,925
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**30012**	WIND: Ducharme St, Windsor, VSM Replacement	**2033**	$	60,968
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Fail**	Dollar Threshold	**30195**	William St N - Kawartha Lakes - Area 40 - 1816	**2032**	$	58,278
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**100928**	HAMI: Park St, Jarvis BU Repl	**2025**	$	57,948
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Fail**	Dollar Threshold	**735679**	45-22-000 TIMM Grierson Rd Valve Replacement	**2026**	$	57,539
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48882**	LOND - Tweedsmuir BU- London	**2027**	$	57,524
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**48983**	HAMI: Park St S, Hamilton BU Replacement	**2025**	$	55,471
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Fail**	Dollar Threshold	**48541**	SUDB: Dist-Repl-Comp-Services	**2025**	$	52,075
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Fail**	Dollar Threshold	**30139**	Byng Ave 1-Kapuskasing-1850	**2033**	$	50,467
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Fail**	Dollar Threshold	**30140**	Circle St 1-Kapuskasing-1847	**2033**	$	50,467
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Fail**	Dollar Threshold	**30151**	Marks St S-Thunder Bay-1537	**2033**	$	50,467
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**30200**	Colborne St W 1 - Northeast - 1682	**2033**	$	50,467
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**30219**	Laforest Ave - Northeast - 1270	**2033**	$	50,467
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**30228**	Presley St 1 - Northeast - 1713	**2033**	$	50,467
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Fail**	Dollar Threshold	**30134**	4th Ave S-Kenora-1562	**2032**	$	50,428
Northern & Eastern	**Div_45 - Timmins**	Distribution Pipe	**Fail**	Dollar Threshold	**30150**	Maple St N-Timmins-1535	**2032**	$	50,428
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Fail**	Dollar Threshold	**30156**	Prince Arthur Blvd-Thunder Bay-1538	**2032**	$	50,428
GTA West	**Div_17 - Halton**	Distribution Pipe	**Fail**	Dollar Threshold	**30415**	Halton - Oakville - 6th Line-Phase 1- VSM Replacement	**2033**	$	50,282
Southwest	**Div_02 - Chatham**	Distribution Pipe	**Fail**	Dollar Threshold	**101164**	CHAT: Ridge St, West Lorne, Replacement	**2025**	$	48,909
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**30208**	North Bay - Galt St Phase 1 - Northeast - VSM Replacement	**2031**	$	48,167
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**48966**	BRAN - Carmen St. Repl. BU - Norwich	**2026**	$	47,723
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**501665**	LOND - Murray St. BU - London	**2026**	$	46,923
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Pipe	**Fail**	Dollar Threshold	**49645**	116 Simmons Rd, Dowling PLPR	**2025**	$	45,287
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**49621**	NBAY: 128 McIntyre St W, North Bay	**2025**	$	45,287
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Pipe	**Fail**	Dollar Threshold	**30214**	Sudbury - Janet St Phase 1 - Northeast - VSM Replacement	**2031**	$	43,069
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733659**	HAMI: Burlington St E, Hamilton, BU Replacement	**2027**	$	42,905
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733647**	HAMI: Melvin Av, Hamilton, BU Replacement	**2026**	$	42,230
Southwest	**Div_01 - Windsor**	Distribution Pipe	**Fail**	Dollar Threshold	**49719**	WIND: 2200 - 2204 County Rd 27, Lakeshore, Replacement	**2028**	$	41,842
Southeast	**80 - Niagara**	Distribution Pipe	**Fail**	Dollar Threshold	**30056**	Flanders Ave STC - Area 80 - 1809	**2034**	$	41,076
Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Fail**	Dollar Threshold	**737948**	SARN_Oil Spring Line & Sherriff St_Oil Springs	**2026**	$	41,057
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**48922**	LOND - Lexington & Wharncliffe BU - London	**2027**	$	38,703
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733657**	HAMI: Hamilton Core, BU Replacement	**2026**	$	38,007
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733609**	HAMI: Cheapside Rd Ph2, Walpole, BU Replacement	**2025**	$	35,660
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733655**	HAMI: Wellington St N /Wilson St, Hamilton, BU Replacement	**2025**	$	34,670
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733633**	HAMI: Canborough Rd, Canborough, BU Replacement	**2027**	$	34,059
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733631**	HAMI: North Shore/Hutchinson, Moulton, BU Replacement	**2025**	$	33,431
GTA East & Toronto	**40 - Whitby**	Distribution Pipe	**Fail**	Dollar Threshold	**30188**	Prince St-Bowmanville-1846	**2033**	$	33,001
GTA West	**Div_17 - Halton**	Distribution Pipe	**Fail**	Dollar Threshold	**503028**	Halt: Kingsway Dr. Burlington BU Replacement	**2025**	$	32,795
Southwest	**Div_03 - Sarnia**	Distribution Pipe	**Fail**	Dollar Threshold	**101192**	SARN - Vidal & Cromwell Leakage - Sarnia BU	**2026**	$	32,208
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**30402**	Haldimand - Selkirk - Erie St S-Phase 1 - Hamilton - VSM Replacement	**2033**	$	28,467
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**48963**	BRAN - Given Rd at Lyndoch Rd Repl. BU - Norfolk	**2027**	$	28,049
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733646**	HAMI: Glen/Dromore, Hamilton, BU Replacement	**2025**	$	26,745
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733800**	TOR10YR - Weston - Coral Gable Replacement	**2033**	$	26,299
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733651**	HAMI: Mohawk Rd W, Hamilton, BU Replacement	**2026**	$	23,931
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**30250**	WATE: Ontario St, Brantford, VSM Replacement	**2033**	$	22,429
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733648**	HAMI: Hamilton East, BU Replacement	**2025**	$	22,288
Southwest	**Div_04 - London**	Distribution Pipe	**Fail**	Dollar Threshold	**733531**	LOND - Waterloo St at Horton St Leakage BU-London	**2025**	$	21,049
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Fail**	Dollar Threshold	**734795**	King: HWY#2 Caravan Camp PRS Abandonment (Morrisburg)	**2025**	$	18,573
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**30235**	WATE: High St, Brant, VSM Replacement	**2033**	$	13,803
GTA East & Toronto	**10 - Toronto**	Distribution Pipe	**Fail**	Dollar Threshold	**733801**	TOR10YR - Weston - Bradstock to Verobeach Replacement	**2033**	$	13,708
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733644**	HAMI: Woodbridge Rd, Hamilton, BU Replacement	**2025**	$	13,373
Southeast	**Div_06 - Brantford**	Distribution Pipe	**Fail**	Dollar Threshold	**30260**	WATE: Norfolk County Rd 21, Andy's Corners, VSM Replacement	**2033**	$	12,617
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Fail**	Dollar Threshold	**100691**	King - Giant Tiger Tee Retirement (Napanee)	**2028**	$	12,450
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Pipe	**Fail**	Dollar Threshold	**739764**	TBAY: Red River Road	**2025**	$	12,382
Southeast	**Div_16 - Hamilton**	Distribution Pipe	**Fail**	Dollar Threshold	**733643**	HAMI: Powerline Rd W, Ancaster, BU Replacement	**2025**	$	11,144
GTA East & Toronto	**Div_22 - Kingston**	Distribution Pipe	**Fail**	Dollar Threshold	**734706**	King: Thin Wall and Copper Pipe Replacement (Various Locations in Area)	**2027**	$	11,058
Northern & Eastern	**60 - Ottawa**	Distribution Pipe	**Fail**	Dollar Threshold	**20544**	A60: 100 Sussex Dr, abandon header stub	**2025**	$	7,117
GTA West	**Div_17 - Halton**	Distribution Pipe	**Fail**	Dollar Threshold	**736088**	HALT: PSLL Maintenance	**2031**	$	605
Head Office Support	**Div_54 - Head Office Support**	Distribution Pipe	**Fail**	Dollar Threshold	**500515**	TRANSIT: Dist-Repl-Mains Transit Relocation	**2025**	$	(6,535,964)
Head Office/All	**01 - All**	Distribution Pipe	**Fail**	Dollar Threshold	**102428**	Relocation Program - Transit	**2025**	$	(29,385,650)

Head Office/All	**01 - All**	Distribution Stations	**Pass**	**735117**	Stations with Auxiliary Equipment Replacement Program	**2029**	$	121,587,272	Issue/Concern: The replacement / renewal strategy for Stations with Auxiliary Equipment includes: Stations with Auxiliary Equipment Replacement strategy Compliance Remediation strategy Obsolete Heating Equipment strategy Odourization strategy Telemetry strategy Stations Retrofit strategy for Integrity pipe Stations Capital Upgrade program Facilities Integrity Management program Related Program: N/A	Fail	Distribution station condition related, IRPA not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Pass**	**735115**	LUG DS - Gate, Feeder & A Stations Program	**2029**	$	114,912,859	Issue/concern: This Investment was created to hold program dollars for future projects that are not yet identified and/or developed for years later in the capital plan. Assets: Related Programs (enter N/A if not applicable):	Fail	Distribution station condition related, IRPA not applicable
Southwest	**Div_04 - London**	Distribution Stations	**Pass**	**734310**	Station Rebuild A&B Program SW	**2028**	$	36,984,036	Issue/Concern/Opportunity: The stations identified in this business case fall into one of the following categories: Below-ground box replacements: Removal of below-ground stations improves life cycle cost of stations due to accelerated corrosion related to salting and flooding, increased O&M costs related to increased paint frequency, and the requirement for two at a box when work is performed. An additional and very important benefit to the elimination of below-ground boxes is the improvement of worker health and safety by eliminating the need to handle potentially contaminated water, and non-ergonomic work conditions. Obsolete Regulators: The criteria for this category is that there are no spare parts available, or parts are no longer approved for use on new installations, or a combination of poor performance and manufacturer availability. Low Pressure Districts: The failure of a low pressure district can have disastrous downstream impacts in the event of over-pressure protection failure. The outlets of these stations feed customers who may not have individual regulators at their meter sets. This additional line of defense is not present to protect customer piping. Double Boot-style Regulators: Stations with both operator and monitor boot-style regulators have a common failure mechanism as a result of debris in the gas stream. Replacement of one boot-style regulator with a non-boot regulator reduces the vulnerability of failure. Increased Capacity: Stations that are operating over designed capacity due to system growth are targeted for replacement to maintain gas supply. Loss of Containment: Station experiencing loss of containment (leaks) and high maintenance calls to repair equipment are also identified for replacement. Asset: District station assets. Related Program: N/A	Fail	See investment description, IRPAs not applicable
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Pass**	**734306**	Station Rebuild A&B Program SE	**2028**	$	36,724,659	Issue/Concern/Opportunity: The stations identified in this business case fall into one of the following categories: Below-ground box replacements: Removal of below-ground stations improves life cycle cost of stations due to accelerated corrosion related to salting and flooding, increased O&M costs related to increased paint frequency, and the requirement for two at a box when work is performed. An additional and very important benefit to the elimination of below-ground boxes is the improvement of worker health and safety by eliminating the need to handle potentially contaminated water, and non-ergonomic work conditions. Obsolete Regulators: The criteria for this category is that there are no spare parts available, or parts are no longer approved for use on new installations, or a combination of poor performance and manufacturer availability. Low Pressure Districts: The failure of a low pressure district can have disastrous downstream impacts in the event of over-pressure protection failure. The outlets of these stations feed customers who may not have individual regulators at their meter sets. This additional line of defense is not present to protect customer piping. Double Boot-style Regulators: Stations with both operator and monitor boot-style regulators have a common failure mechanism as a result of debris in the gas stream. Replacement of one boot-style regulator with a non-boot regulator reduces the vulnerability of failure. Increased Capacity: Stations that are operating over designed capacity due to system growth are targeted for replacement to maintain gas supply. Loss of Containment: Station experiencing loss of containment (leaks) and high maintenance calls to repair equipment are also identified for replacement. Asset: District station assets. Related Program: N/A	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Pass**	**734305**	Station Rebuild A&B Program NORTHERN	**2028**	$	36,724,659	Issue/Concern/Opportunity: The stations identified in this business case fall into one of the following categories: Below-ground box replacements: Removal of below-ground stations improves life cycle cost of stations due to accelerated corrosion related to salting and flooding, increased O&M costs related to increased paint frequency, and the requirement for two at a box when work is performed. An additional and very important benefit to the elimination of below-ground boxes is the improvement of worker health and safety by eliminating the need to handle potentially contaminated water, and non-ergonomic work conditions. Obsolete Regulators: The criteria for this category is that there are no spare parts available, or parts are no longer approved for use on new installations, or a combination of poor performance and manufacturer availability. Low Pressure Districts: The failure of a low pressure district can have disastrous downstream impacts in the event of over-pressure protection failure. The outlets of these stations feed customers who may not have individual regulators at their meter sets. This additional line of defense is not present to protect customer piping. Double Boot-style Regulators: Stations with both operator and monitor boot-style regulators have a common failure mechanism as a result of debris in the gas stream. Replacement of one boot-style regulator with a non-boot regulator reduces the vulnerability of failure. Increased Capacity: Stations that are operating over designed capacity due to system growth are targeted for replacement to maintain gas supply. Loss of Containment: Station experiencing loss of containment (leaks) and high maintenance calls to repair equipment are also identified for replacement. Asset: District station assets. Related Program: N/A	Fail	See investment description, IRPAs not applicable
Southeast	**Div_06 - Brantford**	Distribution Stations	**Pass**	**103426**	BRAN: 16U-601 Brantford Gate Station, Station Rebuild (Capital Maintenance),	**2026**	$	13,501,963	Issue/Concern/Opportunity: Rebuild entire station to address station integrity issues, maintenance/operational issues. Justification: A full rebuild will correct station integrity issues and maintenance/operational issues. Assets: Brantford Gate Station (16U-601) Related Investments: Not applicable.	Fail	Distribution station condition related, IRPA not applicable
Southwest	**Div_03 - Sarnia**	Distribution Stations	**Pass**	**734676**	SARN: 13F-220R Vidal St	**2034**	$	12,589,388	Issue/Concern/Opportunity: 13F-220R is experiencing flooding due to its current location. The heater age is of concern and the control valves require an upgrade. Potential relocation is necessary due to building floods. Justification: Full rebuild is required. Assets:13F-220R Related Investments: Not applicable.	Fail	Distribution station condition related, IRPA not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Pass**	**48744**	Distribution Operations Station Painting	**2025**	$	11,419,403	Issue/concern: This is a centrally managed program in the Union rate zone to apply high performance paint to stations where existing paint has begun to fail or wear off of the facilities on which it has been applied. The Station Painting Program is a significant corrosion mitigation practice. The frequency and criteria for high performance painting at station sites is specifically prescribed in the Corrosion Control Standard Operating Practice (SOP) and is its documented and committed practice on its compliance with the applicable codes for corrosion control on above-grade station assets. This work will improve compliance and ensure the safety and reliability of EGI assets by reducing the risk of leaks and piping and/or equipment failure due to significant corrosion. Assets: Related Programs (enter N/A if not applicable):	Fail	See investment description, IRPAs not applicable
Southwest	**Div_04 - London**	Distribution Stations	**Pass**	**734672**	Kerwood_12K-301STN_Rebuild	**2026**	$	10,414,179	Issue/Concern/Opportunity: Heater is outdated, has had issues in the past and is too small for current capacity. Replace with CWT 770. Glycol lines are corroded and need to be replaced as soon as possible Assets: 12K-301 Related Investment: PH 2 # 745607	Fail	Distribution station condition related, IRPA not applicable
Southwest	**Div_03 - Sarnia**	Distribution Stations	**Pass**	**734670**	SARN: 13F-501 Sarnia Industrial	**2028**	$	9,980,578	Issue/Concern/Opportunity: The station is located on leased property that is limited in size and makes it difficult to install a required filter. In addition, the heater is past its average lifespan and there are other ergonomic concerns. There is an opportunity to merge the station with 13F-503 Churchill Rd Station and will be assessed during this project. Justification: Entire rebuild, potentially relocate. Assets: 13F-501 Related Investments: 13F-503 may potentially be merged with this station in a relocation.	Fail	Distribution station condition related, IRPA not applicable
Southwest	**Div_03 - Sarnia**	Distribution Stations	**Pass**	**735540**	LOND - 12F-501 Payne Kimball Rebuild	**2030**	$	9,609,765	Issue/Concern/Opportunity: 12F-501 Payne Kimball has obsolete Jetstream pressure regulation equipment. Obsolete pressure control equipment cold increase the risk of an overpressure or under-pressure scenario. Due to the regulators being obsolete, maintenance may be impracticle. There is no meter bypass and there are ergonomic concerns. The piping and equipment layout presents ergonomic concerns and limits the ability for an employee to perform work and could lead to a potential LTI and has been risk ranked as a Medium risk. Justification: Complete rebuild is required. Assets: 9S-147H is similar to Mersea Rd 11 Trans with Odourant, backup generator. Related Investments: Not applicable.	Fail	Distribution station condition related, IRPA not applicable

Southwest	**Div_01 - Windsor**	Distribution Stations	**Pass**	**743287**	WIND-03D-301 Leamington North Gate Station (2025:ISD Ph2)	**2027**	$	8,545,085	Issue/Concern: The Gate & Feeder Station Replacement Program manages the proactive replacement of component groups with the highest probability of failure, non-compliant assets, and the realization of opportunities for multiple component group replacements per station location as required. The Leamington North Gate station has obsolete heating equipment and there are two boilers (circa 1985) that are problematic and have experienced glycol containment issues. The boiler controls have malfunctioned several times over the last 2/3 years. The station piping presents ergonomic concerns as some sections are at ankle height. Scope: Rebuild of the entire Station, except the heating system. Heating System issues will be addressed with Investment # 502429. Assets: 03D-301 Leamington North Gate Related Investments: 502429 (Executing) & 736445 (Completed) Related Programs: N/A The station piping presents ergonomic concerns as some sections are at ankle height. Justification: Rebuild the station at the existing site; build a new IP station at a new location (essentially breaking the station into two new stations). Region will complete the IP portion of the station rebuild. Assets: 03D-301 Leamington North Gate Phase 1 Related Programs: N/A	Fail	Distribution station condition related, IRPA not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Pass**	**48743**	Distribution Operations Station Maintenance Blankets	**2032**	$	8,467,351	Issue/Concern: Station Blankets - Spend is also allocated to each region to ensure they have capital available for unforeseen maintenance challenges. These challenges can be leaks or failures that require short turnaround times for remediation, particularly if there has not been a specific project identified for affected assets. Asset: System Station Assets Related Program: N/A	Fail	Distribution station condition related, IRPA not applicable
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Pass**	**101086**	HAMI: 16X-601 Hamilton Gate 3, Hamilton, Full Station Rebuild	**2027**	$	8,063,004	Issue/Concern/Opportunity: The Hamilton Gate 3 Station needs a whole rebuild driven by integrity concerns. The station does not operate at full capacity. An early review of the heating system indicates that a redesign is required to improve the operation at the site. Furthermore, the property drains into the Boiler room depending on the amount of snowfall. The rebuild will address this water runoff concern.	Fail	Distribution station condition related, IRPA not applicable
Head Office/All	**01 - All**	Distribution Stations	**Pass**	**16434**	2028 District Station Rebuilds Program	**2028**	$	7,389,087	Issue/Concern: The stations identified in this business case fall into one of the following categories: Below-ground box replacements: Removal of below-ground stations improves life cycle cost of stations due to accelerated corrosion related to salting and flooding, increased O&M costs related to increased paint frequency, and the requirement for two at a box when work is performed. An additional and very important benefit to the elimination of below-ground boxes is the improvement of worker health and safety by eliminating the need to handle potentially contaminated water, and non-ergonomic work conditions. Obsolete Regulators: The criteria for this category is that there are no spare parts available, or parts are no longer approved for use on new installations, or a combination of poor performance and manufacturer availability. Low Pressure Districts: The failure of a low pressure district can have disastrous downstream impacts in the event of over-pressure protection failure. The outlets of these stations feed customers who may not have individual regulators at their meter sets. This additional line of defense is not present to protect customer piping. Double Boot-style Regulators: Stations with both operator and monitor boot-style regulators have a common failure mechanism as a result of debris in the gas stream. Replacement of one boot-style regulator with a non-boot regulator reduces the vulnerability of failure. Increased Capacity: Stations that are operating over designed capacity due to system growth are targeted for replacement to maintain gas supply. Loss of Containment: Station experiencing loss of containment (leaks) and high maintenance calls to repair equipment are also identified for replacement. Asset: District station assets Related Program: N/A	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Distribution Stations	**Pass**	**744881**	2033 District Station Rebuilds Program	**2033**	$	7,107,972	Issue/Concern: The stations identified in this business case fall into one of the following categories: Below-ground box replacements: Removal of below-ground stations improves life cycle cost of stations due to accelerated corrosion related to salting and flooding, increased O&M costs related to increased paint frequency, and the requirement for two at a box when work is performed. An additional and very important benefit to the elimination of below-ground boxes is the improvement of worker health and safety by eliminating the need to handle potentially contaminated water, and non-ergonomic work conditions. Obsolete Regulators: The criteria for this category is that there are no spare parts available, or parts are no longer approved for use on new installations, or a combination of poor performance and manufacturer availability. Low Pressure Districts: The failure of a low pressure district can have disastrous downstream impacts in the event of over-pressure protection failure. The outlets of these stations feed customers who may not have individual regulators at their meter sets. This additional line of defense is not present to protect customer piping. Double Boot-style Regulators: Stations with both operator and monitor boot-style regulators have a common failure mechanism as a result of debris in the gas stream. Replacement of one boot-style regulator with a non-boot regulator reduces the vulnerability of failure. Increased Capacity: Stations that are operating over designed capacity due to system growth are targeted for replacement to maintain gas supply. Loss of Containment: Station experiencing loss of containment (leaks) and high maintenance calls to repair equipment are also identified for replacement. Asset: District station assets Related Program: N/A	Fail	Distribution station condition related, IRPA not applicable
Head Office/All	**01 - All**	Distribution Stations	**Pass**	**744882**	2034 District Station Rebuilds Program	**2034**	$	7,105,372	Issue/Concern: The stations identified in this business case fall into one of the following categories: Below-ground box replacements: Removal of below-ground stations improves life cycle cost of stations due to accelerated corrosion related to salting and flooding, increased O&M costs related to increased paint frequency, and the requirement for two at a box when work is performed. An additional and very important benefit to the elimination of below-ground boxes is the improvement of worker health and safety by eliminating the need to handle potentially contaminated water, and non-ergonomic work conditions. Obsolete Regulators: The criteria for this category is that there are no spare parts available, or parts are no longer approved for use on new installations, or a combination of poor performance and manufacturer availability. Low Pressure Districts: The failure of a low pressure district can have disastrous downstream impacts in the event of over-pressure protection failure. The outlets of these stations feed customers who may not have individual regulators at their meter sets. This additional line of defense is not present to protect customer piping. Double Boot-style Regulators: Stations with both operator and monitor boot-style regulators have a common failure mechanism as a result of debris in the gas stream. Replacement of one boot-style regulator with a non-boot regulator reduces the vulnerability of failure. Increased Capacity: Stations that are operating over designed capacity due to system growth are targeted for replacement to maintain gas supply. Loss of Containment: Station experiencing loss of containment (leaks) and high maintenance calls to repair equipment are also identified for replacement. Asset: District station assets Related Program: N/A	Fail	Distribution station condition related, IRPA not applicable
Head Office/All	**01 - All**	Distribution Stations	**Pass**	**734308**	2032 District Station Rebuilds Program	**2032**	$	7,094,748	Issue/Concern: The stations identified in this business case fall into one of the following categories: Below-ground box replacements: Removal of below-ground stations improves life cycle cost of stations due to accelerated corrosion related to salting and flooding, increased O&M costs related to increased paint frequency, and the requirement for two at a box when work is performed. An additional and very important benefit to the elimination of below-ground boxes is the improvement of worker health and safety by eliminating the need to handle potentially contaminated water, and non-ergonomic work conditions. Obsolete Regulators: The criteria for this category is that there are no spare parts available, or parts are no longer approved for use on new installations, or a combination of poor performance and manufacturer availability. Low Pressure Districts: The failure of a low pressure district can have disastrous downstream impacts in the event of over-pressure protection failure. The outlets of these stations feed customers who may not have individual regulators at their meter sets. This additional line of defense is not present to protect customer piping. Double Boot-style Regulators: Stations with both operator and monitor boot-style regulators have a common failure mechanism as a result of debris in the gas stream. Replacement of one boot-style regulator with a non-boot regulator reduces the vulnerability of failure. Increased Capacity: Stations that are operating over designed capacity due to system growth are targeted for replacement to maintain gas supply. Loss of Containment: Station experiencing loss of containment (leaks) and high maintenance calls to repair equipment are also identified for replacement. Asset: District station assets Related Program: N/A	Fail	Distribution station condition related, IRPA not applicable
Head Office/All	**01 - All**	Distribution Stations	**Pass**	**101556**	2029 District Station Rebuilds Program	**2029**	$	7,082,642	Issue/Concern: The stations identified in this business case fall into one of the following categories: Below-ground box replacements: Removal of below-ground stations improves life cycle cost of stations due to accelerated corrosion related to salting and flooding, increased O&M costs related to increased paint frequency, and the requirement for two at a box when work is performed. An additional and very important benefit to the elimination of below-ground boxes is the improvement of worker health and safety by eliminating the need to handle potentially contaminated water, and non-ergonomic work conditions. Obsolete Regulators: The criteria for this category is that there are no spare parts available, or parts are no longer approved for use on new installations, or a combination of poor performance and manufacturer availability. Low Pressure Districts: The failure of a low pressure district can have disastrous downstream impacts in the event of over-pressure protection failure. The outlets of these stations feed customers who may not have individual regulators at their meter sets. This additional line of defense is not present to protect customer piping. Double Boot-style Regulators: Stations with both operator and monitor boot-style regulators have a common failure mechanism as a result of debris in the gas stream. Replacement of one boot-style regulator with a non-boot regulator reduces the vulnerability of failure. Increased Capacity: Stations that are operating over designed capacity due to system growth are targeted for replacement to maintain gas supply. Loss of Containment: Station experiencing loss of containment (leaks) and high maintenance calls to repair equipment are also identified for replacement. Asset: District station assets Related Program: N/A	Fail	Distribution station condition related, IRPA not applicable
Head Office/All	**01 - All**	Distribution Stations	**Pass**	**101557**	2030 District Station Rebuilds Program	**2030**	$	7,082,365	Issue/Concern: The stations identified in this business case fall into one of the following categories: Below-ground box replacements: Removal of below-ground stations improves life cycle cost of stations due to accelerated corrosion related to salting and flooding, increased O&M costs related to increased paint frequency, and the requirement for two at a box when work is performed. An additional and very important benefit to the elimination of below-ground boxes is the improvement of worker health and safety by eliminating the need to handle potentially contaminated water, and non-ergonomic work conditions. Obsolete Regulators: The criteria for this category is that there are no spare parts available, or parts are no longer approved for use on new installations, or a combination of poor performance and manufacturer availability. Low Pressure Districts: The failure of a low pressure district can have disastrous downstream impacts in the event of over-pressure protection failure. The outlets of these stations feed customers who may not have individual regulators at their meter sets. This additional line of defense is not present to protect customer piping. Double Boot-style Regulators: Stations with both operator and monitor boot-style regulators have a common failure mechanism as a result of debris in the gas stream. Replacement of one boot-style regulator with a non-boot regulator reduces the vulnerability of failure. Increased Capacity: Stations that are operating over designed capacity due to system growth are targeted for replacement to maintain gas supply. Loss of Containment: Station experiencing loss of containment (leaks) and high maintenance calls to repair equipment are also identified for replacement. Asset: District station assets Related Program: N/A	Fail	Distribution station condition related, IRPA not applicable
GTA West	**20 - Mississauga**	Distribution Stations	**Pass**	**503369**	Lisgar Station	**2025**	$	6,879,664	Issue/Concern/Opportunity: The Lisgar Gate Station is located at a highly populated area in the City of Mississauga. The station is situated in an urban setting and is surrounded by residential buildings, a commercial plaza, and a church. The station has multiple feeds (two transmission lines and one XHP CER line) and various outlets to the local distribution networks. In the event of a major incident, the consequence would be significant given the close proximity to houses and buildings. Justification: The following issues and deficiencies have been identified: Heating: The Heating system has been deemed unreliable as it has reached its end-of-life cycle usage. The placement of the heat exchangers in the basement of the Boiler building has caused maintenance roadblocks along with flooding concerns. Only heating issue will be part of this project. Scope has been split based on the critical urgency level and was agreed with operations team. Assets: Distribution Station Assets at the Lisgar Gate Station. Related Program: AFF - 219 - NPS 24 Lisgar to Pine Valley - permanent launcher support (23192)	Fail	Distribution station condition related, IRPA not applicable

GTA West	**20 - Mississauga**	Distribution Stations	**Pass**	**735335**	GTAW Parkway Gate Station Rebuild Phase 2	**2025**	$	6,146,934	Project: Parkway East Phase 2. Phase 1 commenced in 2021. Issue/Concern/Opportunity: The following sub-assets will be rebuilt due to the issues described below: Regulators: Two existing Becker control valves, i.e., NPS-8 and NPS-6 downstream operators – PRV-0502 and PRV-0504, Runs 9 and 10 on TC Energy feed (quantity is two) are defective and will not lock up; therefore, replacement is required. Currently, the inlet valve from the TC Energy feed is used to completely shut off the TC Energy feed; otherwise, the control valves will bleed by and affect nominations in the summer, automated TC Energy inlet valve for emergency shutoff from TC Energy, as well as to ensure inlet valve is closed to avoid bleed by of Becker control valves in summer conditions (CLOSE ONLY VALVE). Flow control valves on the TC Energy feed are Fairchild's (will replace with DNGPs – RUNS 9/10) not a computer-controlled regulator and do not sense downstream pressure. Isolation valves for each run are operational. DNGP should also replace Fairchild for 12-inch Union East – CV replacement (12-inch closest to Boiler building - RUN 1); 4th Fairchild is on the MSL – not required – disconnect and replace with VRP pilot (pressure control only due to downstream system operation). The station can be down to facilitate work as system can be fed from Parkway West. An additional five Jordan motors that are obsolete are to be replaced with Rotork motors (quantity is five). Due to capacity constraints and designing for future flow provided by Distribution Optimization Engineering (DOE) / TSP, Run 1 T4 Becker is to be replaced with T1 Becker (NPS 12). Run 3 has undersized isolation valves (currently NPS 8) and will need upsizing to NPS 16. Civil: There is no urethane layer between the pipe support cradle and the bottom of the pipe. A single new Odourant building is required. The wall between the Pressure Transmitter and Remote Terminal Unit (RTU) room is to be opened up for entire building to be RTU room. Demolition of existing Generator building is required. The Storage building is to be removed due to end of life. Piping & Valves: An increase in pipe size near heaters to NPS 30 along with inlet/outlet HX valves to ensure flow requirements can be achieved. Upsizing downstream header and inlet pipe to regulators to NPS 30 is required to ensure it can handle capacity requirements. Odourant: The Odourant system is a metallic odourant building without adequate containment with a rusted containment pan. The fill connection is outdoors. Supports are not fire-rated and no Fire Suppression system is installed. Grating within the building is not safe for accessing valves and equipment. A new Odourant building is required. Two 5,000 GAL odourant tanks complete with electric pumps are to be installed. Low-flow and high-flow pumps with full redundancy on winter pumps on each outlet are required. Switchover between pumps should be automated.	Fail	Distribution station condition related, IRPA not applicable
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Pass**	**735045**	HAMI: KIRKWALL/DOMINION, Full Rebuild	**2033**	$	6,056,022	Issue/Concern/Opportunity: Noise issues This site has received numerous noise complaints and odour from residents in the area. Constant bleeds on the control valves are causing the odour complaints. Consider Becker below grade ball valve station with no bleed pilots and DNGP for any needed flow control/pressure control. Fisher control valves are not a good option as they come with high O&M annual spend to operate and maintain. VALVE & PIPING: Most valves becoming difficult to turn even with greasing. Many position indicators on tops of valves have fallen off due to ongoing corrosion. FILTRATION: Filter decent shape – gas is dry and clean HEATING: System is in constant state of repair and boiler age is old. A lot of corrsosion on the glycol piping. There is not proper containement for the heat exchanger. Current system used all un-odourized gas inside. PRESSURE CONTROL: Control valves needs support from Lakeside Controls to perfrom annual Operations ODOURIZATION: MOis system (older vintage) room is very tight to get all assets inside the cabinet and room. Odourant cabinet in poor condition. No fire suppression system installed on odourant. TELEMETRY & ELECTRICAL: Back up generator in decent shape. Electrical panels in poor shape and not properly labelled. All building do not have any methane detection or CO detection in boiler rooms. MEASUREMENT . COMPLIANCE & OTHER Eng: Turbine meter is in decent shape and is used for process control only. Buildings are old and in declining condition. One is brick façade and the others are metal buildings. Fencing in decent shape. Gates droop in the winter and would be better to go to the sliding gate standard. Consider adding swipe card access to compound and buildings to meet corporate security standards to compound and buildings. There is not a containment area for any chemicals being stored on site. Ancaster Gate South is inside compound and is also in similar condition to Kirkwall-Dominion. There is supposed to be a pig launcher added to this site. Update 2024: 16W-606: Kirkwall/Dominion station requires a full boiler rebuild and regulation upgrade. Boiler is completely outdated increasing concerns related to maintenance and proper operation. Filter on station has not been replaced increasing the risk of malfunction and creating maintenance issues. Regulators were changed around 5 years ago. Station is located in residential area with increase reports of noise issues. The control valves are outdated and constantly release gas to the atmosphere. The odorization tank being less than 30ft from the control valves make the smell of gas very strong for the residents around the station. Since STN# 16W-603 Acaster South Gate is in the same complex it is recommended to work on modifications of both stations at the same time.	Fail	Distribution station condition related, IRPA not applicable
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Pass**	**735038**	HAMI: 18W-603, Hamilton Takeoff & Carlisle Gate, Rebuild	**2033**	$	6,056,022	18W-603: Distribution station feeding Hamilton Gate 1 and 2. This is the main feeder to city of Hamilton with more than 10k connections. Station is equipped with Wizard control valves which require a specialized operator and equipment to be inspected in house. For that reason, third party inspection is required making its inspection very costly. Due to the increase cost this inspection is not carried as regularly as other stations. This station also has a very outdated RTU with no back up power. One main concern with power outage is the risk of odorizer shut down. This is the only odorization point for gas flowing downstream of Ham Gate 1 & 2. Due to the high differential pressure and being only single cut the control valves constantly release gas to the atmosphere. One less concerning issue in this station is the reliability of the heating system not operating when needed.	Fail	Distribution station condition related, IRPA not applicable
GTA West	**30 - Richmond Hill**	Distribution Stations	**Pass**	**3614**	BOND HEAD GATE	**2027**	$	5,760,447	Bond Head Gate Station is located on EGI-owned property of approximately 1,900 m2 fenced compound in the village of Bond Head, Ontario, approximately 8.5 km west of Bradford Ontario, within a rural area, in close proximity to several homes. This station accepts natural gas from TC Energy and provides supply to two separate XHP networks and one IP network, through components within the measurement system, pressure control system, heating system, odourant system, and telemetry system. This station supplies natural gas to approximately 60,000 customers in the Alliston, Orangeville, Bradford, and northern York Region. The following issues have been identified at this station: Compliance: An engineering assessment of the site layout has identified a conflict with the location of the Telemetry or Boiler buildings with respect to the Electrical Safety Authority (ESA) Area Classification requirements which has identified that an ignition source is in close proximity to a potential leak source, as defined within the Electrical Codes and Standards. Valves & Piping: The existing valves at this site have experienced issues in performance and operation of the valves. Maintenance has been performed to attempt to remediate the valves; however, the valves have deteriorated to the point where the reliability is no longer acceptable. Measurement: The current Turbine meter does not provide measurement of the individual outlet supplies. Visibility to each outlet supply provides greater redundancy to the existing measurement and improved response capabilities. As well, failures have been experienced over the past year including complete meter failure and jamming. Station has a backup orifice plate meter, which has experienced several alarms. Heating: The existing boilers at this site are approaching 20 years old, they have had 10 trouble call/failures over the recent years, including failures of the motors and pumps, burner lock-outs and exchanger failures. Due to recent and upcoming customer growth in the Bradford/York Region area, the existing heating system will not be capable of supplying the heating requirements to meet the demand. Pressure Control: The regulation system is undersized and not capable of supplying the demand required to meet the customer growth in the Bradford/York Region area. The configuration of the existing regulators are double boot, posing an undesired higher risk and high associated ongoing maintenance costs. Odourization: The odourant system was installed in 2003. The current configuration of the odourant system does not ensure adequate containment of the odourant product in the event of a leak and does not meet the current engineering standards and approvals.	Fail	Distribution station condition related, IRPA not applicable
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Pass**	**1147**	KEELE AND FINCH FEEDER	**2026**	$	5,661,125	Issue/Concern: The Keele and Finch Feeder station is adjacent to a transit station (subway) and there are electric transmission towers nearby. Due to transit upgrades, this project was deferred for many years. The subsystem issues are described below. Pipe, Valves & Others: Updated Mechanical Piping is required for this station. The isolation valves for the pressure control are hard to turn. The pressure control stations inlet/outlet valves are seized. Heating System: The Heating system is aging and an update is required at this station. Pressure Control: This station has four boot-style regulators that are undersized and require replacement. Odourant System: Not required.	Fail	Distribution station condition related, IRPA not applicable
Southwest	**Div_03 - Sarnia**	Distribution Stations	**Pass**	**734697**	SARN: 13F-503 Churchill Rd. Trans Stn	**2028**	$	5,356,177	Issue/Concern/Opportunity: Aging heater is a concern related to the reliable and safe delivery of natural gas. The heating system components ensure that gas temperatures within the distribution system remain above a site-specific targeted setpoint, as the reduction in temperature caused by pressure regulation can have detrimental effects on equipment performance. Loss of Heating System Function: Loss of the heating system function could result in two scenarios, (1) frost heave or (2) pressure control failure due to the freezing of station components. Frost heave occurs when the gas is cooled due to the pressure reduction and causes an upward swelling of soil around public or private property near the gas main. Freezing of station components such as creating large ice buildup around valves can prevent operation if gas isolation is required. This could result in the loss of pressure control and potentially lead to an overpressure or underpressure situation. The financial impact includes commodity loss, service disruptions, increased network leak surveys and system checks, repairs or replacement of company-owned property, or damages caused to public, commercial or industrial property. Inoperable systems will lead to a failure to maintain operational supply to customers. Justification: Heater replacement is required. Assets: 13F-503 Related Investments: INV CODE 734670 NOTE: This project could potentially be combined with Sarnia Industrial Station rebuild (under inv code noted above). If not, it will be a separate project for the heater replacement only. The execution and design team will evaluate the options closer to the execution year.	Fail	Distribution station condition related, IRPA not applicable

Southwest	**Div_01 - Windsor**	Distribution Stations	**Pass**	**502429**	WIND-03D-301 Leamington North Gate Station (2024:ISD Ph1)	**2025**	$	5,227,829	Issue/Concern: The Gate & Feeder Station Replacement Program manages the proactive replacement of component groups with the highest probability of failure, non-compliant assets, and the realization of opportunities for multiple component group replacements per station location as required. The Leamington North Gate station has obsolete heating equipment and there are two boilers (circa 1985) that are problematic and have experienced glycol containment issues. The boiler controls have malfunctioned several times over the last 2/3 years. The station piping presents ergonomic concerns as some sections are at ankle height. This Investment will deal with the Heating equipment. Investment # 743287 will consist of the remaining rebuild. Justification: Rebuild the station at the existing site; build a new IP station at a new location (essentially breaking the station into two new stations). Region will complete the IP portion of the station rebuild. Assets: 03D-301 Leamington North Gate Related Programs: N/A	Fail	Distribution station condition related, IRPA not applicable
Northern & Eastern	**60 - Ottawa**	Distribution Stations	**Pass**	**7751**	KEMPTVILLE GATE	**2028**	$	4,713,923	Kemptville Gate Station is located on EGI-owned property of approximately 2,825 m2 fenced compound in the Municipality of North Grenville, Ontario, approximately 37 km south of Ottawa, within a rural area. This station accepts natural gas from third party supplier and provides supply to XHP networks, through components within the Measurement system, Pressure Control system , Heating system, Odourant system, and Telemetry system. This station supplies natural gas to approximately 3,256 customers in the Kemptville area. The following issues have been identified at this station: Pipe, Valves & Others: The existing valves at this site have experienced issues in performance and operation. Maintenance has been performed to attempt to remediate the valves; however, the valves have deteriorated to the point where the reliability is no longer acceptable. Heating: The existing boilers at this site are 22 years old and have reached end of life based on condition review and performance. Pressure Control: The Regulation system is installed within a building currently in disrepair with several leaks. The operator and monitor regulators are both double-boot style regulators and are both susceptible to boot failure should they be exposed to significant debris in the system. Repairs have been made where possible but the building continues to deteriorate. Also, the working space inside the building produces an ergonomic/safety risk to EGI employees. This will require addition of filtration or regulation replacement. Furthermore, a new building will be required to address safety/ergonomic issues at the station. Odourization: The building has containment but does not meet current standards. There are no issues with the current system. Telemetry & Electrical: The Telemetry and Electrical systems do not meet current EGI standards, do not contain backup power supply in the event of power loss, and are approaching end of useful life. The existing Remote Terminal Unit (RTU) is obsolete and is required to be upgraded to current standards along with new communications equipment in order to mitigate cybersecurity threats.	Fail	Distribution station condition related, IRPA not applicable
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Pass**	**503183**	Albion Feeder Station Control Valve Upgrade	**2025**	$	4,483,395	At Albion Gate, valve F54201D controls the flow rate from the EGT line the Kings North outlet. All gas flowing must pass through the valve; there is no bypass, isolation, or redundancy included in the existing design. If this valve (F54201D) failed (and required maintenance), the inlet to both the EGI system and third party supplier outlets would be affected. The original purpose of the valve was to control flow of third party supplier contractual limit when flows on the EGT line were at their peaks. This control would guarantee the inlet pressure to the station feeding the EGI XHP systems which would be sufficient during peak operations. It was expected that this valve would be primarily 100% open and only be in service on the coldest of high-market demand days. Utilization was expected to be less than 10% of the winter days. In the winter period November 1, 2020 to February 25, 2021, the valve had been less than 100% open, 50% of the time (1407 hours / 2788 hours – source SCADA). Gas Control has utilized this valve more often for two purposes: (1) to carry higher pressure to Albion Gate for the distribution station; and (2) to maintain the operation of Parkway West compression within tolerances. Parkway West compressors are each 40,000 HP plus units. For the units to operate in their limited emission mode, both the volume pumped by the compressor and the lift across the compressor must be maintained within specific ranges. Using F54201D at Albion to limit flow to third party supplier allows the EGT line to act as a buffer for the compression. Compression volumes and lift can be maintained by operating the EGT line at higher pressure on warmer days. Risks: With no bypass and a single valve, a failure of the valve to open when needed will not allow EGI to deliver contracted quantities. Although this station rarely operates in summer months, summer would be the only time to work on the valve controls. Recommendation: Identify the appropriate design for the control valve feeding third party supplier Kings North that will meet EGI's control, bypass, and maintenance requirements.	Fail	Distribution station condition related, IRPA not applicable
Southwest	**Div_04 - London**	Distribution Stations	**Pass**	**734674**	LOND: 14O-503R Highbury and Cheapside Dist Stn	**2034**	$	4,468,785	Issue/Concern/Opportunity: The station has obsolete regulators (Grove regulators) where replacement parts are no longer available. In the event of a failure, no replacement parts are available. In addition, the station is receving liquids and only has a dry gas filter installed. There are concerns with the potential of liquids entering the pressure control equipment and potentially impacting the performance of these assets. There is a single bypass valve that does not meet the current design standards and could impact manual bypass operations. The site has a large pressure drop and heat is required to prevent heaving. Justification: Complete station rebuild is required. Assets: 14O-503R Related Investments: Not applicable.	Fail	Distribution station condition related, IRPA not applicable
GTA East & Toronto	**40 - Whitby**	Distribution Stations	**Pass**	**7749**	BOWMANVILLE GATE	**2027**	$	4,174,491	Issue/Concern: Bowmanville Gate Station is located on fenced EGI-owned property of approximately 700 m2 in Clarington, Ontario. It is approximately 5 km north of Newcastle Ontario, within a rural area. This station accepts natural gas from third party supplier and provides supply to two separate XHP networks, through a measurement system, pressure control system, gas pre-heat system, odourant injection system, and telemetry and controls system. This station supplies natural gas to approximately 61,000 customers in an area that spans from Bowmanville to Lindsay. The following issues have been identified at this station: Valves and Piping: The existing valves at this site have experienced issues in performance and operation of the valves. Maintenance has been performed to attempt to remediate the valves; however, the valves have deteriorated to the point where the reliability is no longer acceptable. The inlet piping to the heat exchanger shows signs of deterioration and should be replaced. The station is located close to Hwy 35/115 and its proximity to traffic puts it at a higher risk. The piping is to be relocated away from the road, as far as practical. Measurement: The current system does not provide measurement of the individual outlet supplies. Visibility to each outlet supply provides redundancy to the existing measurement, odourant injection reliability, and improved response capabilities. The turbine meter is to be replaced with a Coriolis meter. Heating: The existing boilers at this site are 18 years old, they have had 42 trouble call/failures over the life of the heating system, including failures of the motors and pumps, burner lock-outs and exchanger failures. The system, including buildings, will require replacement as it approaches end of life. Odourization: The odourant system was installed in 1999. The current configuration of the odourant system does not ensure adequate containment of the odourant product in the event of a leak and does not meet the current engineering standards and approvals. The building is an old-style, rusted metallic odourant building without adequate containment and a new building, tank, and Odourant Injection system will be required. Telemetry and Electrical: The existing Electrical system does not meet current EGI electrical installation standards. This poses a potential electrical hazard and faulty wiring may result in lost communications. Other: Odourant deliveries - a third-party company is used for traffic control during deliveries. Additional land, not included in this business case, may be identified under a separate business case for station expansion to improve safety during odourant deliveries off of Hwy 35/115.	Fail	Distribution station condition related, IRPA not applicable
Southwest	**Div_01 - Windsor**	Distribution Stations	**Pass**	**48291**	WIND: Plan(T)-Dist-Stn Measuring/Corrosion Stn	**2025**	$	4,116,512	Issue/Concern: Station Blankets - Spend is also allocated to each region to ensure they have capital available for unforeseen maintenance challenges. These challenges can be leaks or failures that require short turnaround times for remediation, particularly if there has not been a specific project identified for affected assets. Assets (2021): 04A-505I 111 Arnaud (733501), 06A-501C ADM#1 (733395), 06B-528I Coco Paving (502552), 08F-601 Dover Center (502550), 06B-607I Ford/Nemak (502549), 05A-601 Front & Malden (501512), 06B-101I Hiram Walker (503522), 07J-371 Howard & Mitton Line (503666), 03D-212C JEM Farms (503737), 04D-602 Mersea Gate (733495), 07J-401 Mull Gate (502461), 07K-405 Pegg LA (733698), Regulator Replacements (503638), 06A-612R Sunset Distribution (502551), 04D-102R Talbot & Clark (501511), 03R-104C Thiessen Flower Shop (503011), 07G-507C Truly Green (503665), 05A-309R Lasalle Gate (735790), 07G-631R St. Andrews Terrace (735789) Related Program: N/A	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**60 - Ottawa**	Distribution Stations	**Pass**	**3455**	Harmer District Station	**2028**	$	4,039,023	Issue/Concern: EGI has a high pressure (HP) to intermediate pressure (IP) district station located inside a building. The regulator station is located in the garage of a house and is not to current EGI standards. The station is located close to a school, hospital, shopping complex, and dense residential population. The Integrity team is planning an inline inspection of the Vital NPS 12 (Network 6582) and additional space is required for a receiver. Assets: Station# 6B005A Related Program(s): N/A	Fail	Distribution station condition related, IRPA not applicable

Southwest	**Div_04 - London**	Distribution Stations	**Pass**	**734695**	LOND: 15Q-603 Customer Transmission Station, Heater Replacement	**2027**	$	3,737,024	Issue/Concern/Opportunity: Heater age (per integrity) is a concern. Loss of Heating System Function: Loss of the heating system function could result in two scenarios, (1) frost heave or (2) pressure control failure due to the freezing of station components. Frost heave occurs when the gas is cooled due to the pressure reduction and causes an upward swelling of soil around public or private property near the gas main. Freezing of station components such as creating large ice buildup around valves can prevent operation if gas isolation is required. This could result in the loss of pressure control and potentially lead to an overpressure or underpressure situation. The financial impact includes commodity loss, service disruptions, increased network leak surveys and system checks, repairs or replacement of company-owned property, or damages caused to public, commercial or industrial property. Inoperable systems will lead to a failure to maintain operational supply to customers. FIMP will assess the site closer to execution to determine if additional components require replacement. Assets: 15Q-603 Related Investments: Not applicable.	Fail	Distribution station condition related, IRPA not applicable
Southeast	**80 - Niagara**	Distribution Stations	**Pass**	**3620**	MOUNTAIN RD GATE	**2029**	$	3,667,208	Mountain Road Gate Station is located on EGI-owned property of approximately 1,800 m2 in a fenced compound in Niagara Falls, Ontario, approximately 10 km from Niagara Falls, within a rural/urban area. This station accepts natural gas from TC Energy and provides supply to one NPS 12 XHP network (Glendale), one NPS 12 HP network (Dorchester), and one NPS 8 IP network (Lundy's Lane). The gate station includes a measurement system, pressure control system, heating system, odourant system, and telemetry system. This station supplies natural gas to approximately 85,700 customers in the Niagara region. The following issues have been identified at this station: Valves & Piping: Valve actuators have been installed on the outlet valves and on the heat exchanger isolation and bypass valves, but programming is required to control the actuators with the Remote Terminal Unit (RTU). Valves are functioning well but are all original valves that were installed during the installation of the gate station (approximately 30 years) and may need to be replaced due to age. Measurement: The inlet is metered by a relatively new NPS 12 ultrasonic meter (approximately 10 years). The current system does not provide measurement of the individual outlet supplies. Visibility to each outlet supply provides greater redundancy to the existing measurement and improved response capabilities. Outlet metering is to be connected to SCADA and visible to the Gas Control group. Heating: Three existing boilers at this site are old boilers that are approximately 20 years old. They have had 10 trouble call/failures over the recent years, including failures of the motors and pumps, burner lock-outs and exchanger failures. The existing heat exchanger was installed in 1995 and will be at end of life by the rebuild date. Due to recent and upcoming customer growth in the Niagara Falls area, the existing heating system will not be capable of supplying the heating requirements to meet the demand. Fuel gas station to the boilers is metered but conversion of the generator from diesel to natural gas will require it to be upsized. Pressure Control: The configuration of the existing regulators are all boot-style regulators, posing an undesired higher risk and high associated ongoing maintenance costs. The regulators will have to be replaced. In addition, an upstream filter should be installed. Odourization: The odourant injection system is a combination of Link and Wilroy pumps which are located in a separate building from the tank. The Pump building has no containment if a leak is experienced. The tank sits in a metallic odourant building without adequate containment which will have to be replaced with a functional building with proper containment, and ancillary equipment including fire suppression and gas detection. The current configuration of the odourant system does not meet the current engineering standards and approvals. The odourant package should be replaced.	Fail	Distribution station condition related, IRPA not applicable
GTA West	**30 - Richmond Hill**	Distribution Stations	**Pass**	**7769**	KEELE AND STEELES/CNR FEEDER	**2027**	$	3,574,301	Keele and Steeles/CNR Feeder Station is located on 3,000 m2 compound in the city of Vaughan, Ontario, approximately 1.5 km from York University, within an urban area in close proximity to CNR Railway Corridor. This station accepts natural gas from EGI XHP pipeline and provides supply to three separate XHP networks and an HP network, through components within the Pressure Control system, Heating system, Odourant system, and Telemetry system. This station supplies natural gas to approximately 20,000 customers in Vaughan and Toronto area. The following issues have been identified at this station: Valve & Piping: the existing valves at this site have experienced 10 failures and leak issues in performance and operation of the valves. Maintenance has been performed to attempt to remediate the valves; however, the valves have deteriorated to the point where the reliability is no longer acceptable. Pressure Control: The configuration of the existing regulators was installed in 1990 and is double boot, posing an undesired higher risk and high associated ongoing maintenance costs. The existing regulators have reached end of life. Telemetry & Electrical: Grounding system should be reviewed and upgraded if necessary. Back up generator is on site but is not connected. Generator needs to be commissioned.	Fail	Distribution station condition related, IRPA not applicable
GTA West	**30 - Richmond Hill**	Distribution Stations	**Pass**	**7753**	NOBLETON GATE	**2028**	$	3,445,272	Issue/Concern: Nobleton Gate Station is located on a fenced, EGI-owned property of approximately 1,000 m2 in the City of Vaughan, Ontario, approximately 3 km from the Town of Nobleton, within a rural area. This station accepts natural gas from third party supplier and provides supply to an XHP network, with a Measurement system, Pressure Control system, Heating system, Odourant system, and a Telemetry and Controls system. This station supplies natural gas to approximately 1,800 customers in the Bolton and King City areas. The following issues have been identified at this station: Compliance: An engineering assessment of the site layout has identified a conflict with the location of the Telemetry and Boiler buildings with respect to the Electrical Safety Authority (ESA) area classification requirements, which have identified that an ignition source is in close proximity to a potential leak source, as defined within the Electrical Codes and Standards. Additional property will be required to remediate the area classification issue. Measurement: Gas measurement is completed using a turbine meter installed in 2004. This meter type has experienced failures causing potential downstream impacts and loss of service to customers. This meter has experienced six failures in the past two years, due to leaks and faulty measurement. A new mass flow meter will be installed to replace the turbine meter and a backup outlet Annubar meter will also be installed. Heating: The existing boilers at this site are 14 years old. They have had three trouble call/failures over the past year including failures of the motors and pumps, burner lock-outs and exchanger failures. The boilers, building, and glycol piping require replacement as they will be 20 years old by the target rebuild date. The heat exchanger is not expected to be replaced but inspection is to be included. Pressure Control: The regulators are the original regulators installed when the station was first commissioned. In 2001, a building was installed over them to improve maintenance and operation. The regulators have experienced 29 trouble calls/failures in the time period including leaks, boot failures, and pilot failures. Both monitor and operator runs are boot-style regulators, which poses an undesired higher risk and high associated ongoing maintenance costs. Odourization: The odourant system was installed in 2004 with the injection system installed in 2009. The current configuration of the odourant system does not ensure adequate containment of the odourant product in the event of a leak and does not meet the current engineering standards and approvals. The panel will have to be relocated into a new building with a larger new tank. Upgrade of odourant system (condition of containment and unsafe grating in the building for access) is to be included in refreshed scope – 500 GAL odourant system. A new Odourant building is required including new concrete foundation. Building is to be equipped with all electrical requirements. Building is to be equipped with new steel platform for Operations and Maintenance (O&M) activities including delivery. New sight, glass radar gauge equipment must be provided. Scope is to account for	Fail	Distribution station condition related, IRPA not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Pass**	**739088**	Enterprise Security Management Program DS and STO Sites	**2027**	$	3,377,985	Issue/Concern/Opportunity: Various DS and STO stations including some customer Stations are compliant with an internal Enterprise security program. This investment will require security upgrades to the 23 sites and include security camera's, perimeter locks, signage, 24/7 monitoring, PM and construction services. In addition, a central server, monitoring center will be included in this initiative. Justification: A threat assessment has been completed and the recommendation is to upgrade the security at these specific sites. Assets: Critical STO and DS sites. Related Investments: N/A	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**60 - Ottawa**	Distribution Stations	**Pass**	**3622**	SUMMERSTOWN GATE	**2026**	$	3,130,057	Summerstown Gate Station is located on EGI-owned property of approximately 1,000 m2 fenced compound in South Glengarry Township, Ontario, approximately 16 km from Cornwall, Ontario, within a rural area. This station accepts natural gas from TC Energy and provides supply to an XHP network, through components within the measurement system, pressure control system, heating system, odourant system, and telemetry system. This station feeds 265 customers. The following issues have been identified at this station: Valves & Piping: The existing valves at this site have experienced issues in performance and operation of the valves. Maintenance has been performed to attempt to remediate the valves; however, the valves have deteriorated to the point where the reliability is no longer acceptable. The existing inlet and bypass valves are flange by flange and have experienced leaks through these flanges. Flanged valves on the station inlets are more prone to leaks and more difficult to repair. Odourization: The odourant system was installed in 1998. The current configuration of the odourant system does not ensure adequate containment of the odourant product in the event of a leak and does not meet the current engineering standards and approvals. Telemetry & Electrical: The existing electrical system does not meet current EGI electrical installation standards. This poses a potential electrical hazard and faulty wiring may result in lost communications. Tower: Tower is to be removed as it is not required for SCADA communications.	Fail	Distribution station condition related, IRPA not applicable
Head Office/All	**01 - All**	Distribution Stations	**Pass**	**9553**	NGT Maintenance Capital for company/fleet NG refueling stations (2021 to 2032)	**2025**	$	3,093,039	Maintenance capital for refueling stations for EGD NGT Fueling stations only Issue/concern: The EGD Fleet department can achieve fuel cost savings and reduced emission benefits by operating the 800-plus fleet vehicles on natural gas versus diesel or gasoline. This presents an opportunity for the EGD Fleet Department to realize fuel savings and promotes the use of natural gas to other fleet operators as an alternate source for fueling vehicles at a lower cost with lower emissions. By demonstrating the use of natural gas, EGD can achieve growth in the marketplace, while realizing fuel savings. Assets: EGD currently operates 19 Natural Gas Vehicle (NGV) fueling stations on company yards. The stations includes; Arnprior Yard, Barrie Yard, Beamsville Yard, Thorold Office, Brampton, Brockvill yard, Ottawa Office, Kelfield yard, Kennedy Road Yard, Midland Gate Station, Oshawa Office, Port Colbourne Yard, Peterborough yard, Shelburne Gate Station, South Merivall, Station B, Stayner Gate Station, Enbridge Training Centre, and the VPC Office. In addition, EGD will installing two new NGT stations to fuel recently converted vehicles and dedicated light duty trucks. These two new stations (Tecumseh Storage facility and Tallman Truck Center (Kemptville)) will also, need to be maintained. Related Program: N/A	Fail	See investment description, IRPAs not applicable

Southwest	**Div_03 - Sarnia**	Distribution Stations	**Pass**	**734683**	SARN: 12F-205 Novacor Moore Trans	**2028**	$	2,823,129	Issue/Concern/Opportunity: The heater short cycles and there are visible condition issues. The regulators' design is insufficient causing operational concerns and will be redesigned in this project to meet current standards. Justification: Complete rebuild is required. Assets: 12F-205 Related Investments: Not applicable.	Fail	Distribution station condition related, IRPA not applicable
Southwest	**Div_01 - Windsor**	Distribution Stations	**Pass**	**101626**	WIND - 05A-203 LaSalle Boismier Ave - Heater replacement	**2026**	$	2,815,363	Issue/Concern/Opportunity: Heater controls are located within the hazardous area and are not rated to be within this zone. There is obsolete heating equipment; BS&B style heater that is on the risk register is to be replaced. Justification: Station needs to be rebuilt with new CWT 770. Potential requirement for additional land. Assets: 05A-203 LaSalle Boismier Ave. Related Investments: Not applicable.	Fail	Distribution station condition related, IRPA not applicable
GTA West	**50 - Barrie**	Distribution Stations	**Pass**	**7756**	RUGBY GATE	**2027**	$	2,783,866	Rugby Gate Station is located on EGI-owned property of approximately 1,350 m2 fenced compound in the Township of Oro-Medonte, Ontario, approximately 7 km from Orillia, within a rural area. This station accepts natural gas from third party supplier and provides supply to an XHP network, through components within the Measurement system, Pressure Control system , Heating system, Odourant system, and Telemetry system. This station supplies natural gas to approximately 20,000 customers in the Coldwater, Midland area. The following issues have been identified at this station: Measurement: The current system does not provide measurement of the individual outlet supplies. Visibility to each outlet supply provides greater redundancy to the existing measurement and improved response capabilities. Valve & Piping: The existing piping within this station have been assessed to be in poor corrosion condition with identified degradation of the piping. HEATING: the existing boilers at this site are 16 years old, they have had 5 trouble call/failures over the past year including failures of the motors and pumps, burner lock-outs and exchanger failures. Due to recent and upcoming customer growth in the Barrie area, the existing Heating system will not be capable of supplying the heating requirements to meet the demand. Odourization: The Odourant system was installed in 2003. The current configuration of the Odourant system does not ensure adequate containment of the odourant product in the event of a leak and does not meet the current engineering standards and approvals. Telemetry & Electrical: The existing Electrical system does not meet current EGI electrical installation standards. This poses a potential electrical hazard and faulty wiring may result in lost communications. Compliance: The existing Boiler building is located within a hazardous area and will have to be relocated.	Fail	Distribution station condition related, IRPA not applicable
Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Pass**	**100920**	TIMM: Hearst TBS, Rebuild	**2025**	$	2,740,998	Issue/Concern/Opportunity: According to a geological investigation completed on this station in 2021 it was determined that the existing facilities have undergone movements (frost heave, sinking, erosion) which have caused structural damages between the existing buildings and interconnecting pipeline facilities. The operations department also confirmed that heaving/ movements have been an ongoing issue at this station since it was rebuilt in 2004. There is a need to replace the station or remediate existing soil, due to extensive ground movement and assets. This site was constructed new in 2005 and experienced significant movement by 2008. The site has been reworked once already and now requires additional work. A cost analysis should be considered to compare reworking the existing site versus relocating the station. Assets: Station ID 41301001 Related Program: There are no related C55 investments.	Fail	Distribution station condition related, IRPA not applicable
Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Pass**	**734628**	TIMM: Smooth Rock Falls CMS, TBS, and DRS Relocations/Retirements	**2034**	$	2,723,489	Issue/Concern/Opportunity/Justification: Project may include modifications to whole town system. The project includes building new Town Border Station (TBS) at TC Energy. The existing Customer Meter Station (CMS) will be removed and the old TBS will be repurposed as Distribution Regulation Station (DRS). Scope is to be further defined in the future. Assets: Station #41501002 (TBS), 41501005 (CMS), 41502002 (DRS) Related Program: Not applicable.	Fail	Distribution station condition related, IRPA not applicable
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Pass**	**48400**	WATE: Plan(T)-Dist-Stn Measuring/Corrosion Stn	**2025**	$	2,689,631	Issue/Concern: Station Blankets - Spend is also allocated to each region to ensure they have capital available for unforeseen maintenance challenges. These challenges can be leaks or failures that require short turnaround times for remediation, particularly if there has not been a specific project identified for affected assets. Asset: System Station Assets Related Program: N/A 2023 Update: - Original 2023 Budget: $209,913 -$46,000 drawdown for Inv 739227 - Porcupine PCS Heater Repairs -$16,230 drawdown for Inv 740529 - 399A to EZR Conversion -$27,501 drawdown for INV 743573 -Coniston A leak repairs -$10500 drawdown for INV 743656 Lasalle TBS Heat trace Current Balance as of March 29, 2023: $147,683	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Pass**	**48577**	NBAY & SUDB: Plan(T)-Dist-Stn Measuring/Corrosion Stn	**2025**	$	2,539,329	Issue/Concern: Station Blankets - Spend is also allocated to each region to ensure they have capital available for unforeseen maintenance challenges. These challenges can be leaks or failures that require short turnaround times for remediation, particularly if there has not been a specific project identified for affected assets. THIS COVERS SUDB AS WELL. INV COLLAPSED INTO THIS PROGRAM. Asset: System Station Assets Related Program: N/A Related Investments: 741970 Englehart TBS fence repair $20,000 drawdown 8/9/23 742298 NE: Vale Clarabelle Thawshed Pilot Post $5078 drawdown 9/11/2023 742605 NE: Domtar SMS Fence repair 4080 Drawdown 9/20/2023 743238 NE:Vic Mine boiler replacement 33180 draw down 10/2/2023 743360 NE: Barnett gearbox replacement 2100 drawn down 10/11/2023 743512 NE: Parry Sound TBS Insulation 6900 drawn down 11/02/2023 743573 NE Coniston PCS A-leak repairs, 89,999 drawn down 11/22/2023 744059 NE: Lasalle TBS Insulation repair 8,767 drawn down 02/01/2024	Fail	See investment description, IRPAs not applicable
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Pass**	**48431**	HAMI: Plan(T)-Dist-Stn Measuring/Corrosion Stn	**2025**	$	2,511,537	Issue/Concern: Station Blankets - Spend is also allocated to each region to ensure they have capital available for unforeseen maintenance challenges. These challenges can be leaks or failures that require short turnaround times for remediation, particularly if there has not been a specific project identified for affected assets. Asset: System Station Assets Related Program: N/A	Fail	See investment description, IRPAs not applicable
GTA West	**Div_17 - Halton**	Distribution Stations	**Pass**	**739155**	HALT: Georgetown TBS Rebuild, 21X-401R	**2026**	$	2,490,139	Issue/Concern/Opportunity: Frost Heaving of outlet piping is resulting in damage to municipal roads. The station needs a heating system upgrade. In addition, a growth project had been scheduled in 2029 which would drive a station rebuild. Justification: Frost heave issue needs to be resolved so as not to damage municipal infrastructure. Because a full rebuild is forecasted for 2029 it is recommended that the rebuild be advanced to reduce the total expenditure in this asset over time. Asset - Georgetown TBS 21X-401R station rebuild was set for 2029 (HALT FBPSTN 2029_21X-401R).	Fail	Distribution station condition related, IRPA not applicable
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Pass**	**48504**	TBAY & TIMM: Plan(T)-Dist-Stn Measuring/Corrosion Stn	**2025**	$	2,428,521	Issue/Concern: Station Blankets - Spend is also allocated to each region to ensure they have capital available for unforeseen maintenance challenges. These challenges can be leaks or failures that require short turnaround times for remediation, particularly if there has not been a specific project identified for affected assets. Asset: System Station Assets Related Program: N/A	Fail	See investment description, IRPAs not applicable

GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Pass**	**734511**	Martin Grove Feeder Station - Rebuild Project	**2025**	$	2,372,298	"Pipe, Valves & Others: Updated Mechanical Piping is required for this station New Valve's,(NPS 24 outlet NPS 30) fittings and other associated materials. New Station Inlet required due to inlet valve not being able to seal. Valve needs to be replaced with piggable valve for 20-30% SYMS ILI capacity. Existing Isolation flange kit will need to be replaced as it is a below grade weld x flange connection, additionally valve has shown signs of leaks. Outlet (NPS 30) valve is not operable and needs to be replaced. Heating System: Updated heating is required at this station. This would be conventional Boiler System - The station to have a design capacity of 375,000 m3/hr, the station requires 4 MMBTU heat (currently has 2.5 MMBTU available) – replace 2 MMBTU with 3 MMBTU and 750,000 BTU with 1 MMBTU (modulating boilers) Existing boiler building is good condition. Spacing requirements for new boilers will need to be reviewed. Pressure Control: New Regulation required to various flow ranges. Only 8" Control Valve run is operating (4" run shut in as the station never runs low enough flow through the station to be operable and 12" has never been required as the 8" can handle all of the flow) Replacement of Control Valve's to be included in scope of work along with inlet/outlet valves and CV runs including Isolation Valves (Inlet & Outlet valve on each run do not seal) New sense lines need to be replaced. Old Copper lines present. Odorant System: Not Required Telemetry/Electrical: New Control Wave Micro unit required and associated connections. Isolation kit required on station outlet SSD Kit. Measurement: Annubar is sized correct. No requirement for replacement. Building: New RTU Building Required, Concrete Pre-Cast Building. Existing RTU building to be removed. Compliance/Civil: Site Grading will be required and new security Fencing (Galvanized) including new swing gate and crash bar access. Existing Lands fall under a Hydro One corridor. Limited structures will be approved. Potential Receiver barrel needs to be considered at this location from Launcher location of Audubon. "	Fail	Distribution station condition related, IRPA not applicable
Southwest	**Div_01 - Windsor**	Distribution Stations	**Pass**	**502699**	WIND - 05A-601 Front & Malden full rebuild	**2027**	$	2,370,253	Issue/Concern/Opportunity: Station freezes in winter so heater is required. Corrosion is significant on outlet riser. Land will be required to rebuild this station. Justification: Eliminate station freeze risk and remediate corrosion on riser. Assets: 05A-601 Related Investments: Not applicable.	Fail	Distribution station condition related, IRPA not applicable
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Pass**	**100918**	TBAY: 33-23-700 Arthur St TBS, Thunder Bay, Station Rebuild	**2027**	$	2,211,607	Issue/Concern/Opportunity: Based on 2021 Stations Engineering review, a full station rebuild is required including new inlet filter, ERX telemetry, and a CWT 1155. Station material estimate alone was $900,000. Alliance Partner. The most likely risk is regulation failure. The worst case scenario is significant system outage, as Thunder Bay North system backbone pipelines all lead to this station. Also, this station lies at the quadrant of a major MTO intersection. Assets: Station ID 30202014 Related Program: There are no related C55 investments.	Fail	Distribution station condition related, IRPA not applicable
Southwest	**Div_04 - London**	Distribution Stations	**Pass**	**48352**	LOND: Plan(T)-Dist-Stn Measuring/Corrosion Stn	**2025**	$	2,146,147	Issue/Concern: Station Blankets - Spend is also allocated to each region to ensure they have capital available for unforeseen maintenance challenges. These challenges can be leaks or failures that require short turnaround times for remediation, particularly if there has not been a specific project identified for affected assets. Asset: System Station Assets Related Program: N/A 2021 Breakdown of the 250k •Customer station rebuilds- $50,000 •Reg Run Replacements- $50,000 •Class 7's- $50,000 •Fence replacements- $50,000 •Heater upgrades- $20,000 •Station Buildings- $30,000	Fail	See investment description, IRPAs not applicable
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Pass**	**17403**	NGT Existing customer Maintenance Capital - (+2027)	**2032**	$	2,082,002	Issue/concern: EGI Fleet operators can continue to achieve fuel cost savings and reduced emission benefits by investing in the wellbeing of the NGV station. This can be achieves by adopting continuously upgrading the major NGV equipment as part of the maintenance strategy. By upgrading the major NGV equipment, EGD can extend the life cycle of the equipment, resulting in a more cost effective way of operating the NGV stations. Assets: There is a number of current NGV Station EGI maintains.	Fail	See investment description, IRPAs not applicable for CNG
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Pass**	**503174**	TBAY: English River PCS Rebuild	**2028**	$	2,075,019	Issue/Concern/Opportunity: Station rebuild is requested as the current station lacks an inlet filter and has inadequate heating given the station capacity. This station also does not have telemetry, which would be beneficial to provide accurate round-the-clock outlet pressure monitoring. Relocation of the station closer to Highway 17 would also be beneficial as the driveway is 0.5km long and very rough in the winter. Relocation would reduce winter plowing expenses and allow for better site access for maintenance. Assets: Station #30701001. Related Investments: Not applicable.	Fail	Distribution station condition related, IRPA not applicable
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Pass**	**733809**	Parliament & Winchester Station Replacement - Execution Phase	**2028**	$	2,066,897	Phase 2 (Execution Phase) of the Parliament and Winchester Station Replacement Phase 2 project was created because original investment 1217 exceeded 5-years. The first station purchased in 2017 will not be used for this station rebuild and will be repurposed for future projects.	Fail	Distribution station condition related, IRPA not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Pass**	**744834**	2033 RTU Upgrade Program	**2033**	$	2,035,557	Issue/Concern: The forecast in this category includes projects to replace all the existing remote terminal units and replace with current technology, the ControlWave Micro introduced in 2003. Many current Remote Telemetry Units (RTUs) are 3330/3310 which have been obsolete since 2009 and are no longer supported by the manufacturer. This is a standardized approach that ensures enhanced control and current communication protocols for SCADA Gas Control, odourization, measurement data collection and volume nominations. Starting in 2024, the SCADA RTU lifecycle project will take over as the current technology will be 21 years old. The benefit of these projects will be smooth migration of in-service RTU fleet to current technology using a standardized approach. Currently, these legacy RTUs are at end-of-life and deferring this work may increase failure rate drastically due to the "wear-out" effect. Asset: System Station Assets Related Program: N/A	Fail	Distribution station condition related, IRPA not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Pass**	**744835**	2034 RTU Upgrade Program	**2034**	$	2,034,272	Issue/Concern: The forecast in this category includes projects to replace all the existing remote terminal units and replace with current technology, the ControlWave Micro introduced in 2003. Many current Remote Telemetry Units (RTUs) are 3330/3310 which have been obsolete since 2009 and are no longer supported by the manufacturer. This is a standardized approach that ensures enhanced control and current communication protocols for SCADA Gas Control, odourization, measurement data collection and volume nominations. Starting in 2024, the SCADA RTU lifecycle project will take over as the current technology will be 21 years old. The benefit of these projects will be smooth migration of in-service RTU fleet to current technology using a standardized approach. Currently, these legacy RTUs are at end-of-life and deferring this work may increase failure rate drastically due to the "wear-out" effect. Asset: System Station Assets Related Program: N/A	Fail	Distribution station condition related, IRPA not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Pass**	**735210**	2032 RTU Upgrade Program	**2032**	$	2,034,010	Issue/Concern: The forecast in this category includes projects to replace all the existing remote terminal units and replace with current technology, the ControlWave Micro introduced in 2003. Many current Remote Telemetry Units (RTUs) are 3330/3310 which have been obsolete since 2009 and are no longer supported by the manufacturer. This is a standardized approach that ensures enhanced control and current communication protocols for SCADA Gas Control, odourization, measurement data collection and volume nominations. Starting in 2024, the SCADA RTU lifecycle project will take over as the current technology will be 21 years old. The benefit of these projects will be smooth migration of in-service RTU fleet to current technology using a standardized approach. Currently, these legacy RTUs are at end-of-life and deferring this work may increase failure rate drastically due to the "wear-out" effect. Asset: System Station Assets Related Program: N/A	Fail	Distribution station condition related, IRPA not applicable

GTA West	**Div_17 - Halton**	Distribution Stations	**Pass**		**735054**	HALT: Burlington Gate, boiler	**2034**	$	2,017,399	Issue/Concern/Opportunity: VALVE & PIPING: Piping is experiencing corrosion and will be evaluated by FIMP closer to the proposed project date. FIMP will asses the existing valves for any iissues in performance and operation. FILTRATION: N/A HEATING: the existing boilers at this site have reached end of life based on condition review and performance. The building is in disrepair and will be replaced in this investment. This investment aligns with the obsolete heating system strategy that targets stations with heating equipment that have reached end of life, with a focus on systems where there is a risk of a glycol spill. Natural gas heating equipment is used in many System and Customer Stations to help mitigate failure of equipment due to the freezing of liquids in the gas stream and moisture surrounding buried piping. Over many years of operation, a variety of heating systems have been used, resulting in varying equipment age and ultimately, equipment obsolescence. This work will maintain system reliability, ensure operating costs for heating systems are minimized and reduce the potential for glycol spills, including providing the appropriate containment systems to minimize the impacts of an event. Loss of the heating system function could result in two scenarios, (1) frost heave or (2) pressure control failure due to the freezing of station components. Frost heave occurs when the gas is cooled due to the pressure reduction and causes an upward swelling of soil around public or private property near the gas main. Freezing of station components such as creating large ice buildup around valves can prevent operation if gas isolation is required. This could result in the loss of pressure control and potentially lead to an overpressure or underpressure situation. The financial impact includes commodity loss, service disruptions, increased network leak surveys and system checks, repairs or replacement of company-owned property, or damages caused to public, commercial or industrial property. Inoperable systems will lead to a failure to maintain operational supply to customers. PRESSURE CONTROL: Obsolete design will be replaced in this investment. ODOURIZATION: Current system is in working order. TELEMETRY & ELECTRICAL: the telemetry and electrical systems do not meet current EGI standards, do not contain backup power supply in the event of powerloss, and are approaching end of useful life. MEASUREMENT , COMPLIANCE & OTHER Eng: will be assessed closer to project date. Signage and site assess (fencing/egress) to be upgraded during this project. Assets: 18X-601	Fail	Distribution station condition related, IRPA not applicable
Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Pass**		**101158**	TIMM: 45-24-700: Customer Station SMS, Rebuild	**2026**	$	1,995,026	Issue/Concern/Opportunity: Station needs to be raised or relocated due to seasonal flooding. Mine site has been built up around the station and there is no place for Spring thaw and/or rainwater to run off. Justification: The most likely risk/scenario is above-grade frozen valves/assets. The worst-case scenario is the inability to isolate and/or shut down the station in an emergency (i.e., injury, fire, or explosion) due to frozen flood waters. Assets: Station ID 42199002 Related Investments: 735784 (the heater replacement for this station)	Fail	Distribution station condition related, IRPA not applicable
Southwest	**Div_02 - Chatham**	Distribution Stations	**Pass**		**734660**	CHAT: 09F-501 Wallaceburg Baseline	**2029**	$	1,987,887	Issue/Concern/Opportunity: There are concerns from Station Operations around the condition of the existing filter. If the filter cannot operate as per its intended use there is a potential to It is recommended to replace the complete station as there are reliability and integrity concerns. Justification: Replace filter (like for like). Assets: 09F-501 Related Investments: Not applicable.	Fail	Distribution station condition related, IRPA not applicable
Southwest	**Div_01 - Windsor**	Distribution Stations	**Pass**		**734666**	WIND: 06A-605R Matchette & Prince	**2034**	$	1,983,341	Issue/Concern/Opportunity: Heater age warrants replacement Justification: Heater replacement Assets: 06A-605R Related Investments: N/A	Fail	Distribution station condition related, IRPA not applicable
Southwest	**Div_01 - Windsor**	Distribution Stations	**Pass**		**734667**	WIND: 06B-404 Bruce Ave	**2028**	$	1,943,712	Issue/Concern/Opportunity: Heater age may require a replacement Justification: Heater replacement Assets: 06B-404 Related Investments: N/A	Fail	Distribution station condition related, IRPA not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Pass**		**735209**	2031 RTU Upgrade Program	**2031**	$	1,935,140	Issue/Concern: The forecast in this category includes projects to replace all the existing remote terminal units and replace with current technology, the ControlWave Micro introduced in 2003. Many current Remote Telemetry Units (RTUs) are 3330/3310 which have been obsolete since 2009 and are no longer supported by the manufacturer. This is a standardized approach that ensures enhanced control and current communication protocols for SCADA Gas Control, odourization, measurement data collection and volume nominations. Starting in 2024, the SCADA RTU lifecycle project will take over as the current technology will be 21 years old. The benefit of these projects will be smooth migration of in-service RTU fleet to current technology using a standardized approach. Currently, these legacy RTUs are at end-of-life and deferring this work may increase failure rate drastically due to the "wear-out" effect. Asset: System Station Assets Related Program: N/A	Fail	Distribution station condition related, IRPA not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Pass**		**102669**	2025 Odourant Upgrades - MOIS Upgrades	**2025**	$	1,932,332	The expenditures in this portfolio include projects to upgrade odourant systems to ensure compliance to current codes, such as replacing old tanks and painting rusted containment pans and tank stands. Additionally, performance capability will be added by installing heat tracer lines, heated cabinets, improved tank valves and indoor regulator panels. This work will help to ensure safe, compliant and continuous odourization. This forecast will help mitigate the risk of tank rupture, frequent freeze off and nuisance odour calls.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Pass**		**735206**	2028 RTU Upgrade Program	**2028**	$	1,721,400	Issue/Concern: The forecast in this category includes projects to replace all the existing remote terminal units and replace with current technology, the ControlWave Micro introduced in 2003. Many current Remote Telemetry Units (RTUs) are 3330/3310 which have been obsolete since 2009 and are no longer supported by the manufacturer. This is a standardized approach that ensures enhanced control and current communication protocols for SCADA Gas Control, odourization, measurement data collection and volume nominations. Starting in 2024, the SCADA RTU lifecycle project will take over as the current technology will be 21 years old. The benefit of these projects will be smooth migration of in-service RTU fleet to current technology using a standardized approach. Currently, these legacy RTUs are at end-of-life and deferring this work may increase failure rate drastically due to the "wear-out" effect. Asset: System Station Assets Related Program: N/A	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735208**	2030 RTU Upgrade Program	**2030**	$	1,840,679			
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735211**	2026 Odourant Upgrades - MOIS Upgrades	**2026**	$	1,830,690			
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**102728**	2025 RTU Upgrade Program	**2025**	$	1,774,648			
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735204**	2026 RTU Upgrade Program	**2026**	$	1,765,365			
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735207**	2029 RTU Upgrade Program	**2029**	$	1,755,465			
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735205**	2027 RTU Upgrade Program	**2027**	$	1,747,344			
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**9964**	2025 Telemetry	**2025**	$	1,727,697			
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735213**	2027 Odourant Upgrades - MOIS Upgrades	**2027**	$	1,725,717			
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**101073**	NE: 42601002 - Englehart TBS, Relocation	**2033**	$	1,715,873			
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**744831**	2033 Telemetry	**2033**	$	1,705,030			
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**744833**	2034 Telemetry	**2034**	$	1,704,406			
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**734296**	2032 Telemetry	**2032**	$	1,701,858			
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Emergent Safety	**10295**	Station Emergency Replacement Blanket - All Areas	**2025**	$	1,696,491			
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**734294**	2031 Telemetry	**2031**	$	1,659,643			
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**9965**	2026 Telemetry	**2026**	$	1,659,149			
GTA East & Toronto	**Div_22 - Kingston**	Distribution Stations	**Fail**	Dollar Threshold	**101199**	KING: 29501001 Cornwall East Town Border Station, rebuild	**2027**	$	1,655,351			
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**16430**	2028 Telemetry	**2028**	$	1,631,630			
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**9966**	2027 Telemetry	**2027**	$	1,629,187			
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**101553**	2030 Telemetry	**2030**	$	1,627,082			
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Fail**	Dollar Threshold	**30539**	HAMI: 12W-201 Hagersville Sandusk Station, Jarvis, Station Rebuild, Growth	**2027**	$	1,626,117			
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735214**	2028 Odourant Upgrades - MOIS Upgrades	**2028**	$	1,619,137			
Northern & Eastern	**60 - Ottawa**	Distribution Stations	**Fail**	Dollar Threshold	**3608**	BROCKVILLE GATE	**2027**	$	1,612,626			
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**101552**	2029 Telemetry	**2029**	$	1,595,241			

Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Fail**	Dollar Threshold	**733880**	TIMM: Tembec Spruce Falls SMS, Rebuild	**2031**	$	1,579,291
Southeast	**80 - Niagara**	Distribution Stations	**Fail**	Dollar Threshold	**502162**	A80 LP District Station Risk Mitigation Program	**2025**	$	1,576,940
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**744887**	2033 Odourant Upgrades - MOIS Upgrades	**2033**	$	1,575,171
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**744888**	2034 Odourant Upgrades - MOIS Upgrades	**2034**	$	1,574,177
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735218**	2032 Odourant Upgrades - MOIS Upgrades	**2032**	$	1,573,974
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735215**	2029 Odourant Upgrades - MOIS Upgrades	**2029**	$	1,572,551
GTA East & Toronto	**40 - Whitby**	Distribution Stations	**Fail**	Dollar Threshold	**7766**	DURHAM 23 FEEDER	**2030**	$	1,572,529
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735217**	2031 Odourant Upgrades - MOIS Upgrades	**2031**	$	1,572,339
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735216**	2030 Odourant Upgrades - MOIS Upgrades	**2030**	$	1,570,366
Southwest	**Div_04 - London**	Distribution Stations	**Fail**	Dollar Threshold	**734688**	LOND: 13O-206R London Baseline Reg Station	**2032**	$	1,512,645
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**501160**	NE: 43202054 Inco Smelter, Station Modifications	**2025**	$	1,485,838
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**100617**	WATE: 18U-504 Cambridge East Distribution Station, Heater Replacement (Obsolete Heater) 07-24-701	**2026**	$	1,482,617
Southwest	**Div_02 - Chatham**	Distribution Stations	**Fail**	Dollar Threshold	**734671**	CHAT: 07K-409 MCKINLAY RD STATION	**2027**	$	1,454,262
GTA West	**30 - Richmond Hill**	Distribution Stations	**Fail**	Dollar Threshold	**3624**	Victoria Square Gate - Odorant + Heating Upgrade	**2028**	$	1,430,980
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**101001**	14365A - BIRMINGHAM & KIPLING DISTRICT	**2025**	$	1,422,827
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**738752**	Waterloo - CNG Station	**2025**	$	1,360,112
Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Fail**	Dollar Threshold	**502088**	TIMM: 45-22-702 Kirkland Lake (Northland) Power SMS Rebuild	**2033**	$	1,337,611
GTA East & Toronto	**Div_22 - Kingston**	Distribution Stations	**Fail**	Dollar Threshold	**48473**	KING: Plan(T)-Dist-Stn Measuring/Corrosion Stn	**2025**	$	1,313,699
Southwest	**Div_01 - Windsor**	Distribution Stations	**Fail**	Dollar Threshold	**101348**	WIND - 03D-306R Mersea Gosfield - Station rebuild with heater & filter	**2025**	$	1,275,802
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**100624**	BRAN: 12T-503 ON Energy Producer Station, Delhi, Station Rebuild (Capital Maintenance), Proj# 06-21-704	**2028**	$	1,272,460
GTA East & Toronto	**Div_22 - Kingston**	Distribution Stations	**Fail**	Dollar Threshold	**101198**	KING: 22-24-704 College and Sidney DRS (27801009) Rebuild	**2025**	$	1,269,482
Northern & Eastern	**60 - Ottawa**	Distribution Stations	**Fail**	Dollar Threshold	**503830**	61171A - HURDMAN FILTER UPSTREAM OF EXISTING HURDMAN DIST	**2025**	$	1,250,596
GTA East & Toronto	**40 - Whitby**	Distribution Stations	**Fail**	Dollar Threshold	**7763**	CATHCART & STEWART DISTRICT	**2027**	$	1,236,906
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**738219**	Sudbury - CNG Station	**2026**	$	1,225,851
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**100611**	BRAN: 16V-402R Dunsdon St Dist Stn, Brantford, Underground Glycol Line removal CWT Instl (Capital Maintenance), Proj# 06-22-704	**2027**	$	1,200,026
Head Office/All	**00 - Head Office**	Distribution Stations	**Fail**	Dollar Threshold	**17404**	NGV Rental VRA's - (2026-2032)	**2026**	$	1,171,674
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**10361**	2026 Sales stations rebuilds	**2026**	$	1,116,753
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**100615**	WATE: 17T-202 North Dumfries Distribution Station, North Dumfries, Station Rebuild (Obsolete Heater)	**2028**	$	1,106,458
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**10362**	2027 Sales stations rebuilds	**2027**	$	1,075,084
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**100614**	BRAN: 15V-111R Stanley St Dist Stn, Brantford, Underground Glycol Line Removal Cwt Instal (Capital Maintenance), Proj# 06-22-703	**2029**	$	1,065,504
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**16433**	2028 Sales stations rebuilds	**2028**	$	1,055,584
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**503214**	WATE: 19S-603 Waterloo-Laurel Creek Station, Waterloo, Station Rebuild (Capital Maintenance) glycol leak obsolete CWT heater	**2025**	$	1,052,468
Southwest	**Div_02 - Chatham**	Distribution Stations	**Fail**	Dollar Threshold	**743811**	CHAT 07G-201 Baldoon Trans Phase II - Heater and RTU	**2025**	$	1,034,330
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**10301**	2026 Header stations rebuilds	**2026**	$	1,031,879
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**49057**	WATE: 19R-501R Wellesley Distribution Station, Wellesley Twp, Station Rebuild (Load Growth), Capacity Restore, Proj# 07-21-703	**2028**	$	1,030,747
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**101068**	NE: 13403001 - Vale Totten Mine, Rebuild	**2025**	$	1,028,784
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**744837**	2033 Sales stations rebuilds	**2033**	$	1,015,425
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**744839**	2034 Sales stations rebuilds	**2034**	$	1,015,053
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**734298**	2032 Sales stations rebuilds	**2032**	$	1,013,535
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**101558**	2029 Sales stations rebuilds	**2029**	$	1,011,806
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**734297**	2031 Sales stations rebuilds	**2031**	$	1,011,778
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**101559**	2030 Sales stations rebuilds	**2030**	$	1,011,766
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Fail**	Dollar Threshold	**735044**	HAMI: 17X-102R, WATERDOWN NORTH DIST STN, Heating System Replacement	**2033**	$	1,009,337
Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Fail**	Dollar Threshold	**735730**	TIMM: Monteith CMS	**2034**	$	1,008,700
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Fail**	Dollar Threshold	**101084**	HAMI: 16Y-201R Cascade & Lanark, Hamilton, Vault Station Rebuild	**2032**	$	1,008,046
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**735235**	WATE: 21S-601 Fergus 1st Trans Stn FIMP, Heater Replacement, Obsolete heater (Capital Maintenance)	**2026**	$	999,967
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**10541**	2027 Header stations rebuilds	**2027**	$	993,377
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**16432**	2028 Header stations rebuilds	**2028**	$	975,359
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**100610**	BRAN: 12S-202 Customer Distribution Station, CWT install/glycol line removal, SCADA	**2026**	$	956,050
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**744879**	2033 Header stations rebuilds	**2033**	$	938,252
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**744880**	2034 Header stations rebuilds	**2034**	$	937,909
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**734300**	2032 Header stations rebuilds	**2032**	$	936,507
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**101554**	2029 Header stations rebuild	**2029**	$	934,909
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**734299**	2031 Header stations rebuilds	**2031**	$	934,883
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**101555**	2030 Header stations rebuilds	**2030**	$	934,872
Southwest	**Div_01 - Windsor**	Distribution Stations	**Fail**	Dollar Threshold	**503332**	WIND - 06B-403 California Ave station rebuild	**2025**	$	928,649
Southwest	**Div_01 - Windsor**	Distribution Stations	**Fail**	Dollar Threshold	**734673**	WIND: 06B-502 WALKER RD	**2033**	$	922,719
GTA West	**Div_17 - Halton**	Distribution Stations	**Fail**	Dollar Threshold	**735034**	Lowville_18X-101STN_Rebuild	**2025**	$	897,694
Southwest	**Div_04 - London**	Distribution Stations	**Fail**	Dollar Threshold	**502472**	16P-501R Medina Gate & MOP Upgrade	**2027**	$	893,535
Southwest	**Div_04 - London**	Distribution Stations	**Fail**	Dollar Threshold	**502503**	London/Sarnia IRR Program	**2025**	$	866,739
Southwest	**Div_01 - Windsor**	Distribution Stations	**Fail**	Dollar Threshold	**503331**	WIND - 06C-401 Manning Rd station rebuild	**2030**	$	864,162
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**102993**	TBAY: Martha at Red River Station Rebuild	**2032**	$	857,323
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**18818**	BAY & SCOLLARD DISTRICT LP	**2027**	$	857,133
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**738065**	Peterborough - CNG Station	**2025**	$	856,400
GTA West	**Div_17 - Halton**	Distribution Stations	**Fail**	Dollar Threshold	**101089**	HALT-Milton TBS	**2032**	$	832,675

Southwest	**Div_02 - Chatham**	Distribution Stations	**Fail**	Dollar Threshold	**502778**	CHAT - 09G-501 Tupperville Trans - heater replacement	**2033**	$	831,521
Southwest	**Div_04 - London**	Distribution Stations	**Fail**	Dollar Threshold	**100996**	13P-101R Sovereign & Gore	**2032**	$	806,646
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**735631**	TBAY: Paquette Road Station Rebuild	**2031**	$	789,646
Southeast	**80 - Niagara**	Distribution Stations	**Fail**	Dollar Threshold	**7759**	THOROLD TOWNLINE GATE	**2026**	$	774,342
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**100833**	WATE: 21T-301 Salem Gate Station, Salem, Station Rebuild (Capital Maintenance), Obsolete CWT Heater,Proj# 07-22-711	**2028**	$	770,910
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**100912**	WATE: 23Q-301 Harriston Gate Station, Harriston, Station Rebuild Obsolete heater and equipment(Capital Maintenance),	**2027**	$	767,074
Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Fail**	Dollar Threshold	**733871**	TIMM: Dalton TBS (Mcbride St S.), Station Rebuild and Boiler Replacement	**2032**	$	756,427
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**733756**	SSM: Goulais Ave TBS Algoma 4, Boiler Replacement	**2032**	$	756,427
Southeast	**80 - Niagara**	Distribution Stations	**Fail**	Dollar Threshold	**7760**	VINELAND GATE	**2027**	$	743,013
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**9552**	NGT Existing customer Maintenance Capital - (Until 2026)	**2026**	$	724,077
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**503639**	BRAN: 17U-302 Brantford Transmission Station, Brantford, Orifice Plate Removal (Capital Maintenance), Proj#	**2027**	$	713,842
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**733869**	TBAY: Belrose PCS, Boiler Replacement	**2032**	$	705,999
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**7773**	NEILSON RD FEEDER	**2029**	$	698,288
Southwest	**Div_04 - London**	Distribution Stations	**Fail**	Dollar Threshold	**100992**	18M-301 Hensall Gate	**2025**	$	681,009
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**18888**	HARVIE & MORRISON DISTRICT	**2031**	$	671,618
Southwest	**Div_02 - Chatham**	Distribution Stations	**Fail**	Dollar Threshold	**101610**	CHAT - 07J-301 Ridgetown North Transmission - Replace heater	**2026**	$	640,003
Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Fail**	Dollar Threshold	**100922**	TIMM: Swastika TBS, Station Rebuild	**2031**	$	631,717
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Fail**	Dollar Threshold	**735149**	HAMI: 14X-104 Caledonia North Station, Haldimand, Maintenance	**2025**	$	630,482
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Fail**	Dollar Threshold	**502506**	Hamilton IRR Program	**2025**	$	619,099
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Fail**	Dollar Threshold	**101133**	HAMI: 16X-342R, Ferrie and Wellington Vault Station Replacement	**2025**	$	619,099
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Fail**	Dollar Threshold	**101132**	HAMI: 16Y-107R, Bancroft and Nash Vault Station, Replacement	**2025**	$	619,099
GTA West	**Div_17 - Halton**	Distribution Stations	**Fail**	Dollar Threshold	**101126**	HALT: 17X-321R Industrial St, Halton, Vault Station Rebuild	**2025**	$	619,099
GTA West	**Div_17 - Halton**	Distribution Stations	**Fail**	Dollar Threshold	**101125**	HALT - Centennial and Guelph Line Vault Station	**2025**	$	619,099
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Fail**	Dollar Threshold	**101103**	HAMI: 16Y-106R Kenora & Bancroft, Hamilton, Vault Station Rebuild	**2025**	$	619,099
GTA West	**Div_17 - Halton**	Distribution Stations	**Fail**	Dollar Threshold	**101088**	HALT-Third Line and QEW Vault Station	**2025**	$	619,099
Southwest	**Div_01 - Windsor**	Distribution Stations	**Fail**	Dollar Threshold	**502777**	WIND - 04A-302R Texas Rd	**2033**	$	610,453
Southwest	**Div_01 - Windsor**	Distribution Stations	**Fail**	Dollar Threshold	**101608**	WIND - 06D-401 Belle River Gate - Replace heater	**2027**	$	605,160
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**735634**	TBAY: Dewe St DRS Relocation	**2031**	$	604,513
Southwest	**Div_02 - Chatham**	Distribution Stations	**Fail**	Dollar Threshold	**734669**	CHAT: 07H-501 MAYNARD LINE	**2031**	$	599,476
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**100550**	BRAN: 12S-101 Tillsonburg Potter's Road Distribution Station, Tillsonburg, regulator run replacement (Capital Maintenance)	**2028**	$	596,568
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**10300**	2025 Header stations rebuilds	**2025**	$	593,074
Head Office/All	**01 - All**	Distribution Stations	**Fail**	Dollar Threshold	**10304**	2025 Sales stations rebuilds	**2025**	$	593,074
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Fail**	Dollar Threshold	**101085**	HAMI: 16V-604, Lynden Gate Stn, Heating System Replacement	**2026**	$	586,534
GTA West	**20 - Mississauga**	Distribution Stations	**Fail**	Dollar Threshold	**7781**	EASTGATE AND DIXIE DISTRICT	**2029**	$	583,022
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735245**	2027 Fire Suppression and Auto Transfer Generator	**2027**	$	552,902
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**101229**	Enbridge Yard CNG Station B	**2025**	$	539,698
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Fail**	Dollar Threshold	**503271**	Hamilton/Halton PFM Compliance Program	**2026**	$	532,276
Southwest	**Div_02 - Chatham**	Distribution Stations	**Fail**	Dollar Threshold	**734661**	CHAT: 06J-103 Blenheim North Gate	**2027**	$	530,399
GTA West	**Div_17 - Halton**	Distribution Stations	**Fail**	Dollar Threshold	**101081**	HALT-Winston Churchill & 10 Side Rd	**2025**	$	515,090
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**100829**	WATE: 19U-601 Guelph Highway 24 Gate Station, Guelph, Station Rebuild (Capital Maintenance), Proj# 07-21-711	**2028**	$	514,086
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Fail**	Dollar Threshold	**735047**	HAMI:15W-371: Customer Station	**2032**	$	504,285
GTA West	**Div_17 - Halton**	Distribution Stations	**Fail**	Dollar Threshold	**101096**	HAMI: 17X-415R, York and Broadway Dist Stn, Frost Heave Issues	**2032**	$	504,285
Southwest	**Div_01 - Windsor**	Distribution Stations	**Fail**	Dollar Threshold	**101342**	WIND - 03B-102R County Rd 20 & Concession Rd 3 - Heater addition	**2032**	$	490,951
Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Fail**	Dollar Threshold	**734943**	TIMM: Kirkland Lake CMS (Kenogami) - Long-Term Odorant Solution	**2026**	$	490,342
GTA West	**Div_17 - Halton**	Distribution Stations	**Fail**	Dollar Threshold	**503019**	HALT: Roylen Rd & Ripley Crt Station, LP	**2031**	$	483,611
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**100343**	BRAN: 13T-403 Otterville Springford Distribution Station, Norwich Twp, Heater Addition (Capital Maintenance), Proj# 06-21-701	**2028**	$	477,254
Southwest	**Div_01 - Windsor**	Distribution Stations	**Fail**	Dollar Threshold	**101357**	WIND - 06B-548I Chrysler Paint - Heater Replacement	**2032**	$	474,285
Southwest	**Div_02 - Chatham**	Distribution Stations	**Fail**	Dollar Threshold	**739028**	WIND 07J-303R WALNUT & MAIN LP REPLACEMENT	**2028**	$	463,858
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**735176**	17904A Rathburn and Dorlen District	**2032**	$	450,405
Southwest	**Div_04 - London**	Distribution Stations	**Fail**	Dollar Threshold	**503272**	London/Sarnia PFM Compliance Program	**2027**	$	447,246
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**18964**	CALEDONIA & RAITHERM DISTRICT	**2027**	$	421,725
GTA West	**20 - Mississauga**	Distribution Stations	**Fail**	Dollar Threshold	**101119**	21116A - DERRY & HISTORIC TRAIL	**2027**	$	413,561
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**18890**	MILTON & OXFORD DISTRICT	**2026**	$	413,198
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Fail**	Dollar Threshold	**735037**	HAMI: 16Y-101 Woodward bio Gas, Hamilton, Electrical Failures	**2032**	$	403,428
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Fail**	Dollar Threshold	**735058**	HAMI: 16X-309R,Birmingham and Burlington, Maintenance	**2032**	$	403,428
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Fail**	Dollar Threshold	**101101**	HAMI: 13Z-201R, Diltz Rd IP North, Frost Heave	**2032**	$	403,428
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Fail**	Dollar Threshold	**101094**	HAMI: 16W-203, Summit Trans Stn, Heating System Replacement	**2029**	$	403,063
GTA West	**Div_17 - Halton**	Distribution Stations	**Fail**	Dollar Threshold	**735039**	HALT: Ford and Royal Windsor, Maintenance	**2031**	$	403,009
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**737100**	NE: 44604001 - Powassan TBS Rebuild	**2031**	$	403,009
GTA West	**Div_17 - Halton**	Distribution Stations	**Fail**	Dollar Threshold	**101099**	HALT - Dundas and Meadowridge	**2031**	$	403,009
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**7765**	DOWNSVIEW FEEDER	**2029**	$	401,216
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**738246**	NBAY: 43805002 Cumberland Beach TBS Heater Install	**2028**	$	396,545
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**733754**	SUD: Frood TBS, Boiler Replacement	**2028**	$	393,447
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**734640**	CNG Kennedy Upgrade/Redesign	**2025**	$	392,853
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**502661**	NE: 45401095 - Great Northern Rd TBS, Boiler Replacement	**2031**	$	391,944
Southeast	**80 - Niagara**	Distribution Stations	**Fail**	Dollar Threshold	**735163**	A80: Lake and Louisa DIST STN - Aband and lay IP main	**2025**	$	380,321
Southwest	**Div_04 - London**	Distribution Stations	**Fail**	Dollar Threshold	**735155**	LOND: 21L-201 Goderich Gate	**2032**	$	378,214
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**735181**	3226575 SHEPPARD & MORNINGSIDE DISTRICT	**2025**	$	377,193
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**49611**	NE: 43202064 Vale Divisional Shops PRS Replacement	**2031**	$	373,154
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**102683**	2025 Odourant Upgrades -Sweep Tanks	**2025**	$	371,459

Southeast	**Div_16 - Hamilton**	Distribution Stations	**Fail**	Dollar Threshold	**101129**	HAMI: 16W-204R Binkley Station, Hamilton, Vault Station Rebuild	**2025**	$	364,597
GTA West	**Div_17 - Halton**	Distribution Stations	**Fail**	Dollar Threshold	**503020**	HALT: Dalebrook Drive Dist Station, LP	**2028**	$	363,128
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**18812**	BAYVIEW & SHEPPARD DISTRICT	**2031**	$	361,980
Southwest	**Div_01 - Windsor**	Distribution Stations	**Fail**	Dollar Threshold	**734665**	WIND: 06C-602 Puce Transmission	**2031**	$	360,657
GTA West	**20 - Mississauga**	Distribution Stations	**Fail**	Dollar Threshold	**7757**	SANDALWOOD GATE	**2032**	$	360,032
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**18816**	BRIMLEY & ELESMERE DISTRICT	**2027**	$	359,638
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**739580**	LEG - ERX Cloudlink Modem Replacement	**2025**	$	357,327
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735219**	2026 Odourant Upgrades -Sweep Tanks	**2026**	$	351,920
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**503215**	WATE: 22T-501R Alma Distribution Station, Alma, Station Rebuild (Capital Maintenance), Proj# 07-21-707	**2031**	$	351,122
GTA West	**20 - Mississauga**	Distribution Stations	**Fail**	Dollar Threshold	**1043**	CAWTHRA AND QUEENSWAY DISTRICT	**2026**	$	340,957
Southwest	**Div_04 - London**	Distribution Stations	**Fail**	Dollar Threshold	**49862**	LOND: 14O-603I 3M Customer Station Rebuild	**2032**	$	332,828
Southwest	**Div_04 - London**	Distribution Stations	**Fail**	Dollar Threshold	**49861**	LOND: 14O-619I 3M Customer Station Rebuild; 528	**2031**	$	332,482
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735220**	2027 Odourant Upgrades -Sweep Tanks	**2027**	$	331,741
Northern & Eastern	**60 - Ottawa**	Distribution Stations	**Fail**	Dollar Threshold	**7755**	PETAWAWA GATE	**2027**	$	329,298
Southwest	**Div_01 - Windsor**	Distribution Stations	**Fail**	Dollar Threshold	**502700**	WIND - 06B-401 Grand Marais - reg repl & liquid tank	**2030**	$	326,925
GTA West	**30 - Richmond Hill**	Distribution Stations	**Fail**	Dollar Threshold	**735301**	33300A ISLINGTON & HWY # 407 HP DIST	**2025**	$	321,031
Southwest	**Div_04 - London**	Distribution Stations	**Fail**	Dollar Threshold	**735276**	LOND: 15J-401 Forest Gate Transmission Station	**2027**	$	320,683
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735221**	2028 Odourant Upgrades -Sweep Tanks	**2028**	$	311,253
GTA West	**30 - Richmond Hill**	Distribution Stations	**Fail**	Dollar Threshold	**735302**	33525A Bathurst & Rutherford hp-ip	**2027**	$	308,078
GTA West	**30 - Richmond Hill**	Distribution Stations	**Fail**	Dollar Threshold	**101057**	32311A - WILLIAM & PRESTON LAKE DISTRICT	**2025**	$	305,374
GTA West	**30 - Richmond Hill**	Distribution Stations	**Fail**	Dollar Threshold	**101056**	31428A - RAM FOREST & WESLEY CORNERS	**2025**	$	305,255
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**744894**	2033 Odourant Upgrades -Sweep Tanks	**2033**	$	302,801
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**744895**	2034 Odourant Upgrades -Sweep Tanks	**2034**	$	302,610
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735225**	2032 Odourant Upgrades -Sweep Tanks	**2032**	$	302,571
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735222**	2029 Odourant Upgrades -Sweep Tanks	**2029**	$	302,297
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735224**	2031 Odourant Upgrades -Sweep Tanks	**2031**	$	302,257
GTA West	**Div_17 - Halton**	Distribution Stations	**Fail**	Dollar Threshold	**101092**	HALT-440 Harrop	**2031**	$	302,257
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735223**	2030 Odourant Upgrades -Sweep Tanks	**2030**	$	301,877
GTA East & Toronto	**Div_22 - Kingston**	Distribution Stations	**Fail**	Dollar Threshold	**100777**	KING - Under rated valve Trenton TBS 27601001	**2026**	$	293,267
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733764**	NBAY: Eloy TBS, Boiler Replacement	**2026**	$	293,267
Southwest	**Div_01 - Windsor**	Distribution Stations	**Fail**	Dollar Threshold	**735375**	WIND: 07H-402R Peter St Station LP	**2026**	$	289,851
Southwest	**Div_01 - Windsor**	Distribution Stations	**Fail**	Dollar Threshold	**502773**	WIND - 06B-517R Ypres LP - rebuild	**2026**	$	289,851
Southwest	**Div_01 - Windsor**	Distribution Stations	**Fail**	Dollar Threshold	**502772**	WIND - 06B-314R Isabelle Place LP - rebuild	**2029**	$	285,678
Southwest	**Div_01 - Windsor**	Distribution Stations	**Fail**	Dollar Threshold	**503276**	Windsor/Chatham PFM Compliance Program	**2026**	$	282,558
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**7775**	SIGNET & FINCH FEEDER	**2032**	$	279,819
GTA West	**30 - Richmond Hill**	Distribution Stations	**Fail**	Dollar Threshold	**7778**	WOODBINE & CNR FEEDER	**2026**	$	279,188
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733766**	NBAY: West St TBS, Boiler Replacement	**2026**	$	275,671
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733758**	NBAY: Ski Club/Trout Lake TBS, Boiler Replacement	**2031**	$	275,060
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**734400**	NE: 43203229 - Charlotte St PRS Abandonment	**2031**	$	271,409
Southwest	**Div_04 - London**	Distribution Stations	**Fail**	Dollar Threshold	**734690**	LOND: 17M-601 Centralia Stn	**2031**	$	266,993
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**733753**	SUD: Lasalle TBS, Boiler Replacement	**2031**	$	264,548
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**736083**	NE: 43201030 - Coniston Primary, Control Valve Modifications	**2026**	$	263,940
Southwest	**Div_04 - London**	Distribution Stations	**Fail**	Dollar Threshold	**49805**	Hensall Trans_14N-302STN_Rebuild	**2025**	$	261,198
GTA West	**30 - Richmond Hill**	Distribution Stations	**Fail**	Dollar Threshold	**735173**	32564A - MILL RD & KING SIDEROAD DISTRICT	**2025**	$	261,011
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**20376**	FINCH & HALESIA DISTRICT	**2032**	$	259,345
GTA East & Toronto	**Div_22 - Kingston**	Distribution Stations	**Fail**	Dollar Threshold	**100835**	KING: Belleville Sidney St TBS (27801001) Valve Upgrades	**2028**	$	254,190
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733823**	NBAY: Ravensglen TBS, Boiler Replacement	**2032**	$	252,142
Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Fail**	Dollar Threshold	**733769**	TIMM: South Porcupine/Crawford TBS, Boiler Replacement	**2032**	$	252,142
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**735226**	WATE: 19U-201 Guelph West Gate Stn. FIMP	**2030**	$	251,565
GTA East & Toronto	**40 - Whitby**	Distribution Stations	**Fail**	Dollar Threshold	**735168**	44512A YANKEE LINE & RUSSELL DISTRICT	**2026**	$	250,181
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**735177**	14435A BIRMINGHAM & NINTH DISTRICT	**2032**	$	247,615
GTA West	**20 - Mississauga**	Distribution Stations	**Fail**	Dollar Threshold	**735175**	20702A DIXIE & BRITANNIA DISTRICT	**2027**	$	244,252
GTA West	**20 - Mississauga**	Distribution Stations	**Fail**	Dollar Threshold	**735174**	20782B DERRY & TOMKEN IP DISTRICT	**2027**	$	243,177
Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Fail**	Dollar Threshold	**733877**	TIMM: Hwy 655 TBS, Boiler Replacement	**2026**	$	242,825
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**18887**	DELORAINE & YONGE DISTRICT	**2027**	$	239,605
GTA West	**Div_17 - Halton**	Distribution Stations	**Fail**	Dollar Threshold	**735052**	HALT: Saputo, rebuild	**2026**	$	234,614
Southeast	**80 - Niagara**	Distribution Stations	**Fail**	Dollar Threshold	**101115**	A80: 1826 MILLER RD DISTRICT STATION	**2026**	$	234,518
Southeast	**80 - Niagara**	Distribution Stations	**Fail**	Dollar Threshold	**18851**	ONTARIO & DEERE DISTRICT LP	**2027**	$	233,233
Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Fail**	Dollar Threshold	**733874**	TIMM: Moneta TBS, Boiler Replacement	**2026**	$	231,094
GTA East & Toronto	**Div_22 - Kingston**	Distribution Stations	**Fail**	Dollar Threshold	**734764**	King: Marimac Industries - Cornwall (2-95-01-055)	**2025**	$	222,876
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**100945**	TBAY: Longlac TBS, Heater Replacement	**2032**	$	221,752
Southwest	**Div_04 - London**	Distribution Stations	**Fail**	Dollar Threshold	**734678**	LOND: 13O-212R Highbury and Brydges	**2027**	$	221,161
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**735180**	12377A PURPLE DUSK TRAIL & NEILSON DISTRICT	**2026**	$	219,913
GTA West	**30 - Richmond Hill**	Distribution Stations	**Fail**	Dollar Threshold	**23730**	LESLIE & STEELES DISTRICT	**2031**	$	219,303
Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Fail**	Dollar Threshold	**733770**	TIMM: Porcupine PCS, Boiler Replacement	**2026**	$	217,018
GTA West	**30 - Richmond Hill**	Distribution Stations	**Fail**	Dollar Threshold	**735172**	30988A CONCESSION 2 & TWMARC DISTRICT	**2026**	$	215,840
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**733762**	SUD: Barrydowne, Boiler Replacement	**2026**	$	211,152
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**733860**	SUD: Victoria Mine, Boiler Replacement	**2032**	$	208,774
Southwest	**Div_03 - Sarnia**	Distribution Stations	**Fail**	Dollar Threshold	**734693**	SARN: 11H-201R Oil Spring Reg Stn	**2028**	$	207,502
Southwest	**Div_04 - London**	Distribution Stations	**Fail**	Dollar Threshold	**734691**	LOND: 15R-608R Walter and Fyfe Reg Stn	**2028**	$	207,502
Southwest	**Div_04 - London**	Distribution Stations	**Fail**	Dollar Threshold	**734668**	LOND: 13O-210R Hale and Burslem	**2028**	$	207,502
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**735182**	2936953 MEADOWVALE & GENERATION DISTRICT	**2026**	$	205,744
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**736082**	NE: 45101001 - Sault Primary, Control Valve Modifications	**2026**	$	205,287
Southwest	**Div_04 - London**	Distribution Stations	**Fail**	Dollar Threshold	**100998**	15R-604R Young & Peel LP Stn	**2033**	$	201,867
GTA West	**Div_17 - Halton**	Distribution Stations	**Fail**	Dollar Threshold	**735067**	HALT: Milton Hydro Dist Inc, Rebuild	**2032**	$	201,714
GTA West	**Div_17 - Halton**	Distribution Stations	**Fail**	Dollar Threshold	**735066**	HALT: Affinia Canada Corp, Rebuild	**2032**	$	201,714
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Fail**	Dollar Threshold	**735065**	HAMI: 16X-349I & 16X-350I, Customer Station	**2032**	$	201,714
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**501161**	NE: 43202154 - Bil-Mur PRS, Rebuild	**2032**	$	201,714
Southwest	**Div_04 - London**	Distribution Stations	**Fail**	Dollar Threshold	**734692**	LOND: 13O-123R Napier and Blackfriars Reg Stn	**2029**	$	201,532
Southwest	**Div_04 - London**	Distribution Stations	**Fail**	Dollar Threshold	**734664**	LOND: 10M-503R Main and Shackleton	**2029**	$	201,532
Southwest	**Div_03 - Sarnia**	Distribution Stations	**Fail**	Dollar Threshold	**734696**	SARN: 14F-503R Point Edward Victoria and St. Clair Reg Stn	**2031**	$	201,504

Southwest	**Div_04 - London**	Distribution Stations	**Fail**	Dollar Threshold	**734694**	LOND: 11O-306R Wellington and Fifth Reg Stn	**2031**	$	201,504
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**100938**	TBAY: Dryden Domtar SMS, Station Modifications	**2030**	$	201,252
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**733854**	SSM: Blind River TBS, Boiler Replacement	**2032**	$	198,688
GTA East & Toronto	**40 - Whitby**	Distribution Stations	**Fail**	Dollar Threshold	**735304**	2885749 Taunton and Gillett	**2026**	$	195,990
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**733772**	TBAY: Vermillion Bay PCS, Boiler Replacement	**2032**	$	195,663
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**734565**	TBAY: 500 Toledo St MUB Rebuild	**2025**	$	194,088
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**733852**	SSM: Elliot Lake TBS, Boiler Replacement	**2032**	$	189,611
Northern & Eastern	**60 - Ottawa**	Distribution Stations	**Fail**	Dollar Threshold	**735164**	6B631A MCCARTHY DR AND HUNT CLUB RD	**2025**	$	187,234
Northern & Eastern	**60 - Ottawa**	Distribution Stations	**Fail**	Dollar Threshold	**735165**	6B602A STARTOP DISTRICT XHP	**2025**	$	187,234
GTA East & Toronto	**Div_22 - Kingston**	Distribution Stations	**Fail**	Dollar Threshold	**502509**	Eastern (LUG) IRR Program	**2025**	$	185,730
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**733767**	SUD: Maley Dr TBS, Boiler Replacement	**2026**	$	180,652
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**733765**	SUD: Chelmsford, Boiler Replacement	**2026**	$	180,652
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**733872**	TBAY: Balmertown - Goldcorp SMS, Boiler Replacement	**2032**	$	180,534
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733840**	NBAY: Madill TBS _ Huntsville, Boiler Replacement	**2032**	$	180,534
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733839**	NBAY: TCPL Co-gen North Bay, Boiler Replacement	**2032**	$	180,534
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733757**	NBAY: Muskoka Falls TBS, Boiler Replacement	**2032**	$	179,525
GTA West	**30 - Richmond Hill**	Distribution Stations	**Fail**	Dollar Threshold	**735303**	35053A Dufferin Langstaff (langstaff & 407)	**2026**	$	177,564
Northern & Eastern	**60 - Ottawa**	Distribution Stations	**Fail**	Dollar Threshold	**101151**	6B758A - EAGLESON & HAZELDEAN DISTRICT	**2026**	$	176,279
Northern & Eastern	**60 - Ottawa**	Distribution Stations	**Fail**	Dollar Threshold	**101152**	6B562A - CAMPEAU & TERON DISTRICT HP (O.P.P.)	**2026**	$	176,279
GTA West	**20 - Mississauga**	Distribution Stations	**Fail**	Dollar Threshold	**101120**	21102A - BRESLER & AIRPORT	**2026**	$	176,073
Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Fail**	Dollar Threshold	**503742**	TIMM: Glencore Concentrator SMS, Boiler Replacement	**2032**	$	175,120
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733759**	NBAY: Haileybury TBS, Boiler Replacement	**2032**	$	172,465
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**733763**	SUD: Kelly Lake TBS, Boiler Replacement	**2026**	$	172,441
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733821**	NBAY: New Liskeard TBS, Boiler Replacement	**2032**	$	171,457
GTA West	**30 - Richmond Hill**	Distribution Stations	**Fail**	Dollar Threshold	**735300**	31335A GILBERT& YONGE DISTRIUCT (AURO	**2027**	$	170,938
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733760**	NBAY: Sturgeon Falls TBS, Boiler Replacement	**2026**	$	164,229
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**733865**	TBAY: Kenora TBS, Boiler Replacement	**2032**	$	163,388
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**502824**	TBAY: Kraft SMS Retirement	**2032**	$	161,371
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**733885**	Operations Services Central IRR Program	**2025**	$	160,966
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**742847**	NE: Ravensglen TBS modifications	**2025**	$	160,966
Northern & Eastern	**60 - Ottawa**	Distribution Stations	**Fail**	Dollar Threshold	**101153**	6B435A - CORKSTOWN & WESTDALE DISTRICT	**2031**	$	159,709
Northern & Eastern	**60 - Ottawa**	Distribution Stations	**Fail**	Dollar Threshold	**738891**	A60: Campbell & McNabb District (61128A)	**2026**	$	157,649
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**18845**	REPLIN & LAWRENCE DISTRICT	**2032**	$	157,089
Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Fail**	Dollar Threshold	**733773**	TIMM: Cochrane TBS, Boiler Replacement	**2032**	$	155,320
Head Office/All	**00 - Head Office**	Distribution Stations	**Fail**	Dollar Threshold	**2368**	Natural Gas Vehicle Refueling Appliances	**2025**	$	155,085
Northern & Eastern	**60 - Ottawa**	Distribution Stations	**Fail**	Dollar Threshold	**502526**	A60: Pickwick District (6B634A) LP	**2030**	$	154,804
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**503273**	NE PFM Compliance Program	**2029**	$	154,009
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**735262**	WATE: 30N-501 Southhampton Gate Stn. FIMP	**2033**	$	151,401
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**735260**	WATE: 22S-402 Moorefield Dist. Stn. FIMP	**2032**	$	151,285
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**735263**	WATE: 30Q-105C Sutherland Downs Pit FIMP	**2032**	$	151,285
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**735269**	WATE: 12T-102 Norwich-Middleton Town Stn. FIMP	**2032**	$	151,285
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**735252**	WATE: 18T-402 Mannheim Trans Stn, Heating System Upgrade	**2031**	$	151,128
Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Fail**	Dollar Threshold	**733771**	TIMM: Kirkland Lake TBS, Boiler Replacement	**2032**	$	148,260
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**501440**	A10: Denison Ave, Toronto, Pressure Elevation	**2028**	$	146,720
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733761**	NBAY: Englehart TBS, Boiler Replacement	**2032**	$	141,200
Northern & Eastern	**60 - Ottawa**	Distribution Stations	**Fail**	Dollar Threshold	**101146**	6B621A - BANTREE & EDINBURGH DISTRICT	**2026**	$	140,164
Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Fail**	Dollar Threshold	**733768**	TIMM: Glencore Mine SMS, Boiler Replacement	**2032**	$	139,876
GTA West	**20 - Mississauga**	Distribution Stations	**Fail**	Dollar Threshold	**18909**	BRAMALEA & ADVANCE BLVD. DISTRICT	**2026**	$	139,591
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**733876**	TBAY: Kenora Airport Rd, Boiler Replacement	**2032**	$	136,157
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**733875**	TBAY: Geraldton TBS, Boiler Replacement	**2032**	$	136,157
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**733859**	SUD: Interpaving SMS, Boiler Replacement	**2032**	$	136,157
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733858**	NBAY: Gravenhurst TBS, Boiler Replacement	**2032**	$	136,157
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**733857**	SUD: Azilda DRS, Boiler Replacement	**2032**	$	130,106
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**733856**	SUD: Kukagami TBS, Boiler Replacement	**2032**	$	130,106
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**733853**	SUD: Inco North Mine SMS, Boiler Replacement	**2032**	$	130,106
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733851**	NBAY: Emsdale CMS, Boiler Replacement	**2032**	$	124,054
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733842**	NBAY: Callander TBS, Boiler Replacement	**2032**	$	124,054
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**733841**	SUD: Copper Cliff TBS, Boiler Replacement	**2032**	$	124,054
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**733870**	TBAY: Nipigon TBS, Boiler Replacement	**2032**	$	118,003
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733838**	NBAY: West Ferris TBS, Boiler Replacement	**2032**	$	118,003
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**735030**	NBAY: Warren TBS, Boiler Replacement	**2032**	$	118,003
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**49612**	CFB Station Retirement	**2026**	$	117,307
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**735183**	2936745 MARKHAM & VERNE DISTRICT	**2027**	$	112,100
Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Fail**	Dollar Threshold	**733868**	TIMM: Schumacher TBS, Boiler Replacement	**2032**	$	111,951
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**733866**	TBAY: McIrvine TBS, Boiler Replacement	**2032**	$	111,951
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733822**	NBAY: Earlton TBS, Boiler Replacement	**2032**	$	111,951
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733820**	NBAY: Ferguson Road, Boiler Replacement	**2032**	$	111,951
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733817**	NBAY: Balls Dr TBS - Bracebridge, Boiler Replacement	**2032**	$	111,951

Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**733867**	TBAY: Ignace TBS, Boiler Replacement	**2031**	$	111,835
GTA East & Toronto	**Div_22 - Kingston**	Distribution Stations	**Fail**	Dollar Threshold	**737988**	KING: 22-22-726 Highway 3 Sonoco PRS Rebuild (27601085)	**2025**	$	111,438
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Fail**	Dollar Threshold	**735050**	HAMI: Empire Steel, Maintenance	**2027**	$	110,580
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**102738**	2025 Turbine Meter Automatic Oilers Upgrade	**2025**	$	106,953
Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Fail**	Dollar Threshold	**733864**	TIMM: Matheson TBS, Boiler Replacement	**2032**	$	106,908
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**733813**	SUD: Coniston TBS, Boiler Replacement	**2032**	$	106,908
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733796**	NBAY: Mattawa TBS, Boiler Replacement	**2032**	$	106,908
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733795**	NBAY: Widdifield TBS, Boiler Replacement	**2032**	$	106,908
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**733814**	SUD: Walden TBS, Boiler Replacement	**2031**	$	106,797
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**733797**	NBAY: South River TBS, Boiler Replacement	**2031**	$	106,797
GTA West	**30 - Richmond Hill**	Distribution Stations	**Fail**	Dollar Threshold	**101061**	32924A - HWY # 7 & ROYBRIDGE GATE DISTRICT	**2026**	$	106,036
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**742022**	NE: 1165 Bethune Gravenhurst Stn rebuild	**2026**	$	105,576
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**741982**	NE: 4320317 - CRA Tax Centre Rebuild	**2026**	$	105,576
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735236**	2026Turbine Meter Automatic Oilers Upgrade	**2026**	$	103,354
GTA West	**30 - Richmond Hill**	Distribution Stations	**Fail**	Dollar Threshold	**733506**	Buttonville Interconnect	**2029**	$	101,181
Southeast	**Div_16 - Hamilton**	Distribution Stations	**Fail**	Dollar Threshold	**735051**	HAMI: 16X-346I: Customer Station	**2034**	$	100,870
Northern & Eastern	**60 - Ottawa**	Distribution Stations	**Fail**	Dollar Threshold	**101149**	68796A - WOODROFFE & EARL MULLIGAN DISTRICT	**2026**	$	100,870
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**744900**	2033 Turbine Meter Automatic Oilers Upgrade	**2033**	$	100,147
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**744901**	2034 Turbine Meter Automatic Oilers Upgrade	**2034**	$	100,084
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735244**	2032 Turbine Meter Automatic Oilers Upgrade	**2032**	$	100,071
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735237**	2027 Turbine Meter Automatic Oilers Upgrade	**2027**	$	99,376
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735243**	2031 Turbine Meter Automatic Oilers Upgrade	**2031**	$	98,008
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735241**	2030 Turbine Meter Automatic Oilers Upgrade	**2030**	$	95,965
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735238**	2028 Turbine Meter Automatic Oilers Upgrade	**2028**	$	95,103
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735240**	2029 Turbine Meter Automatic Oilers Upgrade	**2029**	$	94,214
Northern & Eastern	**60 - Ottawa**	Distribution Stations	**Fail**	Dollar Threshold	**736615**	Williamsburg TBS FIMP	**2030**	$	88,985
GTA East & Toronto	**Div_22 - Kingston**	Distribution Stations	**Fail**	Dollar Threshold	**100834**	King - under rated valves Napanee TBS 28101001	**2025**	$	86,674
Northern & Eastern	**60 - Ottawa**	Distribution Stations	**Fail**	Dollar Threshold	**23767**	CASSELMAN & MARTIN DISTRICT	**2026**	$	83,756
GTA West	**30 - Richmond Hill**	Distribution Stations	**Fail**	Dollar Threshold	**735170**	33171A - MAJOR MACKENZIE & VELLORE WOODS DISTRICT (VAUGHAN)	**2026**	$	83,394
Northern & Eastern	**60 - Ottawa**	Distribution Stations	**Fail**	Dollar Threshold	**502879**	EAGLESON & EMERALD MEADOWS DISTRICT	**2026**	$	82,550
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**734580**	NE: 43101005 - Sturgeon Falls Mill SMS, Station Retirement	**2026**	$	76,862
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**502505**	WATE: Waterloo/Brantford IRR Program	**2025**	$	74,292
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**734577**	NE: 43801032 - Stepan Industries, Station Retirement	**2026**	$	70,384
GTA West	**30 - Richmond Hill**	Distribution Stations	**Fail**	Dollar Threshold	**101060**	32915A - ROLLING HILLS & GAMBLE DISTRCT	**2026**	$	70,197
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**738247**	SSM: 45101001 Sault Primary Valve Replacement	**2026**	$	64,051
Southwest	**Div_04 - London**	Distribution Stations	**Fail**	Dollar Threshold	**733607**	LOND - 15N-671 Medway Creek Removal and Main Extension	**2030**	$	63,394
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**502508**	NW IRR Program	**2025**	$	61,910
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**734578**	NE: 43801017 - Huronia regional Centre, Station Retirement	**2025**	$	61,910
Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Fail**	Dollar Threshold	**734574**	TIMM: Hallnor Mine PRS Retirement	**2025**	$	61,910
GTA West	**30 - Richmond Hill**	Distribution Stations	**Fail**	Dollar Threshold	**8567**	St. John's Sideroad Feeder Station Relocation	**2025**	$	59,307
GTA East & Toronto	**Div_22 - Kingston**	Distribution Stations	**Fail**	Dollar Threshold	**49888**	KING: 22-24-705 Customer Station Rebuild	**2026**	$	58,653
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**735277**	BRAN: 11V-401R Pt Ryerse Commercial St LP	**2026**	$	58,653
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**735279**	BRAN: 11U-601R Pt Ryerse Young & Rolph W Hill LP	**2026**	$	58,653
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**735280**	BRAN: 12R-607R Tillson Ave, South of Hyman LP	**2026**	$	58,653
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**735281**	BRAN: 12T-506R Delhi Queen & Church Stn LP	**2026**	$	58,653
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**735282**	BRAN: 12U-607R Simcoe Queen St S & Grove LP	**2026**	$	58,653
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**735284**	BRAN: 13U-603R Waterford Temperence & Leamon LP	**2026**	$	58,653
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**735285**	BRAN: 15U-301R St Paul & Dublin LP	**2026**	$	58,653
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**735287**	BRAN: 15V-406R Mohawk Brighton LP	**2026**	$	58,653
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**734582**	NE: 44301018 - Levack Mine Air Heater #2 SMS, Station Retirement	**2027**	$	55,290
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**735325**	WATE: 18U-506R Bishop & King LP	**2027**	$	55,290
GTA West	**Div_17 - Halton**	Distribution Stations	**Fail**	Dollar Threshold	**735049**	HALT: EC Drury School,Rebuild	**2027**	$	55,290
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**735307**	WATE: 18U-205R Hungerford & Walker LP	**2028**	$	51,875
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**735308**	WATE: 18U-220R Bechtel & Millvue LP	**2028**	$	51,875
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**735310**	WATE: 18U-407R Church & Sherring LP	**2028**	$	51,875
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**735313**	BRAN: 15U-308R Brantford Grand & Jubilee LP	**2028**	$	51,875
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**735319**	BRAN: 15V-408R Brighton & Superior LP	**2028**	$	51,875
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**735320**	WATE: 17U-211R Stanley @ Glenmorris LP	**2028**	$	51,875
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**735321**	WATE: 17U-214R Middleton St at Waterworks LP	**2028**	$	51,875
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**735322**	WATE: 18U-403R Agnes & William LP	**2028**	$	51,875
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**735324**	WATE: 18U-418R 122 Dolph St N LP	**2028**	$	51,875
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**737825**	BRAN: 13U-301R Boston Dist Stn, Boston, Class 7 Rebuild (Capital Maintenance)	**2028**	$	51,875
GTA West	**Div_17 - Halton**	Distribution Stations	**Fail**	Dollar Threshold	**735055**	HALT: Morgan Thermal Ceramics, Maintenance	**2028**	$	51,875
GTA West	**Div_17 - Halton**	Distribution Stations	**Fail**	Dollar Threshold	**735057**	HALT: Customer Station 18Y-414I	**2029**	$	50,383
GTA West	**Div_17 - Halton**	Distribution Stations	**Fail**	Dollar Threshold	**735056**	HALT: Customer Station 18Y-424I	**2029**	$	50,383
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**735326**	BRAN: 11V-202R Pt Dover Nelson & George St LP	**2030**	$	50,313
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**735327**	BRAN: 11V-204R Pt Dover Clinton & St Patrick LP	**2030**	$	50,313
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**735328**	BRAN: 09T-303R Church St & Erie Ave LP	**2030**	$	50,313
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**735329**	BRAN: 09T-307R Ellis & Alley St LP	**2030**	$	50,313
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**735330**	BRAN: 12R-302R Victoria St & Niagara St Station LP	**2030**	$	50,313
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**735331**	BRAN: 12R-303R Tillson Ave Dist Station LP	**2030**	$	50,313
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**735332**	BRAN: 12U-501 Simcoe Queen St South of Hwy 3 (2nd Stage) LP	**2030**	$	50,313
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**736079**	SSM: Goulais Ave TBS Algoma 4, Station Modifications	**2030**	$	50,313
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**735333**	BRAN: 12U-602R Simcoe Union & Talbot Stn LP	**2030**	$	50,313
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**735334**	BRAN: 12U-606R Simcoe Metcalfe & Robinson LP	**2030**	$	50,313
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**102723**	2025 Odourant Upgrades - Disposal/Decommission	**2025**	$	49,528
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735227**	2026 Odourant Upgrades - Disposal/Decommission	**2026**	$	46,923
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735228**	2027 Odourant Upgrades - Disposal/Decommission	**2027**	$	44,232

Northern & Eastern	**Div_45 - Timmins**	Distribution Stations	**Fail**	Dollar Threshold	**734576**	TIMM: Munoro Mine SMS Retirement	**2025**	$	43,337					
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735230**	2028 Odourant Upgrades - Disposal/Decommission	**2028**	$	41,500					
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**744896**	2033 Odourant Upgrades - Disposal/Decommission	**2033**	$	40,373					
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**744898**	2034 Odourant Upgrades - Disposal/Decommission	**2034**	$	40,348					
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735234**	2032 Odourant Upgrades - Disposal/Decommission	**2032**	$	40,343					
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735231**	2029 Odourant Upgrades - Disposal/Decommission	**2029**	$	40,306					
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735233**	2031 Odourant Upgrades - Disposal/Decommission	**2031**	$	40,301					
Head Office Support	**Div_54 - Head Office Support**	Distribution Stations	**Fail**	Dollar Threshold	**735232**	2030 Odourant Upgrades - Disposal/Decommission	**2030**	$	40,250					
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**734581**	NE: 43204008 - Brierwood & Kelly Lake Rd PRS, Station Retirement	**2025**	$	38,818					
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**738420**	TBAY: 33-22-712 Anderson Greenwood, Relief Stack Support	**2025**	$	38,818					
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**102869**	NE: 43201001 - Marten River CMS, Blow Down Tank	**2025**	$	28,516					
Southeast	**Div_06 - Brantford**	Distribution Stations	**Fail**	Dollar Threshold	**100627**	BRAN: 11V-101 Port Dover South Distribution Station, Port Dover, Station Rebuild (Telemetry)	**2029**	$	25,695					
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**733372**	TBAY: Wright at O'Brien DRS Pipe Supports	**2026**	$	25,621					
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**735669**	TBAY: 2022 Morecombe PRS (at Onion Lk) Rebuild	**2026**	$	25,620					
Northern & Eastern	**Div_46 - North Bay & Orillia**	Distribution Stations	**Fail**	Dollar Threshold	**734579**	NE: 43804002 - Occupational Centre PRS, Station Retirement	**2027**	$	22,116					
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**49678**	McCreedy West Stn., Sudbury	**2027**	$	22,116					
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**742655**	NE: Highway 69 DRS riser repairs	**2026**	$	18,769					
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**501280**	A10: Cibola and Chippewa Toronto Islands, Replacement	**2025**	$	18,267					
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**18815**	BAYVIEW & BYNG DISTRICT	**2033**	$	15,231					
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**502659**	NE: 45101125 - Essar #7 BF SMS, Gear Operator Replacement	**2025**	$	12,939					
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Distribution Stations	**Fail**	Dollar Threshold	**738782**	SUDB: 13200177: Customer Station	**2027**	$	12,492					
Northern & Eastern	**Div_33 - Thunder Bay**	Distribution Stations	**Fail**	Dollar Threshold	**735190**	TBAY:33-21-799 English River PCS Capacity Increase	**2026**	$	6,405					
GTA East & Toronto	**10 - Toronto**	Distribution Stations	**Fail**	Dollar Threshold	**21023**	Telemetry Internal Work Scheduling	**2025**	$	5,931					
Southeast	**Div_07 - Waterloo**	Distribution Stations	**Fail**	Dollar Threshold	**735288**	WATE: 17U-201R Salsbury Ave LP	**2026**	$	1					
Southwest	**Div_04 - London**	Transmission Pipe & Underground Storage	**Pass**		**100699**	Dawn Parkway Expansion Project (Dawn-Enniskillen NPS 48)	**2030**	$	298,813,859	Issue/Concern: In response to increased natural gas demand growth along the Dawn Parkway System, the Kirkwall to Hamilton Expansion will provide reliable, secure, economic natural gas capacity to meet the growing design day demand of the Dawn Parkway Transmission system which serves both in- and ex-franchise markets. These facilities are incremental to the Kirkwall to Hamilton Expansion (INV 48654) and timing is dependent on the Dawn Parkway System demands. Assets: Install approximately 17.2 km of NPS 48 internally-coated pipeline from Dawn Compressor Station (10G-301) to Enniskillen Valve Site (11H-301V) on the Dawn Parkway System. Related Program: Not applicable	Pass		In Progress	Market side supply options to be assessed prior to LTC application
Southeast	**Div_16 - Hamilton**	Transmission Pipe & Underground Storage	**Pass**		**48654**	Dawn Parkway Expansion Project (Kirkwall-Hamilton NPS 48)	**2028**	$	213,558,250	Issue/Concern: In response to increased natural gas demand growth along the Dawn Parkway System, the Kirkwall to Hamilton Expansion will provide reliable, secure, economic natural gas capacity to meet the growing design day demand of the Dawn Parkway Transmission system which serves both in- and ex-franchise markets. Assets: The Kirkwall-Hamilton Expansion Project consists of 10.2 km of NPS 48 pipeline from the Kirkwall Valve Site to the Hamilton Valve Site. Related Programs: N/A	Pass		In Progress	Market side supply options to be assessed prior to LTC application
Southwest	**Div_02 - Chatham**	Transmission Pipe & Underground Storage	**Pass**		**735972**	Panhandle Growth	**2031**	$	135,983,374	Issue/Concern: Panhandle System expansion is driven by in-franchise growth in Chatham-Kent, Windsor-Essex and surrounding areas, including the fast-growing greenhouse market in the Leamington/Kingsville area. Based on the current forecast for in-franchise general service and contract growth in the Panhandle Transmission System market, EGI has determined that the next Panhandle facilities for expansion will need to be in place). These facilities are incremental to the Panhandle Regional Expansion Project and timing is dependent on the Panhandle System demands. Assets: Install approximately 12 km of NPS 36 pipeline from Richardson sideroad, looping the existing Panhandle NPS 20 pipeline to Comber Transmission Station (05E-403). Related Program: Not applicable	Pass		In Progress	Market side supply options to be assessed prior to LTC application
Southwest	**Div_01 - Windsor**	Transmission Pipe & Underground Storage	**Pass**		**736923**	Panhandle Growth - Leamington Interconnect	**2034**	$	86,067,149	Issue/Concern/Opportunity: To provide reliable, secure, and affordable natural gas supply to meet the growth in Design Day demand of the Panhandle System, timing of this investment is contingent on demand forecast and TSP recommendation and is likely beyond 2033 horizon Assets: i) Leamington Interconnect : 12 km of 6040 kPagloop of the NPS20; or Leamington North Line/Leamington North Line Loop reinforcement; and/or IRP partial solution ii. Leamington Interconnect Valve Sites: Three new valve sites with isolation valves are required to connect to each of the existing laterals (1. Leamington North Line and Leamington North Loop, 2. Mersea Line and 3. Kingsville East Line). Launcher/receiver facilities will be installed at location 1 and 3. Related Program: Not Applicable	Pass		In Progress	Market side supply options to be assessed prior to LTC application
Southwest	**Div_01 - Windsor**	Transmission Pipe & Underground Storage	**Pass**		**100086**	Panhandle Line - Risk Mitigation	**2028**	$	32,110,769	Issue/Concern: EGI's Integrity Management team initiated work in 2019 to better understand the risk associated with the two NPS 12 crossings that connect the Panhandle Eastern System owned and operated by Energy Transfer in Michigan with the EGI system in Ontario. These two crossings, installed in 1947, have never been internally inspected to check for the presence of the primary threat of internal corrosion; such inspection cannot be achieved given the configuration of the asset. A risk assessment was recently completed for the river crossings. The risk owner and risk approver reviewed the risk results and have decided the risk requires treatment with a permanent solution. Assets: Transmission Pipeline (Canada Energy Regulator-regulated crossing) Related Programs: Not applicable.	Pass		In Progress	Market side supply options to be assessed prior to LTC application
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**		**740055**	Panhandle Regional Expansion Project - Dawn Facilities	**2025**	$	45,398,026	Issue/Concern: To provide reliable, secure, and affordable natural gas supply to meet the growth in Design Day demand of the Panhandle System: Assets: i. Dawn Yard (Moved to INV740055) : 700 m of 8960 kPa MOP NPS42 station header is required to maintain the maximum sustainable pressure on design day. This header will also provide operational flexibility and security of supply to the Panhandle system. Related Program: Panhandle Regional Expansion Project	Fail	Leave to construct for the project has been granted by the OEB		

STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**742820**	Kimball 8 Wells Replacement Project	**2029**	$	22,156,525	This program drills and commissions eight new wells in the Kimball pool to replace wells with the risk of no intermediate casing section over a period of four years. The eight wells will be abandoned as part of the program due to the lack of intermediate casing hence diminishing the flow capacity of the Kimball reservoir by XX% . The drilling of the replacement wells is designed to recover lost deliverability. Deliverability reduction of this magnitude increases CSAT risk dramatically. *Asset*: Kimball reservoir (Wells and Well Equipment asset program) and gathering system (Field Lines asset program). *Related Programs*/BCs: Installation of wells is performed by the reservoir group (Wells and Well Equipment asset program), installation of laterals is performed by the project execution group (Field Lines asset program). This separation is based on skill set and qualifications. There is a programmatic time dependence between the two asset programs.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**1295**	2025 Integrity Dig Program S&T	**2025**	$	11,700,973	2025 forecast: 14 ILI digs estimated based on previous years inspection plan. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of Union's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**6377**	PCRW:Wells-Upgrade	**2030**	$	9,432,611	Issue/Concern: Wells at Crowland are much older than other wells at EGI. Due to age, the wells were constructed to a production standard which would normally be retired after 10 years. Instead, the wells were converted to Storage service in the early 1970s and continue to operate ever since. Many wells have been relined, increasing the risk of leaks. Most wells possess only two casings; the current standard requires a minimum of three casings. The two-casing design at Crowland is comprised of an inner casing that runs from the surface to the reservoir (about 225 m) plus a surface casing that runs from the surface to a depth of about 20 m. Most wells do not have an intermediate casing with cement between the inner and intermediate casings; however, there is cement between the inner casing and the surrounding rock. This provides a poor barrier to gas flow should the inner casing fail. In addition, none of the wells at Crowland employ wellheads and master valves. Instead, the inner casing is simply connected to a flanged 1/4 turn valve without wing valves or wellhead vents. The surface casing is separated from the surface using cement. There are no casing vents and part of the inner casing (typically a length of 2 to 16 inches) is exposed at the surface. The lack of casing vents eliminates normal approaches to controlling a failed well. Vertilogs have been performed in the last 5 years, and indicated that the inner casing integrity is adequate, although 2 of 26 wells needed to be abandoned. Currently, there are 24 wells remaining. Bond logs have not been performed yet to determine the condition of cement at sulphur layers. Primary concerns are: (1) Code compliance of the wells and wellheads - Technically, these wells were constructed before CSA Z341 came into force and are grandfathered. However, a well failure would likely be viewed negatively by technical regulators. (2) Risk to employees and the public - In the event of a loss of containment, there are insufficient barriers to gas flow. Public risk also extends to possible sulphur contamination of well water at surface levels. In addition to the wells, much of the gathering system is as old as the wells. The gathering system is operating at <30% SMYS, which means they have not been considered for integrity inspections until recently and the gathering system pipe condition is unknown after 50 to 100 years of operation. Assets: Crowland wells and gathering system. Related Programs: This investment is under consideration in conjunction with other Crowland investments in the Distribution Station asset class and Compressor Station asset class. Issues related to the wells and gathering system should be considered together with the additional distribution station and compressor station issues/concerns.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
Southwest	**Div_02 - Chatham**	Transmission Pipe & Underground Storage	**Pass**	**49758**	Panhandle Regional Expansion Project	**2025**	$	8,442,373	Issue/Concern: For additional details and justification, refer to the Panhandle Regional Expansion Project (PREP) Leave to Construct application EB-2022-0157. To provide reliable, secure, and affordable natural gas supply to meet the growth in Design Day demand of the Panhandle System: Assets: i. Dawn Yard: ((Now Moved to INV 740055)) 700 m of 8960 kPa MOP NPS42 station header is required to maintain the maximum sustainable pressure on design day. This header will also provide operational flexibility and security of supply to the Panhandle system. ii. Panhandle Take-off Station: The existing station will be modified to meet the new system capacity demand requiring measurement, odourization and regulation assets. iii. Dover Transmission Station: This existing regulating station will be modified to connect the new NPS 36 pipeline to the upstream system. Flow measurement equipment will also be added to the station. iv. Panhandle Loop : 19 km of 6040 kPag MOP NPS36 pipeline will parallel the NPS 20 from Dover Transmission station to a new valve site at Richardson Sideroad. v. Richardson Sideroad Valve Site: A new valve site is required at the end of the NPS 36 Panhandle loop to connect to the existing NPS20 mainline. Isolation valves and launcher/receiver facilities will be installed at this location.	Fail	Leave to construct for the project has been granted by the OEB
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**48735**	Well Lifecycle Replacement-LUG	**2034**	$	8,271,357	Issue/Concern: This project is intended to recover lost design day deliverability due to well relines and abandonments. The deliverability of the new well is not intended to increase but maintain the deliverability. This project will drill one new vertical injection/withdrawal well and connect it to the existing gathering system of the desired pool. Asset: Wells Related Program: N/A	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**735974**	Well Lifecycle Replacement-LEG	**2034**	$	7,904,394	Issue/Concern: This project is intended to recover lost design day deliverability due to well relines and abandonments. The deliverability of the new well is not intended to increase but maintain the deliverability. This project will drill one new vertical injection/withdrawal well and connect it to the existing gathering system of the desired pool. The new injection/withdrawal well will maintain the current split between the regulated/unregulated percentages of the pool. Asset: Wells Related Program: N/A	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
Head Office/All	**00 - Head Office**	Transmission Pipe & Underground Storage	**Pass**	**742684**	Waubuno Pool IAIR Retrofits	**2025**	$	6,686,270	Dynamic Risk completed an independent review of TIMP to establish uncertainty levels in the fitness-for-service conclusions for all TIMP assets. This first phase of the project was completed last year. TIMP is currently developing plans to mitigate high and moderate uncertainties in the fitness-for-service conclusions by leveraging existing integrity activities and potentially introducing new ones.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
Head Office/All	**00 - Head Office**	Transmission Pipe & Underground Storage	**Pass**	**736881**	Independent Asset Integrity Review (IAIR) - UGTP	**2027**	$	5,847,505	Dynamic Risk completed an independent review of TIMP to establish uncertainty levels in the fitness-for-service conclusions for all TIMP assets. This first phase of the project was completed last year. TIMP is currently developing plans to mitigate high and moderate uncertainties in the fitness-for-service conclusions by leveraging existing integrity activities and potentially introducing new ones.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**503024**	2024 Waubuno 2 replacement wells	**2025**	$	5,509,619	Issue: The deliverability of the Waubuno pool has declined due to the relines of the injection withdrawal wells UI20, UM20, UI22 and UI25 as well as the abandonment of the well UI30. The well UI20 is in a flood plain which is inaccessible during the spring months. Any response to a well incident would be severely impacted by the condition of the well and access to the well. The proposed abandonment of this will reduce deliverability. This project drills abandoned one well UI20 and drills two 8 5/8-inch wells. The two new wells will offset the reduction of deliverability due to the relines and abandonments. Assets: Waubuno pool and Gathering lines Related Program: Not applicable.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
Head Office Support	**Div_54 - Head Office Support**	Transmission Pipe & Underground Storage	**Pass**	**102556**	Class Location Replacement Program 2028 - S&T Assets	**2028**	$	5,446,924	General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS, unless previously designed, tested, operated, and maintained for a Class 4 location. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development which occurs in close proximity to EGI's pipelines typically triggers class location changes. An annual budget is required for EGI's pipeline system in order to meet the current standard requirements. Remediation includes pressure testing, installation of valves, remediating depth of cover issues, and pipeline replacement. This work ensures EGI is compliant and fosters the safety of the public and EGI's pipeline system.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Transmission Pipe & Underground Storage	**Pass**	**742470**	Class Location Replacement Program 2033 - S&T Assets	**2033**	$	5,299,019	General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS, unless previously designed, tested, operated, and maintained for a Class 4 location. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development which occurs in close proximity to EGI's pipelines typically triggers class location changes. An annual budget is required for EGI's pipeline system in order to meet the current standard requirements. Remediation includes pressure testing, installation of valves, remediating depth of cover issues, and pipeline replacement. This work ensures EGI is compliant and fosters the safety of the public and EGI's pipeline system.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Transmission Pipe & Underground Storage	**Pass**	**742473**	Class Location Replacement Program 2034 - S&T Assets	**2034**	$	5,295,674	General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS, unless previously designed, tested, operated, and maintained for a Class 4 location. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development which occurs in close proximity to EGI's pipelines typically triggers class location changes. An annual budget is required for EGI's pipeline system in order to meet the current standard requirements. Remediation includes pressure testing, installation of valves, remediating depth of cover issues, and pipeline replacement. This work ensures EGI is compliant and fosters the safety of the public and EGI's pipeline system.	Fail	See investment description, IRPAs not applicable

Head Office	**Div_54 - Head Office Support**	Transmission Pipe & Underground Storage	**Pass**	**733986**	Class Location Replacement Program 2032 - S&T Assets	**2032**	$	5,294,992	General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS, unless previously designed, tested, operated, and maintained for a Class 4 location. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development which occurs in close proximity to EGI's pipelines typically triggers class location changes. An annual budget is required for EGI's pipeline system in order to meet the current standard requirements. Remediation includes pressure testing, installation of valves, remediating depth of cover issues, and pipeline replacement. This work ensures EGI is compliant and fosters the safety of the public and EGI's pipeline system.	Fail	See investment description, IRPAs not applicable
Head Office	**Div_54 - Head Office Support**	Transmission Pipe & Underground Storage	**Pass**	**102557**	Class Location Replacement Program 2029 - S&T Assets	**2029**	$	5,290,204	General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS, unless previously designed, tested, operated, and maintained for a Class 4 location. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development which occurs in close proximity to EGI's pipelines typically triggers class location changes. An annual budget is required for EGI's pipeline system in order to meet the current standard requirements. Remediation includes pressure testing, installation of valves, remediating depth of cover issues, and pipeline replacement. This work ensures EGI is compliant and fosters the safety of the public and EGI's pipeline system.	Fail	See investment description, IRPAs not applicable
Head Office	**Div_54 - Head Office Support**	Transmission Pipe & Underground Storage	**Pass**	**733985**	Class Location Replacement Program 2031 - S&T Assets	**2031**	$	5,289,493	General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS, unless previously designed, tested, operated, and maintained for a Class 4 location. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development which occurs in close proximity to EGI's pipelines typically triggers class location changes. An annual budget is required for EGI's pipeline system in order to meet the current standard requirements. Remediation includes pressure testing, installation of valves, remediating depth of cover issues, and pipeline replacement. This work ensures EGI is compliant and fosters the safety of the public and EGI's pipeline system.	Fail	See investment description, IRPAs not applicable
Head Office	**Div_54 - Head Office Support**	Transmission Pipe & Underground Storage	**Pass**	**102558**	Class Location Replacement Program 2030 - S&T Assets	**2030**	$	5,282,855	General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS, unless previously designed, tested, operated, and maintained for a Class 4 location. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development which occurs in close proximity to EGI's pipelines typically triggers class location changes. An annual budget is required for EGI's pipeline system in order to meet the current standard requirements. Remediation includes pressure testing, installation of valves, remediating depth of cover issues, and pipeline replacement. This work ensures EGI is compliant and fosters the safety of the public and EGI's pipeline system.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102777**	2026 Depth of Cover Mitigation Program	**2026**	$	5,102,845	2026 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
Southwest	**Div_03 - Sarnia**	Transmission Pipe & Underground Storage	**Pass**	**1778**	Trafalgar NPS 34 Hamilton-Milton-Centre Rd. Class Location Replacement (Centre Road)	**2026**	$	4,961,207	Project Specific: Trafalgar NPS 34 Hamilton-Milton-Centre Road - 350m of NPS 34. 2 Roads. Class 2 to 3. General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development occurs in close proximity to EGI's pipelines which triggers annual class location changes; this work ensures EGI is compliant and fosters the safety of the public and the pipeline system.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**735470**	2028 Well Lateral Retrofits	**2028**	$	4,150,037	Project Specific: Well Lateral Integrity Program supporting refinement of pipeline risk profile. Associated 2029 O&M spend for ILI or other integrity verification. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of Union's pipeline systems to ensure their continued safety and reliability. Expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools or subject to other integrity verification.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**741976**	Trafalgar NPS 26 Line Lowering - Valens Rd East	**2025**	$	4,053,161	Project Specific: Replacement of 2 sections - ~200m in a ditch near Metcalfe St W (Strathroy) & ~145m near Scotchmere Drive & Amiens Road. ProjectWise Link to scope: pw://pwintegration.gtna.gt.ds:TRIM_PROD/Documents/D{b9ae5768-d178-455e-8e7d-e1b4ee25e72d} General: Sections of the NPS 26 Trafaglar pipeline have been identified as shallow with depth of cover below the minimum permissble by TSSA. This project will mitigate these areas by lowering the pipeline through these areas. Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
Southeast	**Div_07 - Waterloo**	Transmission Pipe & Underground Storage	**Pass**	**738678**	Trafalgar 26 McNiven Rd	**2027**	$	3,980,893	Project Specific: Trafalgar 26 McNiven Road - Replace 707m NPS 26 General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development occurs in close proximity to EGI's pipelines which triggers annual class location changes; this work ensures EGI is compliant and fosters the safety of the public and the pipeline system.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102772**	2026 Integrity Dig Program S&T	**2026**	$	3,912,181	2026 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102785**	2028 Well Lateral Integrity Program	**2028**	$	3,804,201	2028 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2023-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools or subject to other integrity verification.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102784**	2027 Well Lateral Integrity Program	**2027**	$	3,706,285	2027 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2023-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools or subject to other integrity verification.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742793**	2033 Well Lateral Integrity Program	**2033**	$	3,700,903	2033 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2023-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools or subject to other integrity verification.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742801**	2034 Well Lateral Integrity Program	**2034**	$	3,698,566	2034 forecast: This is a program budget placeholder, estimated using an average of the spend profile originally projected between 2023-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools or subject to other integrity verification.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**735416**	2032 Well Lateral Integrity Program	**2032**	$	3,698,090	2032 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2023-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools or subject to other integrity verification.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102786**	2029 Well Lateral Integrity Program	**2029**	$	3,694,746	2029 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2023-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools or subject to other integrity verification.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**735415**	2031 Well Lateral Integrity Program	**2031**	$	3,694,249	2031 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2023-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools or subject to other integrity verification.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102773**	2027 Integrity Dig Program S&T	**2027**	$	3,687,855	2027 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102778**	2027 Depth of Cover Mitigation Program	**2027**	$	3,639,937	2027 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**102767**	2026 Dig Program S&T	**2026**	$	3,517,771	2026 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**736365**	A1 Observation Well Program-LUG	**2034**	$	3,492,384	*Issue/Concern* Observation wells are required pursuant to Section 7.5 of CSA Z341 – Storage of hydrocarbons in underground formations . The observation well will monitor gas content and pressure in the underground storage area which will assist with the continued safe and reliable delivery of natural gas to our existing and future customers. Section 7.5: "Observation wells shall be incorporated into the storage facility and shall monitor pressures and the presence of hydrocarbons within the storage zone and associated permeable zones. The location and design of the observation well shall take into consideration: (a) locations within the storage zone that are suitable for monitoring reservoir pressures; (b) potential migratory paths from the reservoir to another formation; (c) fluid interface monitoring at the location of the spill point; (d) permeable zones and stratigraphic traps above the storage zone; and (e) low-permeability zones or formations adjacent to and in communication with" In addition, interpretations of the latest reservoir simulations indicate that the A-1 sucrosic dolomite may extend beyond the geographical edge of some DSAs. The DSA boundary protects the reef from any unwanted drilling by a third party. If the A-1 does, in fact, extend beyond the DSA boundary, a third party could receive permission to drill and if they penetrated the A-1 sucrosic they would be connected to the associated reef. EGD would then be forced to extend the DSA boundary and include, or buy out, the 3rd party. While the seismic provides a good interpretation of the A-1 it is not definitive and the only way to fully determine if the A-1 sucrosic is located beyond the boundary of the DSA is to drill a well. Mitigation of this risk will protect EGD's rights to the associated reservoir facility. Finally, the A1 Observation wells were originally proposed as a means to verify the integrity of the reservoir boundaries and demonstrate the relationship of low permeability zones to LUF. EGD receives rate recovery on LUF, and A1 zones were considered a potential means by which gas was leaking out of the reservoirs or becoming trapped, thereby creating LUF. The issue is that EGD must continue to investigate causes of LUF in order to argue for cost recovery from rates. This program drills one A1 well per year for 9 years. There are currently no A1 observation wells at the following pools. Airport Oil Springs East Mandaumin (debited program 162K/948K - 2023/24 - Inv#736651)) Oil City (debited program 183K/1,040K - 2024/25 - Inv# 735994) Bluewater Heritage Tipperary Black Creek Chatham D	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102774**	2028 Integrity Dig Program S&T	**2028**	$	3,460,094	2028 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102779**	2028 Depth of Cover Mitigation Program	**2028**	$	3,415,135	2028 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**741036**	PDOW:TD30 Drill	**2031**	$	3,371,424	This project drills and commissions one new well (TD30) in the Dow pool. Well abandonments resulting from the Leaking and Relined well replacement programs have diminished the flow capacity of the Dow reservoir by 60% . The drilling of the new wells TD 28 and TD 29 in 2019 has recovered 53% of the lost deliverability with the pool deliverability currently at 72% of the pre abandonment deliverability. The drilling of the two proposed wells, TD30 and TD31, is designed to recover the remaining lost deliverability. Deliverability reduction of this magnitude increases CSAT risk dramatically. *Asset*: Dow Moore reservoir (Wells and Well Equipment asset program) and gathering system (Field Lines asset program). *Related Programs*/BCs: Installation of wells is performed by the reservoir group (Wells and Well Equipment asset program), installation of laterals is performed by the project execution group (Field Lines asset program). This separation is based on skill set and qualifications. There is a programmatic time dependence between the two asset programs.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742792**	2033 Integrity Dig Program S&T	**2033**	$	3,366,139	2033 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**741037**	PDOW:TD31 Drill	**2031**	$	3,365,364	This project drills and commissions one new well (TD31) in the Dow pool. Well abandonments resulting from the Leaking and Relined well replacement programs have diminished the flow capacity of the Dow reservoir by 60% . The drilling of the new wells TD 28 and TD 29 in 2019 has recovered 53% of the lost deliverability with the pool deliverability currently at 72% of the pre abandonment deliverability. The drilling of the two proposed wells, TD30 and TD31, is designed to recover the remaining lost deliverability. Deliverability reduction of this magnitude increases CSAT risk dramatically. *Asset*: Dow Moore reservoir (Wells and Well Equipment asset program) and gathering system (Field Lines asset program). *Related Programs*/BCs: Installation of wells is performed by the reservoir group (Wells and Well Equipment asset program), installation of laterals is performed by the project execution group (Field Lines asset program). This separation is based on skill set and qualifications. There is a programmatic time dependence between the two asset programs.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742800**	2034 Integrity Dig Program S&T	**2034**	$	3,364,014	2034 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**734058**	2032 Integrity Dig Program S&T	**2032**	$	3,363,581	2030 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102775**	2029 Integrity Dig Program S&T	**2029**	$	3,360,539	2029 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**734057**	2031 Integrity Dig Program S&T	**2031**	$	3,360,087	2030 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102776**	2030 Integrity Dig Program S&T	**2030**	$	3,355,871	2030 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
Head Office/All	**00 - Head Office**	Transmission Pipe & Underground Storage	**Pass**	**736880**	Independent Asset Integrity Review (IAIR) - EGDTP	**2027**	$	3,345,260	Dynamic Risk completed an independent review of TIMP to establish uncertainty levels in the fitness-for-service conclusions for all TIMP assets. This first phase of the project was completed last year. TIMP is currently developing plans to mitigate high and moderate uncertainties in the fitness-for-service conclusions by leveraging existing integrity activities and potentially introducing new ones.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742791**	2033 Depth of Cover Mitigation Program	**2033**	$	3,322,401	2033 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**1924**	2025 Dig Program S&T	**2025**	$	3,321,217	2025 forecast: 3 ILI digs estimated based on previous years inspection plan. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of Union's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742799**	2034 Depth of Cover Mitigation Program	**2034**	$	3,320,304	2034 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**735414**	2032 Depth of Cover Mitigation Program	**2032**	$	3,319,876	2032 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102781**	2029 Depth of Cover Mitigation Program	**2029**	$	3,316,875	2029 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**735413**	2031 Depth of Cover Mitigation Program	**2031**	$	3,316,428	2031 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102782**	2030 Depth of Cover Mitigation Program	**2030**	$	3,312,267	2030 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**102789**	2027 S&T Pipelines Integrity Program	**2027**	$	3,300,507	2027 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2024 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**102790**	2028 S&T Pipelines Integrity Program	**2028**	$	3,240,642	2028 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2024 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**742788**	2033 S&T Pipelines Integrity Program	**2033**	$	3,117,354	2033 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2024 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**742796**	2034 S&T Pipelines Integrity Program	**2034**	$	3,116,213	2034 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2024 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**735382**	2032 S&T Pipelines Integrity Program	**2032**	$	3,111,554	2032 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2024 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**102792**	2029 S&T Pipelines Integrity Program	**2029**	$	3,106,244	2029 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2024 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable

STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**735381**	2031 S&T Pipelines Integrity Program	**2031**	$	3,106,158	2031 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2024 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**102793**	2030 S&T Pipelines Integrity Program	**2030**	$	3,106,123	2030 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2024 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**1293**	2025 Depth of Cover Mitigation Program	**2025**	$	3,095,495	Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**741652**	LCOV: Meter Station Filter	**2026**	$	3,084,949	Core 100% Issue/Concern/Opportunity: Contaminants can be drawn up out of gas storage pools during the withdrawal phase. These contaminants have the potential to damage or otherwise adversely impact downstream components. An existing underground separator has been found inadequate for this service. Inspection is difficult as it is buried, and it is also known to be susceptible to plugging. This should be removed, and appropriate Separation/Filtration equipment installed to adequately protect piping, instrumentation, and equipment, both at the meter station and downstream as well. Justification: New equipment protects sensitive instrumentation and other downstream components from damage, improving life span, reducing maintenance requirements, and increasing overall process safety. Assets: Coveny Meter Station Related Projects: This is similar in nature to the 2021 upgrade at Wilkesport Meter Station, and will align with upcoming modifications at other meter stations in the area.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**738985**	Trafalgar NPS 26 Line Lowering - Bear Creek	**2026**	$	3,081,003	Project Specific: Replacement of 2 sections - ~200m in a ditch near Metcalfe St W (Strathroy) & ~145m near Scotchmere Drive & Amiens Road. ProjectWise Link to scope: pw://pwintegration.gtna.gt.ds:TRIM_PROD/Documents/D{b9ae5768-d178-455e-8e7d-e1b4ee25e72d} General: Sections of the NPS 26 Trafaglar pipeline have been identified as shallow with depth of cover below the minimum permissble by TSSA. This project will mitigate these areas by lowering the pipeline through these areas. Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**740595**	NPS 24 Mid Kimball Transmission Pipeline Retrofit - Cloned	**2025**	$	2,965,372	Project Specific: Install permanent launcher and receiver facilities prior to next scheduled inspection in 2022. Associated 2022 O&M spend. Installing permanent launcher and receiver facilities saves O&M spend which would otherwise be required to install and remove temporary facilities each inspection cycle. Permanent launcher/receiver facilities also provide a high degree of flexibility with respect to the timing of inspections which leads to system optimization and reduces disruption to normal pipeline operations. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of Union's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**1779**	Trafalgar NPS 34 Hamilton-Milton-Oldenburg Rd Class Location Replacement (Oldenburg Road)	**2025**	$	2,925,833	Project Specific: Trafalgar NPS 34 Hamilton-Milton-Oldenburg Road - 70m of NPS 34. Class 2 to 3. General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development occurs in close proximity to EGI's pipelines which triggers annual class location changes; this work ensures EGI is compliant and fosters the safety of the public and the pipeline system.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102787**	2030 Well Lateral Integrity Program	**2030**	$	2,904,732	2030 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2023-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools or subject to other integrity verification.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**742753**	NPS 16x20 Dow Moore Gathering Core	**2025**	$	2,888,332	Issue/Concern/Opportunity: Dow Moore Gathering had receiver site abandoned after 2016 ILI. Installation of facilities to receive smart tool is required to be able to inspect the pipeline to assess condition. Justification: Required to meet condition monitoring requirements Assets: NPS 16 Dow More Gathering Pipe A, NPS 16 Dow More Gathering Pipe C and NPS 20 Dow More Gathering Pipe B would be inspected following the installation of the receiver facilities. Related Investments:	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**735770**	A1 observation program-LEG	**2034**	$	2,843,751	Issue/Concern: Observation wells are required pursuant to Section 7.5 of CSA Z341 – Storage of hydrocarbons in underground formations . The observation well will monitor gas content and pressure in the underground storage area which will assist with the continued safe and reliable delivery of natural gas to our existing and future customers. Section 7.5: "Observation wells shall be incorporated into the storage facility and shall monitor pressures and the presence of hydrocarbons within the storage zone and associated permeable zones. The location and design of the observation well shall take into consideration: (a) locations within the storage zone that are suitable for monitoring reservoir pressures; (b) potential migratory paths from the reservoir to another formation; (c) fluid interface monitoring at the location of the spill point; (d) permeable zones and stratigraphic traps above the storage zone; and (e) low-permeability zones or formations adjacent to and in communication with" In addition, interpretations of the latest reservoir simulations indicate that the A-1 sucrosic dolomite may extend beyond the geographical edge of some DSAs. The DSA boundary protects the reef from any unwanted drilling by a third party. If the A-1 does, in fact, extend beyond the DSA boundary, a third party could receive permission to drill and if they penetrated the A-1 sucrosic they would be connected to the associated reef. EGD would then be forced to extend the DSA boundary and include, or buy out, the 3rd party. While the seismic provides a good interpretation of the A-1 it is not definitive and the only way to fully determine if the A-1 sucrosic is located beyond the boundary of the DSA is to drill a well. Mitigation of this risk will protect EGD's rights to the associated reservoir facility. Finally, the A1 Observation wells were originally proposed as a means to verify the integrity of the reservoir boundaries and demonstrate the relationship of low permeability zones to LUF. EGD receives rate recovery on LUF, and A1 zones were considered a potential means by which gas was leaking out of the reservoirs or becoming trapped, thereby creating LUF. The issue is that EGI must continue to investigate causes of LUF in order to argue for cost recovery from rates. This program drills one A1 well per year for 9 years. There are currently no A1 observation wells at the following pools. Airport Oil Springs East Mandaumin Oil City Bluewater Heritage Tipperary Black Creek Chatham D	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**738986**	NPS 34 Line Lowering - Robinson Road	**2025**	$	2,600,216	Project Specific: Replacement of 1 section - ~540m crossing 2 ditches between Cuthbert Road and Robinson Road. ProjectWise Link to scope: pw://pwintegration.gtna.gt.ds:TRIM_PROD/Documents/D{8c168275-7d88-4ba8-a3ce-d16dfde64f9e} General: Sections of the NPS 34 Trafaglar pipeline have been identified as shallow with depth of cover below the minimum permissible by TSSA. This project will mitigate these areas by lowering the pipeline through these areas. Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**741648**	LLAD: Meter Station Filter	**2030**	$	2,493,001	Core 88% / Non-Core 12% Issue/Concern/Opportunity: Contaminants can be drawn up out of gas storage pools during the withdrawal phase. These contaminants have the potential to damage or otherwise adversely impact downstream components. An existing underground separator has been found inadequate for this service. Inspection is difficult as it is buried, and it is also known to be susceptible to plugging. This should be removed, and appropriate Separation/Filtration equipment installed to adequately protect piping, instrumentation, and equipment, both at the meter station and downstream as well. Justification: New equipment protects sensitive instrumentation and other downstream components from damage, improving life span, reducing maintenance requirements, and increasing overall process safety. Assets: Ladysmith Meter Station Related Projects: This is similar in nature to the 2021 upgrade at Wilkesport Meter Station, and will align with upcoming modifications at other meter stations in the area.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**742747**	Ladysmith Gathering and Transmission Retrofit	**2025**	$	2,372,298	Issue/Concern/Opportunity NPS 20 Ladysmith Transmission and Gathering Lines have had partial retrofits completed previously but are not ready for next inspection scheduled for 2026. Scope includes connecting the gathering and transmission lines through Ladysmith Metering Station and adding a permanent receiver at Tecumseh Justification: Required for scheduled Condition Monitoring Assets: \\Egd.enbridge.com\vpc\DEPTS\GSTS Integrity\Condition Monitoring\EGS\NPS 20 Ladysmith Transmission\2026\2 - Asset information\Retrofits\Intergrity Retrofit Scope - NPS 20 Ladysmith Transmission and Gathering.xlsx" Related Investments:	Fail	See investment description, IRPAs not applicable
Southeast	**Div_07 - Waterloo**	Transmission Pipe & Underground Storage	**Pass**	**738677**	Trafalgar 42 Saxton Rd	**2026**	$	2,346,136	Project Specific: Trafalgar NPS 42 - Saxton Road - Replace 235m NPS 42. General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development occurs in close proximity to EGI's pipelines which triggers annual class location changes; this work ensures EGI is compliant and fosters the safety of the public and the pipeline system.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**738797**	LDOW: Meter Station Filter	**2028**	$	2,246,078	Core 47% / Non-Core 53% Issue/Concern/Opportunity: Contaminants can be drawn up out of gas storage pools during the withdrawal phase. These contaminants have the potential to damage or otherwise adversely impact downstream components. An existing underground separator has been found inadequate for this service. Inspection is difficult as it is buried, and it is also known to be susceptible to plugging. This should be removed, and appropriate Separation/Filtration equipment installed to adequately protect piping, instrumentation, and equipment, both at the meter station and downstream as well. Justification: New equipment protects sensitive instrumentation and other downstream components from damage, improving life span, reducing maintenance requirements, and increasing overall process safety. Assets: Dow Meter Station Related Projects: This is similar in nature to the 2021 upgrade at Wilkesport Meter Station, and will align with upcoming modifications at other meter stations in the area.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**738801**	LMKC: Meter Station Filter	**2027**	$	2,231,050	Core 67% / Non-Core 33% Issue/Concern/Opportunity: Contaminants can be drawn up out of gas storage pools during the withdrawal phase. These contaminants have the potential to damage or otherwise adversely impact downstream components. An existing underground separator has been found inadequate for this service. Inspection is difficult as it is buried, and it is also known to be susceptible to plugging. This should be removed, and appropriate Separation/Filtration equipment installed to adequately protect piping, instrumentation, and equipment, both at the meter station and downstream as well. Justification: New equipment protects sensitive instrumentation and other downstream components from damage, improving life span, reducing maintenance requirements, and increasing overall process safety. Assets: Mid-Kimball Meter Station Related Projects: This is similar in nature to the 2021 upgrade at Wilkesport Meter Station, and will align with upcoming modifications at other meter stations in the area.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**742234**	LSKC: Meter Station Filter	**2027**	$	2,182,420	Core 70% / Non-Core 30% Issue/Concern/Opportunity: Contaminants can be drawn up out of gas storage pools during the withdrawal phase. These contaminants have the potential to damage or otherwise adversely impact downstream components. An existing underground separator has been found inadequate for this service. Inspection is difficult as it is buried, and it is also known to be susceptible to plugging. This should be removed, and appropriate Separation/Filtration equipment installed to adequately protect piping, instrumentation, and equipment, both at the meter station and downstream as well. Justification: New equipment protects sensitive instrumentation and other downstream components from damage, improving life span, reducing maintenance requirements, and increasing overall process safety. Assets: South Kimball Meter Station Related Projects: To be constructed in conjunction with the Mid-Kimball Meter Station Filter project, as both are within the same fenced area and have common piping elements. Reference Investments: Core: 738801 Non-Core: 738802 This is similar in nature to the 2021 upgrade at Wilkesport Meter Station, and will align with upcoming modifications at other meter stations in the area.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**735995**	Black Creek A1 Observation well	**2029**	$	2,111,949	Issue/Concern/Opportunity: The storage pool pressure at the Black Creek pool is monitored by a Guelph formation observation well. This well's pressure is monitored and recorded continuously, and represents an inventory by the pools specific Pressure/inventory ratio. These pressures/inventories are compared to daily metered gas injections and withdrawals from the pool to perform an annual inventory verification. All discrepancies arising from this verification must be investigated. Assets: This project drills one A1 observation well in the Black Creek pool DSA. The well will be a 5 1/2" production casing, cemented at least 20m into the A1 formation and perforated in the A1 formation. Pressures from this well will be conveyed to the SCADA system for continuous monitoring and recording. These pressures will be assessed on an ongoing basis and during inventory verifications to confirm structural integrity of the Black Creek storage pool. Any increase in pressure would be proof of gas migration to the A1 formation. Related Program: Well Casing Inspection, Maintenance and Replacements	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**503195**	NPS 24 Trafalgar Bypass Retrofit	**2027**	$	1,990,063	Project-Specific: External Corrosion Direct Assessment (ECDA) to In-Line Inspection (ILI) Program, supporting refinement of pipeline risk profile. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30% Specified Minimum Yield Strength (SMYS). It includes installation costs for permanent ILI tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections Asset: The 1.1km NPS 24 Trafalgar Bypass pipeline connects the NPS 26 Trafalgar pipeline to Kirkwall Custody Transfer Station. It is currently monitored via External Corrosion Direct Assessment (ECDA), which does not provide as complete a data set as In-Line Inspection (ILI) for Integrity Management purposes	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**734891**	Bentpath Pool Gathering Pipeline System Retrofit	**2030**	$	1,710,639	Project Specific: ECDA to ILI program, supporting refinement of pipeline risk profile. Associated 2026 O&M spend for ILI. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of Union's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections. Link to scope in ProjectWise: pw://pwintegration.gtna.gt.ds:TRIM_PROD/Documents/D{b43af49c-73c9-4c53-a8c0-dfceb8e197d8}	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**102768**	2027 Dig Program S&T	**2027**	$	1,677,131	2027 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**102769**	2028 Dig Program S&T	**2028**	$	1,646,711	2028 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743135**	LCOV: Valve Replacements	**2034**	$	1,644,548	Core: 100% NOTE: This is a collective investment that will eventually be broken into multiple, asset specific investments when additional time allows. Specific assets are considered in this dollar value. Issue/Concern/Opportunity: Emergency Shutdown Valves (ESV), overpressure protection/plot edge isolation valves, and equipment/component isolation valves at Coveny Meter Station have reached the end of their anticipated service life and may not be functioning adequately. Justification: Emergency Shutdown Valves are designed to close and isolate connected piping in an emergency scenario. A malfunctioning ESV is a potential process safety hazard. Overpressure protection valves are designed to close and protect connected piping systems to prevent maximum operating pressures from being exceeded. A malfunctioning overpressure protection valve is a process safety hazard. Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: To be defined.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**742787**	2033 Dig Program S&T	**2033**	$	1,584,062	2032 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**742795**	2034 Dig Program S&T	**2034**	$	1,583,483	2034 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**735380**	2032 Dig Program S&T	**2032**	$	1,581,115	2032 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**102770**	2029 Dig Program S&T	**2029**	$	1,578,417	2029 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**735379**	2031 Dig Program S&T	**2031**	$	1,578,374	2031 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**102771**	2030 Dig Program S&T	**2030**	$	1,578,356	2030 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2021-2025 General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of EGI's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**1784**	Panhandle NPS 16 - Bradley Line Class Location Replacement	**2025**	$	1,485,838	Project Specific: Panhandle NPS 16 - Bradley Line - 700m of NPS 16 through cluster of farm houses/buildings. 1 road crossing. Class 1 to 2. General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development occurs in close proximity to EGI's pipelines which triggers annual class location changes; this work ensures EGI is compliant and fosters the safety of the public and the pipeline system.	Fail	See investment description, IRPAs not applicable

STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**733613**	NPS 10 Bentpath East - Booth Creek Retrofit	**2025**	$	1,485,838	Project Specific: ECDA to ILI program, supporting refinement of pipeline risk profile. Associated 2026 O&M spend for ILI. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of Union's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections. Link to scope in ProjectWise: pw://pwintegration.gtna.gt.ds:TRIM_PROD/Documents/D{ac4059a4-8ac2-4f53-be25-ff48a7342bbe}	Fail	See investment description, IRPAs not applicable
Head Office/All	**00 - Head Office**	Transmission Pipe & Underground Storage	**Pass**	**742690**	Mid and South Kimball Gathering Retrofits	**2025**	$	1,482,686	Dynamic Risk completed an independent review of TIMP to establish uncertainty levels in the fitness-for-service conclusions for all TIMP assets. This first phase of the project was completed last year. TIMP is currently developing plans to mitigate high and moderate uncertainties in the fitness-for-service conclusions by leveraging existing integrity activities and potentially introducing new ones.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743131**	LLAD: Valve Replacements	**2033**	$	1,446,866	Core: 88% / Non-Core: 12% NOTE: This is a collective investment that will eventually be broken into multiple, asset specific investments when additional time allows. Specific assets are considered in this dollar value. Issue/Concern/Opportunity: Emergency Shutdown Valves (ESV), overpressure protection/plot edge isolation valves, and equipment/component isolation valves at Ladysmith Meter Station have reached the end of their anticipated service life and may not be functioning adequately. Justification: Emergency Shutdown Valves are designed to close and isolate connected piping in an emergency scenario. A malfunctioning ESV is a potential process safety hazard. Overpressure protection valves are designed to close and protect connected piping systems to prevent maximum operating pressures from being exceeded. A malfunctioning overpressure protection valve is a process safety hazard. Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: To be defined.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**48708**	Gas Chromatograph Replacement	**2025**	$	1,434,655	Obsolescence - The 700 series GCs were installed starting in 2005 and were found to be problematic so a switch back to the 570 series was implemented going forward. Eventually, the 700 series has become unsupported by the manufacturer. Dawn techs have been repairing with salvaged parts but it is getting difficult to keep them in service. Individual project investments will be created. Stations to be upgraded: 4749 - 10G-310 Bentpath East/Booth Creek - 11H-402 Bentpath/Rosedale - 11H-401 Bluewater/Airport/Mandaumin - 13G-503 Dawn South - 10G-302 Dow A - 13F-602 Enniskillen - 11G-203 Sombra/St. Clair - 10F-103 Waubuno - 11G-102 Vector Courtright - 11F-108	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**738804**	LCOR: Meter Station Filter	**2030**	$	1,403,324	Core 38% / Non-Core 62% Issue/Concern/Opportunity: Contaminants can be drawn up out of gas storage pools during the withdrawal phase. These contaminants have the potential to damage or otherwise adversely impact downstream components. An existing underground separator has been found inadequate for this service. Inspection is difficult as it is buried, and it is also known to be susceptible to plugging. This should be removed, and appropriate Separation/Filtration equipment installed to adequately protect piping, instrumentation, and equipment, both at the meter station and downstream as well. Justification: New equipment protects sensitive instrumentation and other downstream components from damage, improving life span, reducing maintenance requirements, and increasing overall process safety. Assets: Corunna Meter Station Related Projects: This project is similar in nature and will align with modifications at other Enbridge meter stations in the area.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**736101**	New Well Lateral/Crossover (Well Lifecycle Replacement)-LEG	**2034**	$	1,331,180	Issue/Concern: This program will install new lateral/crossovers gathering system for new wells (Lifecycle Replacements). The Well Lifecycle Replacement program is intended to recover lost design day deliverability due to well relines and abandonments. The deliverability of the new well is not intended to increase but maintain the deliverability. Asset: Wells Related Program: Well Lifecycle Replacement (735974)	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**735994**	Oil City A1 Observation Well	**2029**	$	1,247,357	This project drills one A1 observation well in the Oil City pool DSA. The well will be a 5 1/2" production casing, cemented at least 20m into the A1 formation and perforated in the A1 formation. Pressures from this well will be conveyed to the SCADA system for continuous monitoring and recording. These pressures will be assessed on an ongoing basis and during inventory verifications to confirm structural integrity of the Bluewater storage pool. Any increase in pressure would be proof of gas migration to the A1 formation. Split regulated and unregulated (63/37)	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**1788**	Panhandle NPS 20 - N Talbot Road Class Location Replacement	**2025**	$	1,238,198	Project Specific: Panhandle NPS 20 - N Talbot Road - 70m NPS 20 Road crossing. Class 1 to 2. General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development occurs in close proximity to EGI's pipelines which triggers annual class location changes; this work ensures EGI is compliant and fosters the safety of the public and the pipeline system. Work completed in 2022: -Directional drill design -Pipeline materials procured -Surveying work -Archaeology -Geotechnical - Tiling Work remaining in 2023 (if possible, which is unclear because of the amount of work happening on the Panhandle system): -Execution of directional drill -Landowner tiling -Pipeline tie-ins -Another round of permits, including HONI	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**735749**	Mandaumin Pool Line Retrofit	**2031**	$	1,209,027	Project Specific: ECDA to ILI program, supporting refinement of pipeline risk profile. Associated 2033 O&M spend for ILI. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of Union's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**738426**	LSEC: Meter Station Filter	**2025**	$	1,164,502	Issue/Concern/Opportunity: Contaminants can be drawn up out of gas storage pools during the withdrawal phase. These contaminants have the potential to damage or otherwise adversely impact downstream components. An existing underground separator has been found inadequate for this service. Inspection is difficult as it is buried, and it is also known to be susceptible to plugging. This should be removed, and appropriate Separation/Filtration equipment installed to adequately protect piping, instrumentation, and equipment, both at the meter station and downstream as well. Justification: New equipment protects sensitive instrumentation and other downstream components from damage, improving life span, reducing maintenance requirements, and increasing overall process safety. Assets: Seckerton Meter Station Related Projects: This is similar in nature to the 2021 upgrade at Wilkesport Meter Station, and will align with upcoming modifications at other meter stations in the area.	Fail	See investment description, IRPAs not applicable
Southeast	**Div_07 - Waterloo**	Transmission Pipe & Underground Storage	**Pass**	**738679**	Trafalgar 48 Mc Niven Rd	**2027**	$	1,105,804	Project Specific: Trafalgar 48 McNiven Road - Replace 32m NPS 48 General: Annual Class Location surveys are required as per the Canadian Standards Association Z662 – Oil and Gas Pipeline Systems for pipelines greater than 30 per cent SMYS. Any changes in class location need to be assessed to the current standard to determine if pipeline modifications are required. Urban development occurs in close proximity to EGI's pipelines which triggers annual class location changes; this work ensures EGI is compliant and fosters the safety of the public and the pipeline system.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**742849**	BSEC:K501-Upgrade for Blowdown Recovery	**2026**	$	1,066,022	***2025-2034 AMP*** *Issue/Concern/Opportunity* Blowdown Recovery does not exist at SCOR. There is only a flare with limited flow capacity. When pipelines need to be de-gassed for hot work repairs or tie-ins, the current practice is to recover pipeline gas as low as possible using main process compressors. This gets pipeline gas down to 200 to 300 psig. Once pipeline pressure is reduced to the greatest extent possible, remaining gas can be flared - but this usually takes days and the gas is often vented to atmosphere to accommodate project schedules. Another concern is that GHG emission regulations are tightening further in 2026. A practical, high flow capacity solution is needed to be able to recover gas rather than vent to atmosphere. *Justification* Demonstrably lower GHG released to atmosphere. Proactive environmental improvement. *Assets* BSEC:K501 *Related Investments* N/A	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**102418**	Rectifier Ground Bed Replacement Program	**2025**	$	1,051,293	General: The corrosion program includes the expenditure other than anodes required to reduce the amount of down plant within EGD's storage system. These installations and replacements are based on the requirement in the Company's Construction & Maintenance Manual to maintain the appropriate level of cathodic protection on steel pipeline assets. Individual projects will be set up to use these program dollars based on identification of rectifier and groundbed sites by the Corrosion group.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743138**	LCOR: Meter Station Valves	**2034**	$	1,035,779	Core: 38% / Non-Core: 62% NOTE: This is a collective investment that will eventually be broken into multiple, asset specific investments when additional time allows. Specific assets are considered in this dollar value. Issue/Concern/Opportunity: Emergency Shutdown Valves (ESV), overpressure protection/plot edge isolation valves, and equipment/component isolation valves at Corunna Meter Station have reached the end of their anticipated service life and may not be functioning adequately. Justification: Emergency Shutdown Valves are designed to close and isolate connected piping in an emergency scenario. A malfunctioning ESV is a potential process safety hazard. Overpressure protection valves are designed to close and protect connected piping systems to prevent maximum operating pressures from being exceeded. A malfunctioning overpressure protection valve is a process safety hazard. Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: To be defined.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**736824**	Terminus Pool Well Lateral Retrofit	**2029**	$	1,018,339	This investment is required to retrofit the Terminus gathering system to allow for inline inspection of each specified pipe segment. ILI technology is used to monitor/assess specific conditions to establish the fitness for service of pipe assets removing uncertainly associated with ECDA or other direct assessment methods. Mitigation of uncertainly in fitness for service assessment was identified as part of the Dynamic Risk Independent Asset Integrity Review. Asset Overview Terminus Gathering UT8 • Replace existing 8" valve with 10" valve and replace reducer with 10" pipe. • Replace NPS 10 well lateral RT5 • Replace existing 8" valve with 10" valve and replace reducer with 10" pipe • Replace the NPS 10 well lateral UT9 • Replace existing 8" valve with 10" valve and replace reducer with 10" pipe • Replace the NPS 10 well lateral R4 •Replace a segment of the NPS 12 well lateral R2 •This well lateral is to be abandoned and removed	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**1920**	NPS 16 South Mid Kimball Gathering Pipeline Retrofit	**2026**	$	1,012,017	Project Specific: Install permanent launcher and receiver facilities prior to next scheduled inspection in 2022. Associated 2022 O&M spend. Installing permanent launcher and receiver facilities saves O&M spend which would otherwise be required to install and remove temporary facilities each inspection cycle. Permanent launcher/receiver facilities also provide a high degree of flexibility with respect to the timing of inspections which leads to system optimization and reduces disruption to normal pipeline operations. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of Union's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**740596**	NPS 20 South Mid Kimball Gathering Pipeline Retrofit - Cloned	**2026**	$	1,012,017	Project Specific: Install permanent launcher and receiver facilities prior to next scheduled inspection in 2022. Associated 2022 O&M spend. Installing permanent launcher and receiver facilities saves O&M spend which would otherwise be required to install and remove temporary facilities each inspection cycle. Permanent launcher/receiver facilities also provide a high degree of flexibility with respect to the timing of inspections which leads to system optimization and reduces disruption to normal pipeline operations. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of Union's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**736098**	New Well Lateral/Crossover (Well Lifecycle Replacement)-LUG	**2033**	$	982,968	Issue/Concern: This program will install new lateral/crossovers gathering system for new wells (Lifecycle Replacements). The Well Lifecycle Replacement program is intended to recover lost design day deliverability due to well relines and abandonments. The deliverability of the new well is not intended to increase but maintain the deliverability. Asset: Wells Related Program: Well Lifecycle Replacement (48735)	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102417**	Rectifier Ground Bed Replacement Program	**2025**	$	979,682	General: The corrosion program includes the expenditure other than anodes required to reduce the amount of down plant within Union's system. These installations and replacements are based on the internal Standard Operating Practice established to maintain the appropriate level of cathodic protection on steel pipeline assets. Individual projects will be set up to use these program dollars based on identification of rectifier and groundbed sites by the Corrosion group.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**742986**	TR5: SOM-TCPL Isolation	**2028**	$	863,811	Issue/Concern/Opportunity: Three valves associated with the Sombra to TCPL and TSLE transmission piping are beyond the end of their anticipated service life and may not be functioning adequately. These valves provide isolation and overpressure protection functionality for the associated piping system. Justification: Overpressure protection valves are designed to close and protect connected piping systems to prevent maximum operating pressures from being exceeded. A malfunctioning overpressure protection valve is a process safety hazard. Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: 160-XV-001 160-XV-002 160-XV-003	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**741042**	LDOW:TD31 (core)	**2030**	$	837,492	This project is the core portion of the gathering line for the new well TD31 in the Dow pool. Well abandonments resulting from the Leaking and Relined well replacement programs have diminished the flow capacity of the Dow reservoir by 60% . The drilling of the new wells TD 28 and TD 29 in 2019 has recovered 53% of the lost deliverability with the pool deliverability currently at 72% of the pre abandonment deliverability. The drilling of the two proposed wells, TD30 and TD31, is designed to recover the remaining lost deliverability. Deliverability reduction of this magnitude increases CSAT risk dramatically. *Asset*: Dow Moore reservoir (Wells and Well Equipment asset program) and gathering system (Field Lines asset program). *Related Programs*/BCs: Installation of wells is performed by the reservoir group (Wells and Well Equipment asset program), installation of laterals is performed by the project execution group (Field Lines asset program). This separation is based on skill set and qualifications. There is a programmatic time dependence between the two asset programs.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**741039**	L DOW TD30 (core)	**2030**	$	837,492	This project is the non core portion of the gathering line for the new well TD30 in the Dow pool. Well abandonments resulting from the Leaking and Relined well replacement programs have diminished the flow capacity of the Dow reservoir by 60% . The drilling of the new wells TD 28 and TD 29 in 2019 has recovered 53% of the lost deliverability with the pool deliverability currently at 72% of the pre abandonment deliverability. The drilling of the two proposed wells, TD30 and TD31, is designed to recover the remaining lost deliverability. Deliverability reduction of this magnitude increases CSAT risk dramatically. *Asset*: Dow Moore reservoir (Wells and Well Equipment asset program) and gathering system (Field Lines asset program). *Related Programs*/BCs: Installation of wells is performed by the reservoir group (Wells and Well Equipment asset program), installation of laterals is performed by the project execution group (Field Lines asset program). This separation is based on skill set and qualifications. There is a programmatic time dependence between the two asset programs.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**742937**	High Performance Coating	**2025**	$	788,470	Issue/Concern: High Performance Coating (HPC) is required on above-grade piping to reduce the chance of external corrosion. HPC has an expected life of approximately 15 years while standard coatings only typically last 5-8 years. HPC was recently mandated as the coating system to be used going forward, however, the majority of the sites only have standard coating, which is at end of life. STO has approximately 45 remote sites, 4 Compressor facilities and 1 LNG facility (Hagar).	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**734923**	Oil Springs East Gathering System	**2026**	$	785,955	Project Specific: ECDA to ILI program, supporting refinement of pipeline risk profile. Associated 2027 O&M spend for ILI. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of Union's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections. Link to scope in ProjectWise: pw://pwintegration.gtna.gt.ds:TRIM_PROD/Documents/P{f139cda8-4935-4324-8c4f-5e2ab9e842ce}/	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**735748**	Booth Creek Pool Retrofit	**2030**	$	784,881	Project Specific: ECDA to ILI program, supporting refinement of pipeline risk profile. Associated 2032 O&M spend for ILI. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of Union's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**101905**	LM:Leaking Valves-Replace	**2030**	$	780,404	*Issue/Concern* Operations have identified isolation valves that to not provide sufficient seal quality that they could be trusted to provide isolation during normal maintenance activities or emergency situations. Valve condition - i.e. it's ability to perform it's intended function - is in scope for the Asset Health Review. Condition assessment results are rudimentary. Leaking valve seals are not necessarily valves that leak to atmosphere or pose a loss of containment threat. Instead, these leaking valves pose: (i) a process safety threat; (ii) a loss of system performance by creating recycle loops; and (iii) decreased ability to provide a safe work environment for maintenance activities that require double lock and bleed. If valve condition is not maintained at a reasonable level, the ability to isolate assets during an emergency, will be compromised. Valves in question are sometimes used to separate piping with different MOPs. If these valves are allowed to leak, there is an increased threat of overpressuring lower MOP pipe as gas bleeds through the valve from higher MOP pipe. *Asset* ¼ Turn Isolation valves . There are hundreds of these valves in service. *Related Program* Not Applicable	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**734893**	Rosedale Pool Gathering System	**2030**	$	754,694	Project Specific: ECDA to ILI program, supporting refinement of pipeline risk profile. Associated 2026 O&M spend for ILI. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of Union's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections. Link to scope in ProjectWise: pw://pwintegration.gtna.gt.ds:TRIM_PROD/Documents/D{3149e15e-be7a-4707-86d9-520d326f5736}	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743126**	LSKC: Meter Iso Valves	**2025**	$	674,846	Core: 70% / Non-Core: 30% Issue/Concern/Opportunity: Meter isolation valves at South-Kimball Meter Station have reached the end of their anticipated service life and may not be functioning adequately. Justification: Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: 211-HV-003 (16"-600#) 211-HV-001 (16"-600#) 211-HV-007 (16"-600#) 211-HV-005 (16"-600#) 211-HV-013 (16"-600#) 211-HV-011 (16"-600#)	Fail	See investment description, IRPAs not applicable

STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743124**	LMKC: Meter Iso Valves	**2025**	$	660,116	Core: 67% / Non-Core: 33% Issue/Concern/Opportunity: Meter isolation valves at Mid-Kimball Meter Station have reached the end of their anticipated service life and may not be functioning adequately. Justification: Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: 211-HV-003 (16"-600#) 211-HV-001 (16"-600#) 211-HV-007 (16"-600#) 211-HV-005 (16"-600#) 211-HV-013 (16"-600#) 211-HV-011 (16"-600#)	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**735747**	Ennisksillen Well Laterals Retrofit	**2026**	$	645,187	Project Specific: ECDA to ILI program, supporting refinement of pipeline risk profile. Associated 2027 O&M spend for ILI. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of Union's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**734896**	Bickford Pool Gathering System 2027 ECDA to ILI	**2027**	$	630,308	Project Specific: ECDA to ILI program, supporting refinement of pipeline risk profile. Associated 2028 O&M spend for ILI. General: The Integrity Management Program is a mandated regulatory requirement which has been designed to comply with all applicable codes and standards. The program consists of the regular assessment and maintenance of the integrity of Union's pipeline systems to ensure their continued safety and reliability. Most of the expenditure included in this category is for pipelines that operate above 30 per cent SMYS. It includes installation costs for permanent inline inspection (ILI) tool launcher and receiver facilities, retrofits to existing lines to remove restrictive fittings or pipe configurations so they can be inspected with ILI tools, and replacement of pipeline segments with integrity issues that are identified through the inspections. Link to scope in ProjectWise: pw://pwintegration.gtna.gt.ds:TRIM_PROD/Documents/D{3d7d3327-df69-4180-9785-4bceb6117cba}	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**742861**	LM:PIT-Upgrade	**2026**	$	627,359	***2025-2034 AMP*** *Issue/Concern/Opportunity* Storage system performance modelling (using Synergi) is dependent of accurate understanding of pool pipeline performance characteristics. Performance related to Storage projects can only be justified, in an Asset management context, based on this understanding. Currently, instrumentation of pipeline facilities is inadequate to accomplish the required Asset management inputs. LUG assets are equipped with the additional pressure monitoring. This proposal provides consistency across all of the STO system. *Justification* Establish design day flow capacity with greater accuracy. *Assets* Multiple Pipelines (LM) *Related Investments* N/A	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743121**	LDOW: Meter Iso Valves	**2025**	$	623,597	Core: 47% / Non-Core: 35% Issue/Concern/Opportunity: Meter isolation valves at Dow Moore Meter Station have reached the end of their anticipated service life and may not be functioning adequately. Justification: Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: 211-HV-003 (16"-900#) 211-HV-001 (16"-900#) 211-HV-007 (16"-900#) 211-HV-005 (16"-900#) 211-HV-013 (16"-900#) 211-HV-011 (16"-900#)	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743058**	P_DOW-160-XV-001 - Field Isolating Valve Replacement	**2029**	$	505,903	Issue/Concern/Opportunity: Field Isolation Valve (NPS 24) has reached estimated end of life Justification:Valves at end of life can leak, preventing safe and efficient isolation, unpredictable operation Assets: Related Investments:	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**102794**	2026 Depth of Cover Mitigation Program	**2026**	$	460,660	2026 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2024-2025 Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743064**	P_MKC-160-XV-002 - Gathering Line Isolating Valve 'B' Replacement	**2026**	$	446,701	Issue/Concern/Opportunity: Gathering Line Isolation Valve (NPS 20) has reached estimated end of life Justification:Valves at end of life can leak, preventing safe and efficient isolation, unpredictable operation Assets: Related Investments:	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743065**	P_MKC-160-XV-003 - Gathering Line Isolating Valve 'C' Replacement	**2026**	$	446,701	Issue/Concern/Opportunity: Gathering Line Isolation Valve (NPS 20) has reached estimated end of life Justification:Valves at end of life can leak, preventing safe and efficient isolation, unpredictable operation Assets: Related Investments:	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743066**	P_MKC-160-XV-004 - Gathering Line Isolating Valve 'D' Replacement	**2026**	$	446,701	Issue/Concern/Opportunity: Gathering Line Isolation Valve (NPS 20) has reached estimated end of life Justification:Valves at end of life can leak, preventing safe and efficient isolation, unpredictable operation Assets: Related Investments:	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**102795**	2027 Depth of Cover Mitigation Program	**2027**	$	443,472	2027 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2024-2025 Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable

STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**102796**	2028 Depth of Cover Mitigation Program	**2028**	$	435,428	2028 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2024-2025 Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743062**	P_SKC-160-XV-001 - Field Isolating Valve 'A' Replacement	**2027**	$	430,034	Issue/Concern/Opportunity: Field Isolation Valve (NPS 20) has reached estimated end of life Justification:Valves at end of life can leak, preventing safe and efficient isolation, unpredictable operation Assets: Related Investments:	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**6376**	LCRW:Wells-Upgrade	**2028**	$	422,234	*Issue/Concern*: Wells at Crowland are much older than other wells in EGS. Due to age, the wells were constructed to a production standard which would normally be retired after 10 years. Instead, the wells were converted to Storage service in the early 1970's and continue to operate ever since. Many wells have been relined, increasing the risk of leaks. Most wells possess only two casings - the current standard requires a minimum of three. The two-casing design at Crowland is comprised of an inner casing that runs from the surface to the reservoir (about 225m) plus a surface casing that runs from the surface to a depth of about 20m. Most wells do not have an intermediate casing with cement between the inner and intermediate casings, however, there is cement between the inner casing and the surrounding rock. This provides a poor barrier to gas flow should the inner casing fail. In addition, none of the wells at Crowland employ wellheads and master valves. Instead, the inner casing is simply connected to a flanged 1/4 turn valve without wing valves or wellhead vents. The surface casing is separated from the surface using cement. There are no casing vents and part of the inner casing (typically a length of 2 to 16 inches) is exposed at the surface. The lack of casing vents eliminates normal approaches to controlling a failed well. Ventlogs have been performed in the last 5 years, and indicated that the inner casing integrity is adequate, although two of 26 wells needed to be abandoned. Currently, there are 24 wells remaining. Bond logs have not been performed yet to determine the condition of cement at sulphur layers. Primary concerns are: (1) Code compliance of the wells and wellheads. Technically, these wells were constructed before CSA Z341 came into force, and are grandfathered. However, a well failure would likely be viewed negatively by technical regulators. (2) Risk to employees and the public - in the event of a loss of containment, there are insufficient barriers to gas flow. Public risk also extends to possible sulphur contamination of well water at surface levels. In addition to the wells, much of the gathering system is as old as the wells. The gathering system is operating at <30% SMYS, which means that they have not be considered for integrity inspections until recently and that the gathering system pipe condition is unknown after 50 to 100 years of operation. *Asset*: Crowland wells and gathering system. *Related Programs*/BCs: PCRW:Wells-Upgrade. This risk is under consideration in conjunction with an overall Crowland upgrade program - MCRW:Storage-Renewal. Issues related to the wells and gathering system should be considered together with other additional compressor station issues/concerns.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**742772**	2033 Depth of Cover Mitigation Program	**2033**	$	418,863	2032 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2024-2025 Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**742794**	2034 Depth of Cover Mitigation Program	**2034**	$	418,709	2034 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2024-2025 Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**735377**	2032 Depth of Cover Mitigation Program	**2032**	$	418,083	2032 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2024-2025 Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**102797**	2029 Depth of Cover Mitigation Program	**2029**	$	417,370	2029 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2024-2025 Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**735376**	2031 Depth of Cover Mitigation Program	**2031**	$	417,358	2031 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2024-2025 Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**102798**	2030 Depth of Cover Mitigation Program	**2030**	$	417,354	2030 forecast: This is a program budget placeholder, estimated using an average of the spend profile between 2024-2025 Mitigation of depth of cover sites that are out of compliance with CSA Z662 & TSSA requirements. Some of the known sites are discovered during annual Depth of Cover Surveying, while others are reported by company crews when performing maintenance work or by 3rd party . At this time the specific work scope of each year is not defined and this is a blanket program as a placeholder in the budget. The mitigation work will include the construction costs from sites identified and planned for the current year, as well as work on sites that are newly identified. Scope of work can vary from small remediation projects to add fill, concrete or bank stabilization, to short replacement of pipe.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743067**	P_DOW-160-HV-003 - East Dow Moore Pigging Isolating Valve Replacement	**2034**	$	406,021	Issue/Concern/Opportunity: Pigging Isolation Valve (NPS 20) has reached estimated end of life Justification:Valves at end of life can leak, preventing safe and efficient isolation, unpredictable operation Assets: Related Investments:	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743061**	P_SEC-160-XV-001 - Field Isolating Valve Replacement	**2030**	$	404,707	Issue/Concern/Opportunity: Field Isolation Valve (NPS 20) has reached estimated end of life Justification:Valves at end of life can leak, preventing safe and efficient isolation, unpredictable operation Assets: Related Investments:	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102564**	STO STORAGE WELL UPGRADES 2026-LUG	**2026**	$	381,247	Casing inspection logs are completed on a prescribed basis as per Canadian Standards Association Z341 Storage of Hydrocarbons in Underground Formations. The storage well upgrades is an integrity project includes remediation requirements as a result of the casing inspection log. This project addresses any issues arising from the casing inspection log results and inspections of the storage wells in legacy Union Gas. The remediation may range from a well reline to a new wellhead or both with pressure testing of the well afterward.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743136**	LWLK: Valve Replacements	**2034**	$	375,570	Core: 100% NOTE: This is a collective investment that will eventually be broken into multiple, asset specific investments when additional time allows. Specific assets are considered in this dollar value. Issue/Concern/Opportunity: Emergency Shutdown Valves (ESV), overpressure protection/plot edge isolation valves, and equipment/component isolation valves at Wilkesport Meter Station have reached the end of their anticipated service life and may not be functioning adequately. Justification: Emergency Shutdown Valves are designed to close and isolate connected piping in an emergency scenario. A malfunctioning ESV is a potential process safety hazard. Overpressure protection valves are designed to close and protect connected piping systems to prevent maximum operating pressures from being exceeded. A malfunctioning overpressure protection valve is a process safety hazard. Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: To be defined.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**101913**	LM:Well Loops-Adjust	**2030**	$	360,025	*Issue/Concern* After installation, the soil surrounding laterals will compact and subside. In instances where this compaction is severe, the soil no longer provides adequate support for the pipe. The weight of the pipe is instead supported by the well loop which attaches the lateral to the well. The well loop is not intended or designed to support this additional and significant strain leading to a potential leak in the reservoir piping system. Normally, these situations are discovered during the annual vertilog program, when well loops are removed. Piping can settle for as long as ten years between vertilogs. Once discovered, the excess pipe strain cannot be ignored and piping modifications are required. *Asset* Gathering system risers connected to wells. *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102565**	STO STORAGE WELL UPGRADES 2027-LUG	**2027**	$	359,386	Casing inspection logs are completed on a prescribed basis as per Canadian Standards Association Z341 Storage of Hydrocarbons in Underground Formations. The storage well upgrades is an integrity project includes remediation requirements as a result of the casing inspection log. This project addresses any issues arising from the casing inspection log results and inspections of the storage wells in legacy Union Gas. The remediation may range from a well reline to a new wellhead or both with pressure testing of the well afterward.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**736408**	156 Storage Pool Gathering System Retrofits	**2027**	$	348,328	Install Stopples, Sandwich Valves and TORs to allow the inline inspection of 156 Pool gathering system. 156 Pool is a critical asset and it not currently being monitored for all applicable integrity hazards. The inspection for this system is planned in 2028. Project Wise Link: pw://pwintegration.gtna.gt.ds:TRIM_PROD/Documents/D{843d96b6-3fd3-471c-962a-4b8c3fce87a5}	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102567**	STO STORAGE WELL UPGRADES 2028-LUG	**2028**	$	337,191	Casing inspection logs are completed on a prescribed basis as per Canadian Standards Association Z341 Storage of Hydrocarbons in Underground Formations. The storage well upgrades is an integrity project includes remediation requirements as a result of the casing inspection log. This project addresses any issues arising from the casing inspection log results and inspections of the storage wells in legacy Union Gas. The remediation may range from a well reline to a new wellhead or both with pressure testing of the well afterward.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742694**	STO STORAGE WELL UPGRADES 2033-LUG	**2033**	$	328,035	Casing inspection logs are completed on a prescribed basis as per Canadian Standards Association Z341 Storage of Hydrocarbons in Underground Formations. The storage well upgrades is an integrity project includes remediation requirements as a result of the casing inspection log. This project addresses any issues arising from the casing inspection log results and inspections of the storage wells in legacy Union Gas. The remediation may range from a well reline to a new wellhead or both with pressure testing of the well afterward.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742696**	STO STORAGE WELL UPGRADES 2034-LUG	**2034**	$	327,827	Casing inspection logs are completed on a prescribed basis as per Canadian Standards Association Z341 Storage of Hydrocarbons in Underground Formations. The storage well upgrades is an integrity project includes remediation requirements as a result of the casing inspection log. This project addresses any issues arising from the casing inspection log results and inspections of the storage wells in legacy Union Gas. The remediation may range from a well reline to a new wellhead or both with pressure testing of the well afterward.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**735418**	STO STORAGE WELL UPGRADES 2032-LUG	**2032**	$	327,785	Casing inspection logs are completed on a prescribed basis as per Canadian Standards Association Z341 Storage of Hydrocarbons in Underground Formations. The storage well upgrades is an integrity project includes remediation requirements as a result of the casing inspection log. This project addresses any issues arising from the casing inspection log results and inspections of the storage wells in legacy Union Gas. The remediation may range from a well reline to a new wellhead or both with pressure testing of the well afterward.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102568**	STO STORAGE WELL UPGRADES 2029-LUG	**2029**	$	327,489	Casing inspection logs are completed on a prescribed basis as per Canadian Standards Association Z341 Storage of Hydrocarbons in Underground Formations. The storage well upgrades is an integrity project includes remediation requirements as a result of the casing inspection log. This project addresses any issues arising from the casing inspection log results and inspections of the storage wells in legacy Union Gas. The remediation may range from a well reline to a new wellhead or both with pressure testing of the well afterward.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**735417**	STO STORAGE WELL UPGRADES 2031-LUG	**2031**	$	327,445	Casing inspection logs are completed on a prescribed basis as per Canadian Standards Association Z341 Storage of Hydrocarbons in Underground Formations. The storage well upgrades is an integrity project includes remediation requirements as a result of the casing inspection log. This project addresses any issues arising from the casing inspection log results and inspections of the storage wells in legacy Union Gas. The remediation may range from a well reline to a new wellhead or both with pressure testing of the well afterward.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102569**	STO STORAGE WELL UPGRADES 2030-LUG	**2030**	$	327,034	Casing inspection logs are completed on a prescribed basis as per Canadian Standards Association Z341 Storage of Hydrocarbons in Underground Formations. The storage well upgrades is an integrity project includes remediation requirements as a result of the casing inspection log. This project addresses any issues arising from the casing inspection log results and inspections of the storage wells in legacy Union Gas. The remediation may range from a well reline to a new wellhead or both with pressure testing of the well afterward.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743056**	P_COV-151-HV-022 - Gathering Line Isolating Valve Replacement	**2027**	$	322,525	Issue/Concern/Opportunity: Gathering Line Isolation Valve (NPS 16) has reached estimated end of life Justification:Valves at end of life can leak, preventing safe and efficient isolation, unpredictable operation Assets: Related Investments:	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102530**	Well Stimulation Program 2025-LUG	**2025**	$	309,550	The legacy Union Gas storage pool system loses approximately 10 MMscfd of deliverability annually due to wellbore damage associated with normal operation of the pools. Well testing and remediation is required to recover the lost deliverability. As part of the program, all of the injection withdrawal wells will be reviewed as possible candidates. These wells will be further analyzed to quantify the wellbore damage in each well. Based upon the transient testing results, a progam will be disigned to recover the lost deliverability through acid stimulation. Deliverability improvements may also be attained utlizing alternatate methods. Legacy Union Gas currently has 157 injection/withdrawal wells that would fall under the deliverability maintenance program.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743057**	P_COR-160-HV-001 - Field Isolating Valve Replacement	**2029**	$	303,542	Issue/Concern/Opportunity: Gathering Line Isolation Valve (NPS 16) has reached estimated end of life Justification:Valves at end of life can leak, preventing safe and efficient isolation, unpredictable operation Assets: Related Investments:	Fail	See investment description, IRPAs not applicable

STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743119**	LSKC: 160-XV-011 Replace	**2033**	$	294,882	Core: 70% / Non-Core: 30% Issue/Concern/Opportunity: 160-XV-011 plot edge isolation valve provides isolation and overpressure protection at South Kimball Meter Station. This asset has reached the end of its anticipated service life and may not be functioning adequately. Justification: Overpressure protection valves are designed to protect connected piping systems from exceeding maximum operating pressures. A malfunctioning overpressure protection valve is a process safety hazard. Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: 160-XV-011 Related Investments: Due to the physical proximity between XV-010 and XV-011 the excavated area is likely to - at least partially - encompass both valves. Replacing these valves as part of a single effort would result in efficiencies across both projects and potentially significant cost savings. A similar investment for XV-010 has been created.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743117**	LSKC: 160-ESV-004 Replace	**2033**	$	294,882	Core: 70% / Non-Core: 30% Issue/Concern/Opportunity: 160-ESV-004 Emergency Shutdown Valve at South Kimball Meter Station has reached the end of its anticipated service life and may not be functioning adequately. Justification: Emergency Shutdown Valves are designed to close and isolate connected piping in an emergency scenario. A malfunctioning ESV is a potential process safety hazard. Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: 160-ESV-004 Related Investments: Three (3) other ESV's at this location are also due for replacement and have separate investments. Replacing these valves as part of a single effort would result in efficiencies across all three projects with potentially significant cost savings.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743115**	LSKC: 160-ESV-003 Replace	**2032**	$	294,340	Core: 70% / Non-Core: 30% Issue/Concern/Opportunity: 160-ESV-003 Emergency Shutdown Valve at South Kimball Meter Station has reached the end of its anticipated service life and may not be functioning adequately. Justification: Emergency Shutdown Valves are designed to close and isolate connected piping in an emergency scenario. A malfunctioning ESV is a potential process safety hazard. Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: 160-ESV-003 Related Investments: Three (3) other ESV's at this location are also due for replacement and have separate investments. Replacing these valves as part of a single effort would result in efficiencies across all three projects with potentially significant cost savings.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**101908**	PM:Wells-Stimulation Program 2025-LEG	**2025**	$	294,165	*Issue/Concern* Migration of fines and precipitation of scale in the reservoir rock near the wellbore occurs each year during gas injection and withdrawal operations. As the gas is moved in and out of the storage formation, fine rock particles migrate through the formation and plug the 'pathways' from the storage reef to the well. This reduces the permeability and porosity at the wellbore face and thereby reduces the deliverability capability of the well. Analysis suggests that, across the EGD Storage System, reservoir performance declines by about 0.75% per year on average, due to wellbore damage from fines and scale. In time, well performance would deteriorate to an unsustainable level, by increasing compressor horsepower requirements, and ultimately reducing peak day deliverability. Restoring peak day deliverability can be achieved by stimulating existing wells or drilling new wells. *Asset* Wells *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102531**	Well Stimulation Program 2026-LUG	**2026**	$	293,267	The legacy Union Gas storage pool system loses approximately 10 MMscfd of deliverability annually due to wellbore damage associated with normal operation of the pools. Well testing and remediation is required to recover the lost deliverability. As part of the program, all of the injection withdrawal wells will be reviewed as possible candidates. These wells will be further analyzed to quantify the wellbore damage in each well. Based upon the transient testing results, a progam will be disigned to recover the lost deliverability through acid stimulation. Deliverability improvements may also be attained utlizing alternatate methods. Legacy Union Gas currently has 157 injection/withdrawal wells that would fall under the deliverability maintenance program.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743113**	LMKC: 160-XV-010 Replace	**2033**	$	282,244	Core: 67% / Non-Core: 33% Issue/Concern/Opportunity: 160-XV-010 plot edge isolation valve provides isolation and overpressure protection at Seckerton Meter Station. This asset has reached the end of its anticipated service life and may not be functioning adequately. Justification: Overpressure protection valves are designed to protect connected piping systems from exceeding maximum operating pressures. A malfunctioning overpressure protection valve is a process safety hazard. Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: 160-XV-010 Related Investments: Due to the physical proximity between XV-010 and XV-011 the excavated area is likely to - at least partially - encompass both valves. Replacing these valves as part of a single effort would result in efficiencies across both projects and potentially significant cost savings. A similar investment for XV-011 has been created.	Fail	See investment description, IRPAs not applicable

STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743111**	LMKC: 160-ESV-002 Replace	**2033**	$	282,244	Core: 67% / Non-Core: 33% Issue/Concern/Opportunity: 160-ESV-002 Emergency Shutdown Valve at Mid-Kimball Meter Station has reached the end of its anticipated service life and may not be functioning adequately. Justification: Emergency Shutdown Valves are designed to close and isolate connected piping in an emergency scenario. A malfunctioning ESV is a potential process safety hazard. Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: 160-ESV-002 Related Investments: Three (3) other ESV's at this location are also due for replacement and have separate investments. Replacing these valves as part of a single effort would result in efficiencies across all three projects with potentially significant cost savings.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743109**	LMKC: 160-ESV-001 Replace	**2033**	$	282,244	Core: 67% / Non-Core: 33% Issue/Concern/Opportunity: 160-ESV-001 Emergency Shutdown Valve at Mid-Kimball Meter Station has reached the end of its anticipated service life and may not be functioning adequately. Justification: Emergency Shutdown Valves are designed to close and isolate connected piping in an emergency scenario. A malfunctioning ESV is a potential process safety hazard. Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: 160-ESV-001 Related Investments: Three (3) other ESV's at this location are also due for replacement and have separate investments. Replacing these valves as part of a single effort would result in efficiencies across all three projects with potentially significant cost savings.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**8860**	PM:Wells-Stimulation Program 2026-LEG	**2026**	$	276,955	*Issue/Concern* Migration of fines and precipitation of scale in the reservoir rock near the wellbore occurs each year during gas injection and withdrawal operations. As the gas is moved in and out of the storage formation, fine rock particles migrate through the formation and plug the 'pathways' from the storage reef to the well. This reduces the permeability and porosity at the wellbore face and thereby reduces the deliverability capability of the well. Analysis suggests that, across the EGD Storage System, reservoir performance declines by about 0.75% per year on average, due to wellbore damage from fines and scale. In time, well performance would deteriorate to an unsustainable level, by increasing compressor horsepower requirements, and ultimately reducing peak day deliverability. Restoring peak day deliverability can be achieved by stimulating existing wells or drilling new wells. *Asset* Wells *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102532**	Well Stimulation Program 2027-LUG	**2027**	$	276,451	The legacy Union Gas storage pool system loses approximately 10 MMscfd of deliverability annually due to wellbore damage associated with normal operation of the pools. Well testing and remediation is required to recover the lost deliverability. As part of the program, all of the injection withdrawal wells will be reviewed as possible candidates. These wells will be further analyzed to quantify the wellbore damage in each well. Based upon the transient testing results, a progam will be disigned to recover the lost deliverability through acid stimulation. Deliverability improvements may also be attained utlizing alternatate methods. Legacy Union Gas currently has 157 injection/withdrawal wells that would fall under the deliverability maintenance program.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**101909**	PM:Wells-Stimulation Program 2027-LEG	**2027**	$	266,621	*Issue/Concern* Migration of fines and precipitation of scale in the reservoir rock near the wellbore occurs each year during gas injection and withdrawal operations. As the gas is moved in and out of the storage formation, fine rock particles migrate through the formation and plug the 'pathways' from the storage reef to the well. This reduces the permeability and porosity at the wellbore face and thereby reduces the deliverability capability of the well. Analysis suggests that, across the EGD Storage System, reservoir performance declines by about 0.75% per year on average, due to wellbore damage from fines and scale. In time, well performance would deteriorate to an unsustainable level, by increasing compressor horsepower requirements, and ultimately reducing peak day deliverability. Restoring peak day deliverability can be achieved by stimulating existing wells or drilling new wells. *Asset* Wells *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102563**	STO STORAGE WELL UPGRADES 2025-LUG	**2025**	$	266,213	Casing inspection logs are completed on a prescribed basis as per Canadian Standards Association Z341 Storage of Hydrocarbons in Underground Formations. The storage well upgrades is an integrity project includes remediation requirements as a result of the casing inspection log. This project addresses any issues arising from the casing inspection log results and inspections of the storage wells in legacy Union Gas. The remediation may range from a well reline to a new wellhead or both with pressure testing of the well afterward.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**744967**	STO: Bentpath Tanks Replace	**2028**	$	263,896	Issue/Concern/Opportunity: Existing liquids storage/drip tanks at the Bentpath East Booth Creek and Bentpath Rosedale storage sites are only single walled and need to be replaced with double wall equivalents. Justification: Industry codes and best practices require double walled tanks in this application. A risk of spill (environmental) is high with singled walled tanks. Especially older tanks where corrosion may be present. Assets: STOR-BEBC-MECH-STTK-DRIP1 STOR-BPRD-MECH-STTK-DRIP Related Investments:	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**8861**	PM:Wells-Stimulation Program 2028-LEG	**2028**	$	261,785	*Issue/Concern* Migration of fines and precipitation of scale in the reservoir rock near the wellbore occurs each year during gas injection and withdrawal operations. As the gas is moved in and out of the storage formation, fine rock particles migrate through the formation and plug the 'pathways' from the storage reef to the well. This reduces the permeability and porosity at the wellbore face and thereby reduces the deliverability capability of the well. Analysis suggests that, across the EGD Storage System, reservoir performance declines by about 0.75% per year on average, due to wellbore damage from fines and scale. In time, well performance would deteriorate to an unsustainable level, by increasing compressor horsepower requirements, and ultimately reducing peak day deliverability. Restoring peak day deliverability can be achieved by stimulating existing wells or drilling new wells. *Asset* Wells *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102533**	Well Stimulation Program 2028-LUG	**2028**	$	259,377	The legacy Union Gas storage pool system loses approximately 10 MMscfd of deliverability annually due to wellbore damage associated with normal operation of the pools. Well testing and remediation is required to recover the lost deliverability. As part of the program, all of the injection withdrawal wells will be reviewed as possible candidates. These wells will be further analyzed to quantify the wellbore damage in each well. Based upon the transient testing results, a progam will be disigned to recover the lost deliverability through acid stimulation. Deliverability improvements may also be attained utlizing alternatate methods. Legacy Union Gas currently has 157 injection/withdrawal wells that would fall under the deliverability maintenance program.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742703**	Well Stimulation Program 2033-LUG	**2033**	$	252,334	The legacy Union Gas storage pool system loses approximately 10 MMscfd of deliverability annually due to wellbore damage associated with normal operation of the pools. Well testing and remediation is required to recover the lost deliverability. As part of the program, all of the injection withdrawal wells will be reviewed as possible candidates. These wells will be further analyzed to quantify the wellbore damage in each well. Based upon the transient testing results, a progam will be disigned to recover the lost deliverability through acid stimulation. Deliverability improvements may also be attained utlizing alternatate methods. Legacy Union Gas currently has 157 injection/withdrawal wells that would fall under the deliverability maintenance program.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742705**	Well Stimulation Program 2034-LUG	**2034**	$	252,175	The legacy Union Gas storage pool system loses approximately 10 MMscfd of deliverability annually due to wellbore damage associated with normal operation of the pools. Well testing and remediation is required to recover the lost deliverability. As part of the program, all of the injection withdrawal wells will be reviewed as possible candidates. These wells will be further analyzed to quantify the wellbore damage in each well. Based upon the transient testing results, a progam will be disigned to recover the lost deliverability through acid stimulation. Deliverability improvements may also be attained utlizing alternatate methods. Legacy Union Gas currently has 157 injection/withdrawal wells that would fall under the deliverability maintenance program.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**735405**	Well Stimulation Program 2032-LUG	**2032**	$	252,142	The legacy Union Gas storage pool system loses approximately 10 MMscfd of deliverability annually due to wellbore damage associated with normal operation of the pools. Well testing and remediation is required to recover the lost deliverability. As part of the program, all of the injection withdrawal wells will be reviewed as possible candidates. These wells will be further analyzed to quantify the wellbore damage in each well. Based upon the transient testing results, a progam will be disigned to recover the lost deliverability through acid stimulation. Deliverability improvements may also be attained utlizing alternatate methods. Legacy Union Gas currently has 157 injection/withdrawal wells that would fall under the deliverability maintenance program.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**743364**	Ojibway RTU Upgrade and PLC Addition	**2031**	$	251,933	Issue/Concern/Opportunity: The existing 3330 RTU's require updating to current standards as they are no longer supported. In conjunction with the RTU upgrade to FB3000's, a PLC should be added to the station. Justification: Standard configuration is to use a PLC to control the pool valves, where this site is currently using an RTU. Assets: Related Investments: N/A	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102535**	Well Stimulation Program 2029-LUG	**2029**	$	251,914	The legacy Union Gas storage pool system loses approximately 10 MMscfd of deliverability annually due to wellbore damage associated with normal operation of the pools. Well testing and remediation is required to recover the lost deliverability. As part of the program, all of the injection withdrawal wells will be reviewed as possible candidates. These wells will be further analyzed to quantify the wellbore damage in each well. Based upon the transient testing results, a progam will be disigned to recover the lost deliverability through acid stimulation. Deliverability improvements may also be attained utlizing alternatate methods. Legacy Union Gas currently has 157 injection/withdrawal wells that would fall under the deliverability maintenance program.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**735404**	Well Stimulation Program 2031-LUG	**2031**	$	251,881	The legacy Union Gas storage pool system loses approximately 10 MMscfd of deliverability annually due to wellbore damage associated with normal operation of the pools. Well testing and remediation is required to recover the lost deliverability. As part of the program, all of the injection withdrawal wells will be reviewed as possible candidates. These wells will be further analyzed to quantify the wellbore damage in each well. Based upon the transient testing results, a progam will be disigned to recover the lost deliverability through acid stimulation. Deliverability improvements may also be attained utlizing alternatate methods. Legacy Union Gas currently has 157 injection/withdrawal wells that would fall under the deliverability maintenance program.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**742657**	PM:Wells-Stimulation Program 2033-LEG	**2033**	$	251,825	*Issue/Concern* Migration of fines and precipitation of scale in the reservoir rock near the wellbore occurs each year during gas injection and withdrawal operations. As the gas is moved in and out of the storage formation, fine rock particles migrate through the formation and plug the 'pathways' from the storage reef to the well. This reduces the permeability and porosity at the wellbore face and thereby reduces the deliverability capability of the well. Analysis suggests that, across the EGD Storage System, reservoir performance declines by about 0.75% per year on average, due to wellbore damage from fines and scale. In time, well performance would deteriorate to an unsustainable level, by increasing compressor horsepower requirements, and ultimately reducing peak day deliverability. Restoring peak day deliverability can be achieved by stimulating existing wells or drilling new wells. *Asset* Wells *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**742659**	PM:Wells-Stimulation Program 2034-LEG	**2034**	$	251,733	*Issue/Concern* Migration of fines and precipitation of scale in the reservoir rock near the wellbore occurs each year during gas injection and withdrawal operations. As the gas is moved in and out of the storage formation, fine rock particles migrate through the formation and plug the 'pathways' from the storage reef to the well. This reduces the permeability and porosity at the wellbore face and thereby reduces the deliverability capability of the well. Analysis suggests that, across the EGD Storage System, reservoir performance declines by about 0.75% per year on average, due to wellbore damage from fines and scale. In time, well performance would deteriorate to an unsustainable level, by increasing compressor horsepower requirements, and ultimately reducing peak day deliverability. Restoring peak day deliverability can be achieved by stimulating existing wells or drilling new wells. *Asset* Wells *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**102536**	Well Stimulation Program 2030-LUG	**2030**	$	251,565	The legacy Union Gas storage pool system loses approximately 10 MMscfd of deliverability annually due to wellbore damage associated with normal operation of the pools. Well testing and remediation is required to recover the lost deliverability. As part of the program, all of the injection withdrawal wells will be reviewed as possible candidates. These wells will be further analyzed to quantify the wellbore damage in each well. Based upon the transient testing results, a progam will be disigned to recover the lost deliverability through acid stimulation. Deliverability improvements may also be attained utlizing alternatate methods. Legacy Union Gas currently has 157 injection/withdrawal wells that would fall under the deliverability maintenance program.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**735064**	PM:Wells-Stimulation Program 2032-LEG	**2032**	$	251,357	*Issue/Concern* Migration of fines and precipitation of scale in the reservoir rock near the wellbore occurs each year during gas injection and withdrawal operations. As the gas is moved in and out of the storage formation, fine rock particles migrate through the formation and plug the 'pathways' from the storage reef to the well. This reduces the permeability and porosity at the wellbore face and thereby reduces the deliverability capability of the well. Analysis suggests that, across the EGD Storage System, reservoir performance declines by about 0.75% per year on average, due to wellbore damage from fines and scale. In time, well performance would deteriorate to an unsustainable level, by increasing compressor horsepower requirements, and ultimately reducing peak day deliverability. Restoring peak day deliverability can be achieved by stimulating existing wells or drilling new wells. *Asset* Wells *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**101910**	PM:Wells-Stimulation Program 2029-LEG	**2029**	$	250,928	*Issue/Concern* Migration of fines and precipitation of scale in the reservoir rock near the wellbore occurs each year during gas injection and withdrawal operations. As the gas is moved in and out of the storage formation, fine rock particles migrate through the formation and plug the 'pathways' from the storage reef to the well. This reduces the permeability and porosity at the wellbore face and thereby reduces the deliverability capability of the well. Analysis suggests that, across the EGD Storage System, reservoir performance declines by about 0.75% per year on average, due to wellbore damage from fines and scale. In time, well performance would deteriorate to an unsustainable level, by increasing compressor horsepower requirements, and ultimately reducing peak day deliverability. Restoring peak day deliverability can be achieved by stimulating existing wells or drilling new wells. *Asset* Wells *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**735063**	PM:Wells-Stimulation Program 2031-LEG	**2031**	$	250,921	*Issue/Concern* Migration of fines and precipitation of scale in the reservoir rock near the wellbore occurs each year during gas injection and withdrawal operations. As the gas is moved in and out of the storage formation, fine rock particles migrate through the formation and plug the 'pathways' from the storage reef to the well. This reduces the permeability and porosity at the wellbore face and thereby reduces the deliverability capability of the well. Analysis suggests that, across the EGD Storage System, reservoir performance declines by about 0.75% per year on average, due to wellbore damage from fines and scale. In time, well performance would deteriorate to an unsustainable level, by increasing compressor horsepower requirements, and ultimately reducing peak day deliverability. Restoring peak day deliverability can be achieved by stimulating existing wells or drilling new wells. *Asset* Wells *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**101911**	PM:Wells-Stimulation Program 2030-LEG	**2030**	$	250,918	*Issue/Concern* Migration of fines and precipitation of scale in the reservoir rock near the wellbore occurs each year during gas injection and withdrawal operations. As the gas is moved in and out of the storage formation, fine rock particles migrate through the formation and plug the 'pathways' from the storage reef to the well. This reduces the permeability and porosity at the wellbore face and thereby reduces the deliverability capability of the well. Analysis suggests that, across the EGD Storage System, reservoir performance declines by about 0.75% per year on average, due to wellbore damage from fines and scale. In time, well performance would deteriorate to an unsustainable level, by increasing compressor horsepower requirements, and ultimately reducing peak day deliverability. Restoring peak day deliverability can be achieved by stimulating existing wells or drilling new wells. *Asset* Wells *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**9547**	PM:STORAGE WELL UPGRADES 2025-LEG	**2025**	$	250,576	*Issue/Concern* Annual vertilog inspections are performed to assess storage well casing corrosion. Corroded casing must be addressed in accordance with CSA Z341 Standard as adopted by the Oil, Gas & Salt Resources Act (MNR requirement). If the corrosion exceeds the allowable Legislated threshold then: 1 – If the corrosion is found within the first 2 casing joints it may be possible to repair the casing. This saves the well and some of the deliverability it offers the gathering system. Historically, multiple back-offs (as many as three) have been performed in a single year, however, the average frequency of occurrence is 1 per year. 2 - abandon the well and rehabilitate the site - the deliverability associated with the well will be lost - if the loss is significant a new well will have to be drilled. 3 - isolate (plug) the well - lose deliverability associated with the well. Per OGSRA a well can be suspended for a maximum of one year, at which point it must be repaired or abandoned. Historically at least one casing replacement is required annually. Affected asset will inherently be in poor condition. Continuing to operate a well determined to exceed code prescribed corrosion limits risks action from the MNRF and exposing employees and the public to leaks and lack of containment. *Assets* Wells. *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**9548**	PM:STORAGE WELL UPGRADES 2026-LEG	**2026**	$	235,916	*Issue/Concern* Annual vertilog inspections are performed to assess storage well casing corrosion. Corroded casing must be addressed in accordance with CSA Z341 Standard as adopted by the Oil, Gas & Salt Resources Act (MNR requirement). If the corrosion exceeds the allowable Legislated threshold then: 1 – If the corrosion is found within the first 2 casing joints it may be possible to repair the casing. This saves the well and some of the deliverability it offers the gathering system. Historically, multiple back-offs (as many as three) have been performed in a single year, however, the average frequency of occurrence is 1 per year. 2 - abandon the well and rehabilitate the site - the deliverability associated with the well will be lost - if the loss is significant a new well will have to be drilled. 3 - isolate (plug) the well - lose deliverability associated with the well. Per OGSRA a well can be suspended for a maximum of one year, at which point it must be repaired or abandoned. Historically at least one casing replacement is required annually. Affected asset will inherently be in poor condition. Continuing to operate a well determined to exceed code prescribed corrosion limits risks action from the MNRF and exposing employees and the public to leaks and lack of containment. *Assets* Wells. *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**743240**	Vector Courtright Generator and UPS	**2026**	$	234,614	Issue/Concern/Opportunity: Reliability Justification: Currently there is no backup power available at the site. In the event of a large storm event or power outage, reliability and gas flow from the pool may be compromised. Power is required at site to run PLC, RTU to enable measurement and control of valves and associated equipment at the site. Assets: Related Investments: None	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**9549**	PM:STORAGE WELL UPGRADES 2027-LEG	**2027**	$	227,114	*Issue/Concern* Annual vertilog inspections are performed to assess storage well casing corrosion. Corroded casing must be addressed in accordance with CSA Z341 Standard as adopted by the Oil, Gas & Salt Resources Act (MNR requirement). If the corrosion exceeds the allowable Legislated threshold then: 1 – If the corrosion is found within the first 2 casing joints it may be possible to repair the casing. This saves the well and some of the deliverability it offers the gathering system. Historically, multiple back-offs (as many as three) have been performed in a single year, however, the average frequency of occurrence is 1 per year. 2 - abandon the well and rehabilitate the site - the deliverability associated with the well will be lost - if the loss is significant a new well will have to be drilled. 3 - isolate (plug) the well - lose deliverability associated with the well. Per OGSRA a well can be suspended for a maximum of one year, at which point it must be repaired or abandoned. Historically at least one casing replacement is required annually. Affected asset will inherently be in poor condition. Continuing to operate a well determined to exceed code prescribed corrosion limits risks action from the MNRF and exposing employees and the public to leaks and lack of containment. *Assets* Wells. *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**9550**	PM:STORAGE WELL UPGRADES 2028-LEG	**2028**	$	222,994	*Issue/Concern* Annual vertilog inspections are performed to assess storage well casing corrosion. Corroded casing must be addressed in accordance with CSA Z341 Standard as adopted by the Oil, Gas & Salt Resources Act (MNR requirement). If the corrosion exceeds the allowable Legislated threshold then: 1 – If the corrosion is found within the first 2 casing joints it may be possible to repair the casing. This saves the well and some of the deliverability it offers the gathering system. Historically, multiple back-offs (as many as three) have been performed in a single year, however, the average frequency of occurrence is 1 per year. 2 - abandon the well and rehabilitate the site - the deliverability associated with the well will be lost - if the loss is significant a new well will have to be drilled. 3 - isolate (plug) the well - lose deliverability associated with the well. Per OGSRA a well can be suspended for a maximum of one year, at which point it must be repaired or abandoned. Historically at least one casing replacement is required annually. Affected asset will inherently be in poor condition. Continuing to operate a well determined to exceed code prescribed corrosion limits risks action from the MNRF and exposing employees and the public to leaks and lack of containment. *Assets* Wells. *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**742517**	PM:STORAGE WELL UPGRADES 2033-LEG	**2033**	$	214,510	*Issue/Concern* Annual vertilog inspections are performed to assess storage well casing corrosion. Corroded casing must be addressed in accordance with CSA Z341 Standard as adopted by the Oil, Gas & Salt Resources Act (MNR requirement). If the corrosion exceeds the allowable Legislated threshold then: 1 – If the corrosion is found within the first 2 casing joints it may be possible to repair the casing. This saves the well and some of the deliverability it offers the gathering system. Historically, multiple back-offs (as many as three) have been performed in a single year, however, the average frequency of occurrence is 1 per year. 2 - abandon the well and rehabilitate the site - the deliverability associated with the well will be lost - if the loss is significant a new well will have to be drilled. 3 - isolate (plug) the well - lose deliverability associated with the well. Per OGSRA a well can be suspended for a maximum of one year, at which point it must be repaired or abandoned. Historically at least one casing replacement is required annually. Affected asset will inherently be in poor condition. Continuing to operate a well determined to exceed code prescribed corrosion limits risks action from the MNRF and exposing employees and the public to leaks and lack of containment. *Assets* Wells. *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**742519**	PM:STORAGE WELL UPGRADES 2034-LEG	**2034**	$	214,432	*Issue/Concern* Annual vertilog inspections are performed to assess storage well casing corrosion. Corroded casing must be addressed in accordance with CSA Z341 Standard as adopted by the Oil, Gas & Salt Resources Act (MNR requirement). If the corrosion exceeds the allowable Legislated threshold then: 1 – If the corrosion is found within the first 2 casing joints it may be possible to repair the casing. This saves the well and some of the deliverability it offers the gathering system. Historically, multiple back-offs (as many as three) have been performed in a single year, however, the average frequency of occurrence is 1 per year. 2 - abandon the well and rehabilitate the site - the deliverability associated with the well will be lost - if the loss is significant a new well will have to be drilled. 3 - isolate (plug) the well - lose deliverability associated with the well. Per OGSRA a well can be suspended for a maximum of one year, at which point it must be repaired or abandoned. Historically at least one casing replacement is required annually. Affected asset will inherently be in poor condition. Continuing to operate a well determined to exceed code prescribed corrosion limits risks action from the MNRF and exposing employees and the public to leaks and lack of containment. *Assets* Wells. *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743105**	LDOW: 160-ESV-002 Replace	**2032**	$	214,272	Core: 47% / Non-Core: 53% Issue/Concern/Opportunity: 160-ESV-002 Emergency Shutdown Valve at Dow Moore Meter Station has reached the end of its anticipated service life and may not be functioning adequately. Justification: Emergency Shutdown Valves are designed to close and isolate connected piping in an emergency scenario. A malfunctioning ESV is a potential process safety hazard. Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: 160-ESV-002 Related Investments: Two other ESV's at this location are also due for replacement and have separate investments. Replacing these valves as part of a single effort would result in efficiencies across all three projects with potentially significant cost savings.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743103**	LDOW: 160-ESV-001 Replace	**2032**	$	214,272	Core: 47% / Non-Core: 53% Issue/Concern/Opportunity: 160-ESV-001 Emergency Shutdown Valve at Dow Moore Meter Station has reached the end of its anticipated service life and may not be functioning adequately. Justification: Emergency Shutdown Valves are designed to close and isolate connected piping in an emergency scenario. A malfunctioning ESV is a potential process safety hazard. Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: 160-ESV-001 Related Investments: Two other ESV's at this location are also due for replacement and have separate investments. Replacing these valves as part of a single effort would result in efficiencies across all three projects with potentially significant cost savings.	Fail	See investment description, IRPAs not applicable

STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**735062**	PM:STORAGE WELL UPGRADES 2032-LEG	**2032**	$	214,111	*Issue/Concern* Annual vertilog inspections are performed to assess storage well casing corrosion. Corroded casing must be addressed in accordance with CSA Z341 Standard as adopted by the Oil, Gas & Salt Resources Act (MNR requirement). If the corrosion exceeds the allowable Legislated threshold then: 1 – If the corrosion is found within the first 2 casing joints it may be possible to repair the casing. This saves the well and some of the deliverability it offers the gathering system. Historically, multiple back-offs (as many as three) have been performed in a single year, however, the average frequency of occurrence is 1 per year. 2 - abandon the well and rehabilitate the site - the deliverability associated with the well will be lost - if the loss is significant a new well will have to be drilled. 3 - isolate (plug) the well - lose deliverability associated with the well. Per OGSRA a well can be suspended for a maximum of one year, at which point it must be repaired or abandoned. Historically at least one casing replacement is required annually. Affected asset will inherently be in poor condition. Continuing to operate a well determined to exceed code prescribed corrosion limits risks action from the MNRF and exposing employees and the public to leaks and lack of containment. *Assets* Wells. *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743107**	LDOW: 160-ESV-003 Replace	**2031**	$	213,990	Core: 47% / Non-Core: 53% Issue/Concern/Opportunity: 160-ESV-003 Emergency Shutdown Valve at Dow Moore Meter Station has reached the end of its anticipated service life and may not be functioning adequately. Justification: Emergency Shutdown Valves are designed to close and isolate connected piping in an emergency scenario. A malfunctioning ESV is a potential process safety hazard. Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: 160-ESV-003 Related Investments: Two other ESV's at this location are also due for replacement and have separate investments. Replacing these valves as part of a single effort would result in efficiencies across all three projects with potentially significant cost savings.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**101916**	PM:STORAGE WELL UPGRADES 2029-LEG	**2029**	$	213,746	*Issue/Concern* Annual vertilog inspections are performed to assess storage well casing corrosion. Corroded casing must be addressed in accordance with CSA Z341 Standard as adopted by the Oil, Gas & Salt Resources Act (MNR requirement). If the corrosion exceeds the allowable Legislated threshold then: 1 – If the corrosion is found within the first 2 casing joints it may be possible to repair the casing. This saves the well and some of the deliverability it offers the gathering system. Historically, multiple back-offs (as many as three) have been performed in a single year, however, the average frequency of occurrence is 1 per year. 2 - abandon the well and rehabilitate the site - the deliverability associated with the well will be lost - if the loss is significant a new well will have to be drilled. 3 - isolate (plug) the well - lose deliverability associated with the well. Per OGSRA a well can be suspended for a maximum of one year, at which point it must be repaired or abandoned. Historically at least one casing replacement is required annually. Affected asset will inherently be in poor condition. Continuing to operate a well determined to exceed code prescribed corrosion limits risks action from the MNRF and exposing employees and the public to leaks and lack of containment. *Assets* Wells. *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**735061**	PM:STORAGE WELL UPGRADES 2031-LEG	**2031**	$	213,740	*Issue/Concern* Annual vertilog inspections are performed to assess storage well casing corrosion. Corroded casing must be addressed in accordance with CSA Z341 Standard as adopted by the Oil, Gas & Salt Resources Act (MNR requirement). If the corrosion exceeds the allowable Legislated threshold then: 1 – If the corrosion is found within the first 2 casing joints it may be possible to repair the casing. This saves the well and some of the deliverability it offers the gathering system. Historically, multiple back-offs (as many as three) have been performed in a single year, however, the average frequency of occurrence is 1 per year. 2 - abandon the well and rehabilitate the site - the deliverability associated with the well will be lost - if the loss is significant a new well will have to be drilled. 3 - isolate (plug) the well - lose deliverability associated with the well. Per OGSRA a well can be suspended for a maximum of one year, at which point it must be repaired or abandoned. Historically at least one casing replacement is required annually. Affected asset will inherently be in poor condition. Continuing to operate a well determined to exceed code prescribed corrosion limits risks action from the MNRF and exposing employees and the public to leaks and lack of containment. *Assets* Wells. *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**101917**	PM:STORAGE WELL UPGRADES 2030-LEG	**2030**	$	213,738	*Issue/Concern* Annual vertilog inspections are performed to assess storage well casing corrosion. Corroded casing must be addressed in accordance with CSA Z341 Standard as adopted by the Oil, Gas & Salt Resources Act (MNR requirement). If the corrosion exceeds the allowable Legislated threshold then: 1 – If the corrosion is found within the first 2 casing joints it may be possible to repair the casing. This saves the well and some of the deliverability it offers the gathering system. Historically, multiple back-offs (as many as three) have been performed in a single year, however, the average frequency of occurrence is 1 per year. 2 - abandon the well and rehabilitate the site - the deliverability associated with the well will be lost - if the loss is significant a new well will have to be drilled. 3 - isolate (plug) the well - lose deliverability associated with the well. Per OGSRA a well can be suspended for a maximum of one year, at which point it must be repaired or abandoned. Historically at least one casing replacement is required annually. Affected asset will inherently be in poor condition. Continuing to operate a well determined to exceed code prescribed corrosion limits risks action from the MNRF and exposing employees and the public to leaks and lack of containment. *Assets* Wells. *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743038**	L_WLK-511-K-1020 Instrument Air Compressor Replacement	**2033**	$	203,085	Issue/Concern/Opportunity: Instrument air compressor is reaching end of life Justification: Compressed air powers multiple critical assets within the station Assets: Related Investments:	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743032**	L_COV-511-K-320 Instrument Air Compressor Replacement	**2032**	$	202,707	Issue/Concern/Opportunity: Instrument air compressor is reaching end of life Justification: Compressed air powers multiple critical assets within the station Assets: Related Investments:	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743030**	L_MKC-511-K-220 Instrument Air Compressor Replacement	**2031**	$	202,356	Issue/Concern/Opportunity: Instrument air compressor is reaching end of life Justification: Compressed air powers multiple critical assets within the station Assets: Related Investments:	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743025**	L_COR-511-K-720 Instrument Air Compressor Replacement	**2031**	$	202,356	Issue/Concern/Opportunity: Instrument air compressor is reaching end of life Justification: Compressed air powers multiple critical assets within the station Assets: Related Investments:	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743029**	L_SEC-511-K-520 Instrument Air Compressor Replacement	**2031**	$	202,356	Issue/Concern/Opportunity: Instrument air compressor is reaching end of life Justification: Compressed air powers multiple critical assets within the station Assets: Related Investments:	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**8993**	LM:Leaking Valves-Replace	**2025**	$	182,667	*Issue/Concern* Operations have identified isolation valves that to not provide sufficient seal quality that they could be trusted to provide isolation during normal maintenance activities or emergency situations. Valve condition - i.e. it's ability to perform it's intended function - is in scope for the Asset Health Review. Condition assessment results are rudimentary. Leaking valve seals are not necessarily valves that leak to atmosphere or pose a loss of containment threat. Instead, these leaking valves pose: (i) a process safety threat; (ii) a loss of system performance by creating recycle loops; and (iii) decreased ability to provide a safe work environment for maintenance activities that require double lock and bleed. If valve condition is not maintained at a reasonable level, the ability to isolate assets during an emergency, will be compromised. Valves in question are sometimes used to separate piping with different MOPs. If these valves are allowed to leak, there is an increased threat of overpressuring lower MOP pipe as gas bleeds through the valve from higher MOP pipe. *Asset* ¼ Turn Isolation valves . There are hundreds of these valves in service. *Related Program* Not Applicable	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**8994**	LM:Leaking Valves-Replace	**2026**	$	171,980	*Issue/Concern* Operations have identified isolation valves that to not provide sufficient seal quality that they could be trusted to provide isolation during normal maintenance activities or emergency situations. Valve condition - i.e. it's ability to perform it's intended function - is in scope for the Asset Health Review. Condition assessment results are rudimentary. Leaking valve seals are not necessarily valves that leak to atmosphere or pose a loss of containment threat. Instead, these leaking valves pose: (i) a process safety threat; (ii) a loss of system performance by creating recycle loops; and (iii) decreased ability to provide a safe work environment for maintenance activities that require double lock and bleed. If valve condition is not maintained at a reasonable level, the ability to isolate assets during an emergency, will be compromised. Valves in question are sometimes used to separate piping with different MOPs. If these valves are allowed to leak, there is an increased threat of overpressuring lower MOP pipe as gas bleeds through the valve from higher MOP pipe. *Asset* ¼ Turn Isolation valves . There are hundreds of these valves in service. *Related Program* Not Applicable	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**8995**	LM:Leaking Valves-Replace	**2027**	$	165,563	*Issue/Concern* Operations have identified isolation valves that to not provide sufficient seal quality that they could be trusted to provide isolation during normal maintenance activities or emergency situations. Valve condition - i.e. it's ability to perform it's intended function - is in scope for the Asset Health Review. Condition assessment results are rudimentary. Leaking valve seals are not necessarily valves that leak to atmosphere or pose a loss of containment threat. Instead, these leaking valves pose: (i) a process safety threat; (ii) a loss of system performance by creating recycle loops; and (iii) decreased ability to provide a safe work environment for maintenance activities that require double lock and bleed. If valve condition is not maintained at a reasonable level, the ability to isolate assets during an emergency, will be compromised. Valves in question are sometimes used to separate piping with different MOPs. If these valves are allowed to leak, there is an increased threat of overpressuring lower MOP pipe as gas bleeds through the valve from higher MOP pipe. *Asset* ¼ Turn Isolation valves . There are hundreds of these valves in service. *Related Program* Not Applicable	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**8997**	LM:Leaking Valves-Replace	**2028**	$	162,560	*Issue/Concern* Operations have identified isolation valves that to not provide sufficient seal quality that they could be trusted to provide isolation during normal maintenance activities or emergency situations. Valve condition - i.e. it's ability to perform it's intended function - is in scope for the Asset Health Review. Condition assessment results are rudimentary. Leaking valve seals are not necessarily valves that leak to atmosphere or pose a loss of containment threat. Instead, these leaking valves pose: (i) a process safety threat; (ii) a loss of system performance by creating recycle loops; and (iii) decreased ability to provide a safe work environment for maintenance activities that require double lock and bleed. If valve condition is not maintained at a reasonable level, the ability to isolate assets during an emergency, will be compromised. Valves in question are sometimes used to separate piping with different MOPs. If these valves are allowed to leak, there is an increased threat of overpressuring lower MOP pipe as gas bleeds through the valve from higher MOP pipe. *Asset* ¼ Turn Isolation valves . There are hundreds of these valves in service. *Related Program* Not Applicable	Fail	See investment description, IRPAs not applicable

STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743078**	LSEC: 160-XV-010	**2032**	$	159,564	Core: 35% / Non-Core: 65% Issue/Concern/Opportunity: 160-XV-010 plot edge isolation valve provides isolation and overpressure protection at Seckerton Meter Station. This asset has reached the end of its anticipated service life and may not be functioning adequately. Justification: Overpressure protection valves are designed to protect connected piping systems from exceeding maximum operating pressures. A malfunctioning overpressure protection valve is a process safety hazard. Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: 160-XV-010 Related Investments: Due to the physical proximity between ESV-001 and XV-010, the excavated area is likely to - at least partially - encompass both valves. Replacing these valves as part of a single effort would result in efficiencies across both projects and potentially significant cost savings. A similar investment for ESV-001 has been created.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743076**	LSEC: 160-ESV-003 Replace	**2032**	$	159,564	Core: 35% / Non-Core: 65% Issue/Concern/Opportunity: 160-ESV-003 Emergency Shutdown Valve at Seckerton Meter Station has reached the end of its anticipated service life and may not be functioning adequately. Justification: Emergency Shutdown Valves are designed to close and isolate connected piping in an emergency scenario. A malfunctioning ESV is a potential process safety hazard. Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: 160-ESV-003 Related Investments: Due to the physical proximity between XV-001, ESV-003, and ESV-002, the excavated area is likely to - at least partially - encompass the adjacent valves. Replacing these valves as part of a single effort would result in efficiencies across all three projects and potentially significant cost savings. Similar investments for XV-001 & ESV-002 have been created.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743074**	LSEC: 160-ESV-002 Replace	**2032**	$	159,564	Core: 35% / Non-Core: 65% Issue/Concern/Opportunity: 160-ESV-002 Emergency Shutdown Valve at Seckerton Meter Station has reached the end of its anticipated service life and may not be functioning adequately. Justification: Emergency Shutdown Valves are designed to close and isolate connected piping in an emergency scenario. A malfunctioning ESV is a potential process safety hazard. Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: 160-ESV-002 Related Investments: Due to the physical proximity between XV-001, ESV-003, and ESV-002, the excavated area is likely to - at least partially - encompass the adjacent valves. Replacing these valves as part of a single effort would result in efficiencies across all three projects and potentially significant cost savings. Similar investments for XV-001 & ESV-003 have been created.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743080**	LSEC: 160-ESV-001 Replace	**2032**	$	159,564	Core: 35% / Non-Core: 65% Issue/Concern/Opportunity: 160-ESV-001 Emergency Shutdown Valve at Seckerton Meter Station has reached the end of its anticipated service life and may not be functioning adequately. Justification: Emergency Shutdown Valves are designed to close and isolate connected piping in an emergency scenario. A malfunctioning ESV is a potential process safety hazard. Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: 160-ESV-001 Related Investments: Due to the physical proximity between ESV-001 and XV-010, the excavated area is likely to - at least partially - encompass both valves. Replacing these valves as part of a single effort would result in efficiencies across both projects and potentially significant cost savings. A similar investment for XV-010 has been created.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743072**	LSEC: 150-XV-001 Replace	**2031**	$	159,355	Core: 35% / Non-Core: 65% Issue/Concern/Opportunity: 150-XV-001 plot edge valve provides isolation and overpressure protection at Seckerton Meter Station. This asset has reached the end of its anticipated service life and may not be functioning adequately. Justification: Overpressure protection valves are designed to protect connected piping systems from exceeding maximum operating pressures. A malfunctioning overpressure protection valve is a process safety hazard. Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: 150-XV-001 Related Investments: Due to the physical proximity between XV-001, ESV-003, and ESV-002, the excavated area is likely to - at least partially - encompass the adjacent valves. Replacing these valves as part of a single effort would result in efficiencies across all three projects and potentially significant cost savings. Similar investments for ESV-002 & ESV-003 have been created.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**101904**	LM:Leaking Valves-Replace	**2031**	$	155,814	*Issue/Concern* Operations have identified isolation valves that to not provide sufficient seal quality that they could be trusted to provide isolation during normal maintenance activities or emergency situations. Valve condition - i.e. it's ability to perform it's intended function - is in scope for the Asset Health Review. Condition assessment results are rudimentary. Leaking valve seals are not necessarily valves that leak to atmosphere or pose a loss of containment threat. Instead, these leaking valves pose: (i) a process safety threat; (ii) a loss of system performance by creating recycle loops; and (iii) decreased ability to provide a safe work environment for maintenance activities that require double lock and bleed. If valve condition is not maintained at a reasonable level, the ability to isolate assets during an emergency, will be compromised. Valves in question are sometimes used to separate piping with different MOPs. If these valves are allowed to leak, there is an increased threat of overpressuring lower MOP pipe as gas bleeds through the valve from higher MOP pipe. *Asset* ¼ Turn Isolation valves . There are hundreds of these valves in service. *Related Program* Not Applicable	Fail	See investment description, IRPAs not applicable

STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743098**	LSEC: Meter Iso Valves	**2032**	$	154,126	Core: 35% / Non-Core: 65% Issue/Concern/Opportunity: Meter isolation valves at Seckerton Meter Station have reached the end of their anticipated service life and may not be functioning adequately. Justification: Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted at the time of design. Ensuring valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: 211-HV-003 211-HV-001 211-HV-007 211-HV-005	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742304**	DowA Gas Chromatograph Replacement - Core	**2026**	$	120,997	Obsolescence - The 700 series GCs were installed starting in 2005 and were found to be problematic so a switch back to the 570 series was implemented going forward. Eventually, the 700 series has become unsupported by the manufacturer. Dawn techs have been repairing with salvaged parts but it is getting difficult to keep them in service.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**100533**	Wellhead Upgrade Project	**2025**	$	120,786	There are 7 wellheads in legacy UG pools that are not up to current Enbridge or CSA standards. The issues with these wellheads are the pressure rating of the master valve or the flange connection type or both. The 2002 version and all succeeding versions of CSA Z341 stipulated that the connection type above the casing bowl for all wellheads shall be a flanged connection (Section 6.3.1.2 in Z341.1-18). Threaded connections are more prone to leak and offer a greater chance of failure compared to the flanged connection. Of these wellheads, five of them have threaded side-ports on the intermediate spool section. These are IS6, US9, US17 and US18 in the Sombra pool. All of these wellheads were installed in 1990 or earlier and therefore are at least 30 years old. Replacing the intermediate spool piece with reduces the risk of failure due to the threaded connection and age of the wellhead and builds a wellhead that complies with current CSA Z341. Eight of the nine wellheads that have an ANSI 600 ball valve as the Master Valve. The wellheads are on the IS6, US9, US17 and US18 in the Sombra pool, and UI20, UI28 and UI25 in the Waubuno pool. The ANSI 600 ball valve has a pressure rating of 1440 psi. These wellheads were built in 2004 or earlier. Wellheads have been built with a minimum ANSI 900 or API 2000 rating on the master valve for the last 17 years. The pressure ratings for the ANSI 900 and API 2000 are 2160 psi and 2000 psi respectively The current building practice has only wells with a 8 5/8" production casing having a having an ANSI ball valve as the master valve. All of the other valves are to be API gate valves. The casing sizes on these wells are 7" or smaller and therefore the replacement would be a API 2000 gate valve. Replacing these master valves with appropriate gate valves increases the safety factor of the pressure rating to an acceptable level according to the Storage current practices. This project would replace the wellheads on the wells over a three year period. The new wellheads would meet current building practices and CSA Z341 code. The new wellheads would install a new intermediate spool, master valve, ESV and side port valves as required. Cross overs will be newly constructed as required. The entire wellhead would be painted and new fence installed.	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**744014**	St Mary's Take-Off Site, Insulating Joint Removal	**2025**	$	111,588	Issue/Concern/Opportunity: There is a leaking insulating joint on the above grade crossover connecting the four Trafalgar lines. Due to the nature of this fitting and where it's located on the header, it can't be easily taken out and repaired (the fitting is welded in place). Cathodic protection is no longer required at that location. Best course of action would be to cut out the fitting and replace it with a spool piece. Justification: There is potential of this leak getting worse. Removing this fitting will improve the integrity and reliability of this system. Assets: Related Investments:	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743068**	P_DOW-DM5-HV-002 - DM5 Well Isolating Valve Replacement	**2034**	$	101,505	Issue/Concern/Opportunity: DM5 well Isolation Valve (NPS 10, pipeline side) has reached estimated end of life Justification:Valves at end of life can leak, preventing safe and efficient isolation, unpredictable operation Assets: Related Investments:	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**743069**	P_DOW-TD10-HV-002 - TD10 Well Isolating Valve Replacement	**2034**	$	101,505	Issue/Concern/Opportunity: TD10 well Isolation Valve (NPS 10, pipeline side) has reached estimated end of life Justification:Valves at end of life can leak, preventing safe and efficient isolation, unpredictable operation Assets: Related Investments:	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742352**	TCPL Courtright Ultrasonic Meter Upgrade	**2025**	$	92,865	Issue/Concern/Opportunity: T-11 and T-12 type transducers are obsolete and no longer supported by manufacturer for Daniels Ultrasonic meters. New models of transducers are T-21, T-22 and T200. T200 models are inside of a pressure well, therefore the transducer section is not inserted into pipe. This means that when work is needed, the pipe does not need to be depressurized, and gas does not need to be evacuated into atmosphere. This would be the preferred model of transducer to go with. Any meter that was manufactured before 2003 cannot be upgraded to the T200 series transducers. In the case of older meters, we would upgrade to the T-21/T-22 series, which offer better reliability and would reduce the amount of repairs/replacement work on the transducers. In addition to the transducers being obsolete, the MKIII electronics are also obsolete. Getting replacement CPUs is not an option. We also need to upgrade CPUs for all of our ultrasonic meters from MKIII to the 3410 model. Justification: Need to upgrade transducers before they fail as we have no spares to replace. Currently have 26 ultrasonic meters with obsolete transducers. Assets: Daniels Ultrasonic meters with older type transducers across all of STO Related Investments:	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742303**	Bentpath/Rosedale Gas Chromatograph Replacement - Core	**2025**	$	87,092	Obsolescence - The 700 series GCs were installed starting in 2005 and were found to be problematic so a switch back to the 570 series was implemented going forward. Eventually, the 700 series has become unsupported by the manufacturer. Dawn techs have been repairing with salvaged parts but it is getting difficult to keep them in service.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**742606**	PM:Well Tools-Purchase 2033-LEG	**2033**	$	85,296	*Issue/Concern* Specialized well tools constantly improve and regulatory requirements increase. In this case, pressure recorders are needed. Specialized well tools can reduce the resourcing impact of increasing regulatory requirements (resulting in improved CSAT) and increase safety related to well maintenance activities. *Assets* Well monitoring and operational tools. *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**101903**	PM:Well Tools-Purchase 2029-LEG	**2029**	$	84,992	*Issue/Concern* Specialized well tools constantly improve and regulatory requirements increase. In this case, pressure recorders are needed. Specialized well tools can reduce the resourcing impact of increasing regulatory requirements (resulting in improved CSAT) and increase safety related to well maintenance activities. *Assets* Well monitoring and operational tools. *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**735359**	PM:Well Tools-Purchase 2031-LEG	**2031**	$	84,989	*Issue/Concern* Specialized well tools constantly improve and regulatory requirements increase. In this case, pressure recorders are needed. Specialized well tools can reduce the resourcing impact of increasing regulatory requirements (resulting in improved CSAT) and increase safety related to well maintenance activities. *Assets* Well monitoring and operational tools. *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**8973**	LM:Well Loops-Adjust	**2025**	$	84,270	*Issue/Concern* After installation, the soil surrounding laterals will compact and subside. In instances where this compaction is severe, the soil no longer provides adequate support for the pipe. The weight of the pipe is instead supported by the well loop which attaches the lateral to the well. The well loop is not intended or designed to support this additional and significant strain leading to a potential leak in the reservoir piping system. Normally, these situations are discovered during the annual vertilog program, when well loops are removed. Piping can settle for as long as ten years between vertilogs. Once discovered, the excess pipe strain cannot be ignored and piping modifications are required. *Asset* Gathering system risers connected to wells. *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742302**	BentpathEast/BoothCreek Gas Chromatograph Replacement - Core	**2026**	$	83,314	Obsolescence - The 700 series GCs were installed starting in 2005 and were found to be problematic so a switch back to the 570 series was implemented going forward. Eventually, the 700 series has become unsupported by the manufacturer. Dawn techs have been repairing with salvaged parts but it is getting difficult to keep them in service.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742300**	Vector Courtright Gas Chromatograph Replacement	**2026**	$	81,528	Obsolescence - The 700 series GCs were installed starting in 2005 and were found to be problematic so a switch back to the 570 series was implemented going forward. Eventually, the 700 series has become unsupported by the manufacturer. Dawn techs have been repairing with salvaged parts but it is getting difficult to keep them in service.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**8974**	LM:Well Loops-Adjust	**2026**	$	79,340	*Issue/Concern* After installation, the soil surrounding laterals will compact and subside. In instances where this compaction is severe, the soil no longer provides adequate support for the pipe. The weight of the pipe is instead supported by the well loop which attaches the lateral to the well. The well loop is not intended or designed to support this additional and significant strain leading to a potential leak in the reservoir piping system. Normally, these situations are discovered during the annual vertilog program, when well loops are removed. Piping can settle for as long as ten years between vertilogs. Once discovered, the excess pipe strain cannot be ignored and piping modifications are required. *Asset* Gathering system risers connected to wells. *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**743366**	St Claire Sombra PLC/RTU Upgrade	**2028**	$	77,430	Issue/Concern/Opportunity: The existing 3330 RTU's require updating to current standards as they are no longer supported. In conjunction with the RTU upgrade to FB3000's, the PLC should be upgraded to a Contrologix from PLC5. Justification: Obsolete Equipment Assets: Related Investments: N/A	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**8975**	LM:Well Loops-Adjust	**2027**	$	76,379	*Issue/Concern* After installation, the soil surrounding laterals will compact and subside. In instances where this compaction is severe, the soil no longer provides adequate support for the pipe. The weight of the pipe is instead supported by the well loop which attaches the lateral to the well. The well loop is not intended or designed to support this additional and significant strain leading to a potential leak in the reservoir piping system. Normally, these situations are discovered during the annual vertilog program, when well loops are removed. Piping can settle for as long as ten years between vertilogs. Once discovered, the excess pipe strain cannot be ignored and piping modifications are required. *Asset* Gathering system risers connected to wells. *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742340**	Bentpath Rosedale PLC/RTU Upgrade	**2027**	$	75,620	Issue/Concern/Opportunity: The existing 3330 RTU's require updating to current standards as they are no longer supported. In conjunction with the RTU upgrade to FB3000's, the PLC should be upgraded to a Contrologix from PLC5. Justification: Obsolete Equipment Assets: Related Investments: N/A	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**8976**	LM:Well Loops-Adjust	**2028**	$	74,994	*Issue/Concern* After installation, the soil surrounding laterals will compact and subside. In instances where this compaction is severe, the soil no longer provides adequate support for the pipe. The weight of the pipe is instead supported by the well loop which attaches the lateral to the well. The well loop is not intended or designed to support this additional and significant strain leading to a potential leak in the reservoir piping system. Normally, these situations are discovered during the annual vertilog program, when well loops are removed. Piping can settle for as long as ten years between vertilogs. Once discovered, the excess pipe strain cannot be ignored and piping modifications are required. *Asset* Gathering system risers connected to wells. *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742305**	Enniskillen Gas Chromatograph Replacement - Core	**2025**	$	72,628	Obsolescence - The 700 series GCs were installed starting in 2005 and were found to be problematic so a switch back to the 570 series was implemented going forward. Eventually, the 700 series has become unsupported by the manufacturer. Dawn techs have been repairing with salvaged parts but it is getting difficult to keep them in service.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742336**	Waubuno Gas Chromatograph Replacement - Core	**2025**	$	72,628	Obsolescence - The 700 series GCs were installed starting in 2005 and were found to be problematic so a switch back to the 570 series was implemented going forward. Eventually, the 700 series has become unsupported by the manufacturer. Dawn techs have been repairing with salvaged parts but it is getting difficult to keep them in service.	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**101912**	LM:Well Loops-Adjust	**2029**	$	71,884	*Issue/Concern* After installation, the soil surrounding laterals will compact and subside. In instances where this compaction is severe, the soil no longer provides adequate support for the pipe. The weight of the pipe is instead supported by the well loop which attaches the lateral to the well. The well loop is not intended or designed to support this additional and significant strain leading to a potential leak in the reservoir piping system. Normally, these situations are discovered during the annual vertilog program, when well loops are removed. Piping can settle for as long as ten years between vertilogs. Once discovered, the excess pipe strain cannot be ignored and piping modifications are required. *Asset* Gathering system risers connected to wells. *Related Program* Not Applicable	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742233**	Bentpath East Booth Creek RTU Upgrade and PLC Addition	**2027**	$	68,986	Issue/Concern/Opportunity: The existing 3330 RTU's require updating to current standards as they are no longer supported. In conjunction with the RTU upgrade to FB3000's, a PLC should be added to the station to control the pool valves. Justification: Standard configuration is to use a PLC to control the pool valves, where this site is currently using an RTU. Assets: Related Investments: N/A	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742367**	STO Remote Sites - Install Surge Suppressors	**2025**	$	61,910	1. Issue/Concern/Opportunity: We have had several lightning strikes which has damaged sensitive electronic equipment. Installation of a surge protector at various sites will reduce the damage, downtime and repairs. 2. Assets: 3. Related Program	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**503066**	Atmospheric Storage Tank Level Instrumentation 2025	**2025**	$	61,291	Issue/Concern/Opportunity: Some atmospheric storage/holding tanks do not have level indicators and alarms. Two incidents have occurred, at STO stations (Bluewater Mandaumin and Edys Mills), in the last two years, where work has been performed at the station and has resulted in spills onto the ground from these tanks. Justification: Without adequate indication and alarming, the workers were not aware of the tank level prior to and during the work and conditions occurred, as regular course of the work, that resulted in an overfill condition and environmental spill. Indication and alarming would significantly reduce the likelihood of incident Assets: Atmospheric liquids storage/holding tanks Related Investments: N/A	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742338**	Bickford Fire & Gas Replacement	**2029**	$	55,815	Issue/Concern/Opportunity: The Gas and UV monitors currently in use are at end of support from the manufacturer and replacements are difficult to obtain. Upgrade to current UV and Gas monitor standard equipment. Justification: Assets: Related Investments:	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**735992**	Bluewater A1 Well	**2025**	$	37,146	This project drills one A1 observation well in the Bluewater pool DSA. The well will be a 5 1/2" production casing, cemented at least 20m into the A1 formation and perforated in the A1 formation. Pressures from this well will be conveyed to the SCADA system for continuous monitoring and recording. These pressures will be assessed on an ongoing basis and during inventory verifications to confirm structural integrity of the Bluewater storage pool. Any increase in pressure would be proof of gas migration to the A1 formation. Note - This is not split yet between regulated and unregulated	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**736651**	Mandaumin A1 observation well	**2025**	$	37,146	This project drills one A1 observation well in the Mandaumin pool DSA. The well will be a 5 1/2" production casing, cemented at least 20m into the A1 formation and perforated in the A1 formation. Pressures from this well will be conveyed to the SCADA system for continuous monitoring and recording. These pressures will be assessed on an ongoing basis and during inventory verifications to confirm structural integrity of the Mandaumin storage pool. Any increase in pressure would be proof of gas migration to the A1 formation. A1 Observation Well Program debited accordingly	Fail	Storage Pools & Well related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742347**	Kirkwall ControlNet to Ethernet	**2030**	$	25,156	Critical communication between remote IO and other devices currently is currently done over ControlNet. Some of the Controlnet hardware is near the end of the product lifecycle for Rockwell and production will be discontinued in the near future. Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742640**	Vector Courtright PLC Processor & Firmware Upgrades	**2025**	$	18,573	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742459**	Kirkwall Measurement PLC Processor & Firmware Upgrade	**2027**	$	16,587	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**9186**	LM:MS UPS-Replace	**2025**	$	16,310	*Issue/Concern* Un-interruptible Power Supplies (UPS) are a critical component in plant and meter station facilities. This unit must be operational in the event of a power failure to allow smooth transition to generator power. Power failures and lightning strikes are common in the Storage area. Consequence of a power failure, without a UPS, is uncontrolled shutdown of compression equipment; possible damage to compressor equipment and yard piping; and control system performance issues once power is restored. UPS equipment has a finite life expectancy of about 3 to 5 years. Failure of the UPS would make a compressor or meter station incapable of being controlled remotely and could shutdown an entire station until repairs are made. PLC's and RTU's are primary means of controlling Storage equipment and these devices need a UPS to maintain system SCADA and control during a power failure. *Asset* Compressor stations and meter station. *Related Program* Not applicable	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**9187**	LM:MS UPS-Replace	**2026**	$	15,355	*Issue/Concern* Un-interruptible Power Supplies (UPS) are a critical component in plant and meter station facilities. This unit must be operational in the event of a power failure to allow smooth transition to generator power. Power failures and lightning strikes are common in the Storage area. Consequence of a power failure, without a UPS, is uncontrolled shutdown of compression equipment; possible damage to compressor equipment and yard piping; and control system performance issues once power is restored. UPS equipment has a finite life expectancy of about 3 to 5 years. Failure of the UPS would make a compressor or meter station incapable of being controlled remotely and could shutdown an entire station until repairs are made. PLC's and RTU's are primary means of controlling Storage equipment and these devices need a UPS to maintain system SCADA and control during a power failure. *Asset* Compressor stations and meter station. *Related Program* Not applicable	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**9188**	LM:MS UPS-Replace	**2027**	$	14,782	*Issue/Concern* Un-interruptible Power Supplies (UPS) are a critical component in plant and meter station facilities. This unit must be operational in the event of a power failure to allow smooth transition to generator power. Power failures and lightning strikes are common in the Storage area. Consequence of a power failure, without a UPS, is uncontrolled shutdown of compression equipment; possible damage to compressor equipment and yard piping; and control system performance issues once power is restored. UPS equipment has a finite life expectancy of about 3 to 5 years. Failure of the UPS would make a compressor or meter station incapable of being controlled remotely and could shutdown an entire station until repairs are made. PLC's and RTU's are primary means of controlling Storage equipment and these devices need a UPS to maintain system SCADA and control during a power failure. *Asset* Compressor stations and meter station. *Related Program* Not applicable	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**9189**	LM:MS UPS-Replace	**2028**	$	14,514	*Issue/Concern* Un-interruptible Power Supplies (UPS) are a critical component in plant and meter station facilities. This unit must be operational in the event of a power failure to allow smooth transition to generator power. Power failures and lightning strikes are common in the Storage area. Consequence of a power failure, without a UPS, is uncontrolled shutdown of compression equipment; possible damage to compressor equipment and yard piping; and control system performance issues once power is restored. UPS equipment has a finite life expectancy of about 3 to 5 years. Failure of the UPS would make a compressor or meter station incapable of being controlled remotely and could shutdown an entire station until repairs are made. PLC's and RTU's are primary means of controlling Storage equipment and these devices need a UPS to maintain system SCADA and control during a power failure. *Asset* Compressor stations and meter station. *Related Program* Not applicable	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**744449**	LM:MS UPS-Replace - 2033	**2033**	$	13,962	*Issue/Concern* Un-interruptible Power Supplies (UPS) are a critical component in plant and meter station facilities. This unit must be operational in the event of a power failure to allow smooth transition to generator power. Power failures and lightning strikes are common in the Storage area. Consequence of a power failure, without a UPS, is uncontrolled shutdown of compression equipment; possible damage to compressor equipment and yard piping; and control system performance issues once power is restored. UPS equipment has a finite life expectancy of about 3 to 5 years. Failure of the UPS would make a compressor or meter station incapable of being controlled remotely and could shutdown an entire station until repairs are made. PLC's and RTU's are primary means of controlling Storage equipment and these devices need a UPS to maintain system SCADA and control during a power failure. *Asset* Compressor stations and meter station. *Related Program* Not applicable	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**744450**	LM:MS UPS-Replace - 2034	**2034**	$	13,957	*Issue/Concern* Un-interruptible Power Supplies (UPS) are a critical component in plant and meter station facilities. This unit must be operational in the event of a power failure to allow smooth transition to generator power. Power failures and lightning strikes are common in the Storage area. Consequence of a power failure, without a UPS, is uncontrolled shutdown of compression equipment; possible damage to compressor equipment and yard piping; and control system performance issues once power is restored. UPS equipment has a finite life expectancy of about 3 to 5 years. Failure of the UPS would make a compressor or meter station incapable of being controlled remotely and could shutdown an entire station until repairs are made. PLC's and RTU's are primary means of controlling Storage equipment and these devices need a UPS to maintain system SCADA and control during a power failure. *Asset* Compressor stations and meter station. *Related Program* Not applicable	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**735402**	LM:MS UPS-Replace - 2032	**2032**	$	13,936	*Issue/Concern* Un-interruptible Power Supplies (UPS) are a critical component in plant and meter station facilities. This unit must be operational in the event of a power failure to allow smooth transition to generator power. Power failures and lightning strikes are common in the Storage area. Consequence of a power failure, without a UPS, is uncontrolled shutdown of compression equipment; possible damage to compressor equipment and yard piping; and control system performance issues once power is restored. UPS equipment has a finite life expectancy of about 3 to 5 years. Failure of the UPS would make a compressor or meter station incapable of being controlled remotely and could shutdown an entire station until repairs are made. PLC's and RTU's are primary means of controlling Storage equipment and these devices need a UPS to maintain system SCADA and control during a power failure. *Asset* Compressor stations and meter station. *Related Program* Not applicable	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**735399**	LM:MS UPS-Replace - 2029	**2029**	$	13,912	*Issue/Concern* Un-interruptible Power Supplies (UPS) are a critical component in plant and meter station facilities. This unit must be operational in the event of a power failure to allow smooth transition to generator power. Power failures and lightning strikes are common in the Storage area. Consequence of a power failure, without a UPS, is uncontrolled shutdown of compression equipment; possible damage to compressor equipment and yard piping; and control system performance issues once power is restored. UPS equipment has a finite life expectancy of about 3 to 5 years. Failure of the UPS would make a compressor or meter station incapable of being controlled remotely and could shutdown an entire station until repairs are made. PLC's and RTU's are primary means of controlling Storage equipment and these devices need a UPS to maintain system SCADA and control during a power failure. *Asset* Compressor stations and meter station. *Related Program* Not applicable	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**735401**	LM:MS UPS-Replace - 2031	**2031**	$	13,912	*Issue/Concern* Un-interruptible Power Supplies (UPS) are a critical component in plant and meter station facilities. This unit must be operational in the event of a power failure to allow smooth transition to generator power. Power failures and lightning strikes are common in the Storage area. Consequence of a power failure, without a UPS, is uncontrolled shutdown of compression equipment; possible damage to compressor equipment and yard piping; and control system performance issues once power is restored. UPS equipment has a finite life expectancy of about 3 to 5 years. Failure of the UPS would make a compressor or meter station incapable of being controlled remotely and could shutdown an entire station until repairs are made. PLC's and RTU's are primary means of controlling Storage equipment and these devices need a UPS to maintain system SCADA and control during a power failure. *Asset* Compressor stations and meter station. *Related Program* Not applicable	Fail	See investment description, IRPAs not applicable
STO - EGD	**70 - Storage**	Transmission Pipe & Underground Storage	**Pass**	**735400**	LM:MS UPS-Replace - 2030	**2030**	$	13,912	*Issue/Concern* Un-interruptible Power Supplies (UPS) are a critical component in plant and meter station facilities. This unit must be operational in the event of a power failure to allow smooth transition to generator power. Power failures and lightning strikes are common in the Storage area. Consequence of a power failure, without a UPS, is uncontrolled shutdown of compression equipment; possible damage to compressor equipment and yard piping; and control system performance issues once power is restored. UPS equipment has a finite life expectancy of about 3 to 5 years. Failure of the UPS would make a compressor or meter station incapable of being controlled remotely and could shutdown an entire station until repairs are made. PLC's and RTU's are primary means of controlling Storage equipment and these devices need a UPS to maintain system SCADA and control during a power failure. *Asset* Compressor stations and meter station. *Related Program* Not applicable	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742641**	Vector Dawn PLC Processor & Firmware Upgrades	**2027**	$	1,106	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742637**	Cuthbert PLC Processor & Firmware Upgrades	**2027**	$	1,106	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	See investment description, IRPAs not applicable

STO - UG	**Div_53 - Union South Storage**	Transmission Pipe & Underground Storage	**Pass**	**742639**	Terminus PLC Processor & Firmware Upgrades	**2027**	$	754	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Utilization	**Pass**	**19983**	Meter Purchases- MXGI's, MXG's, MXOT's - Diaphragm	**2025**	$	415,733,648	Meters are used to determine the gas consumption input of customer billing. The replacement program for meters is mandated by Measurement Canada. The program includes: testing, repair, and replacement requirements of meters and instruments. All verified meters are approved by Measurement Canada with an issuance of a certificate which identifies that the meter complies with Electricity and Gas Specification S-EG-02. EGI must ensure all measurement devices remain in compliance for annual audits by Measurement Canada. Measurement Canada specifies tolerances under which the meter must operate in the field. EGD must demonstrate that all aspects of its meter sampling, maintenance, and replacement comply with these criteria in order to be accredited by Measurement Canada to be an "Authorized Service Provider" and adhere to Measurement Canada's accreditation standard S-A-01. Meters may also require exchange for issues such as: damages, leaks, customer billing issues.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Utilization	**Pass**	**48501**	SMC-Meter & Regulator Replacements - South - Diaphragm	**2025**	$	190,640,159	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
GTA East & Toronto	**10 - Toronto**	Utilization	**Pass**	**13543**	MXGI Area 10	**2025**	$	115,505,417	Meters: Meters are used to determine the gas consumption input of customer billing. The replacement program for meters is mandated by Measurement Canada. The program includes: testing, repair, and replacement requirements of meters and instruments. All verified meters are approved by Measurement Canada with an issuance of a certificate which identifies that the meter complies with Electricity and Gas Specification S-EG-02. The Company must ensure all measurement devices remain in compliance for annual audits by Measurement Canada. Measurement Canada specifies tolerances under which the meter must operate in the field. The Company must demonstrate that all aspects of its meter sampling, maintenance, and replacement comply with these criteria in order to be accredited by Measurement Canada to be an "Authorized Service Provider" and adhere to Measurement Canada's accreditation standard S-A-01. Meters may also require exchange for issues such as: damages, leaks, customer billing issues. Regulation: Regulators are the last line of defense for over-pressure to the customer. The condition of regulation systems is determined by regulator performance, corrosion of piping and regulators, and adherence to installation specifications. Failure of the regulation system can cause pressured gas to enter the premise, resulting in failure of gas equipment, loss of containment, and potentially fire or explosion.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Utilization	**Pass**	**48680**	SMC-Meter Purchases Replacements - North - Diaphragm	**2025**	$	95,266,834	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Utilization	**Pass**	**23228**	Meter Purchases- New Customer Additions - Diaphragm	**2025**	$	79,164,532	New meters are required for customer expansion projects. Meters are used to determine the gas consumption input of customer billing.	Fail	See investment description, IRPAs not applicable
Southwest	**Div_04 - London**	Utilization	**Pass**	**48361**	LOND: Meter & Regulator Inst Repl-Contractor	**2025**	$	63,894,600	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Utilization	**Pass**	**738580**	Meter Purchases- MXGI's, MXG's, MXOT's - Ultra-Sonic	**2025**	$	51,512,387	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
Southwest	**Div_01 - Windsor**	Utilization	**Pass**	**48298**	WIND: Meter & Regulator Inst Repl-Contractor	**2025**	$	42,318,636	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
GTA West	**30 - Richmond Hill**	Utilization	**Pass**	**13545**	MXGI Area 30	**2025**	$	41,432,975	Meters: Meters are used to determine the gas consumption input of customer billing. The replacement program for meters is mandated by Measurement Canada. The program includes: testing, repair, and replacement requirements of meters and instruments. All verified meters are approved by Measurement Canada with an issuance of a certificate which identifies that the meter complies with Electricity and Gas Specification S-EG-02. The Company must ensure all measurement devices remain in compliance for annual audits by Measurement Canada. Measurement Canada specifies tolerances under which the meter must operate in the field. The Company must demonstrate that all aspects of its meter sampling, maintenance, and replacement comply with these criteria in order to be accredited by Measurement Canada to be an "Authorized Service Provider" and adhere to Measurement Canada's accreditation standard S-A-01. Meters may also require exchange for issues such as: damages, leaks, customer billing issues. Regulation: Regulators are the last line of defense for over-pressure to the customer. The condition of regulation systems is determined by regulator performance, corrosion of piping and regulators, and adherence to installation specifications. Failure of the regulation system can cause pressured gas to enter the premise, resulting in failure of gas equipment, loss of containment, and potentially fire or explosion.	Fail	See investment description, IRPAs not applicable
Southeast	**Div_07 - Waterloo**	Utilization	**Pass**	**48405**	WATE: Meter & Regulator Inst Repl-Company	**2025**	$	41,411,573	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
GTA West	**20 - Mississauga**	Utilization	**Pass**	**13544**	MXGI Area 20	**2025**	$	39,172,587	Meters: Meters are used to determine the gas consumption input of customer billing. The replacement program for meters is mandated by Measurement Canada. The program includes: testing, repair, and replacement requirements of meters and instruments. All verified meters are approved by Measurement Canada with an issuance of a certificate which identifies that the meter complies with Electricity and Gas Specification S-EG-02. The Company must ensure all measurement devices remain in compliance for annual audits by Measurement Canada. Measurement Canada specifies tolerances under which the meter must operate in the field. The Company must demonstrate that all aspects of its meter sampling, maintenance, and replacement comply with these criteria in order to be accredited by Measurement Canada to be an "Authorized Service Provider" and adhere to Measurement Canada's accreditation standard S-A-01. Meters may also require exchange for issues such as: damages, leaks, customer billing issues. Regulation: Regulators are the last line of defense for over-pressure to the customer. The condition of regulation systems is determined by regulator performance, corrosion of piping and regulators, and adherence to installation specifications. Failure of the regulation system can cause pressured gas to enter the premise, resulting in failure of gas equipment, loss of containment, and potentially fire or explosion.	Fail	See investment description, IRPAs not applicable
Southwest	**Div_04 - London**	Utilization	**Pass**	**48359**	LOND: Meter & Regulator Inst Repl-Company	**2025**	$	39,161,207	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Utilization	**Pass**	**48500**	SMC-Meter & Regulator Additions South - Diaphragm	**2025**	$	36,024,778	Meter & Reg Install- New	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**60 - Ottawa**	Utilization	**Pass**	**13548**	MXGI Area 60	**2025**	$	35,516,258	Meters: Meters are used to determine the gas consumption input of customer billing. The replacement program for meters is mandated by Measurement Canada. The program includes: testing, repair, and replacement requirements of meters and instruments. All verified meters are approved by Measurement Canada with an issuance of a certificate which identifies that the meter complies with Electricity and Gas Specification S-EG-02. The Company must ensure all measurement devices remain in compliance for annual audits by Measurement Canada. Measurement Canada specifies tolerances under which the meter must operate in the field. The Company must demonstrate that all aspects of its meter sampling, maintenance, and replacement comply with these criteria in order to be accredited by Measurement Canada to be an "Authorized Service Provider" and adhere to Measurement Canada's accreditation standard S-A-01. Meters may also require exchange for issues such as: damages, leaks, customer billing issues. Regulation: Regulators are the last line of defense for over-pressure to the customer. The condition of regulation systems is determined by regulator performance, corrosion of piping and regulators, and adherence to installation specifications. Failure of the regulation system can cause pressured gas to enter the premise, resulting in failure of gas equipment, loss of containment, and potentially fire or explosion.	Fail	See investment description, IRPAs not applicable
Southeast	**Div_16 - Hamilton**	Utilization	**Pass**	**48438**	HAMI: Meter & Regulator Inst Repl-Company	**2025**	$	27,146,528	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
GTA East & Toronto	**Div_22 - Kingston**	Utilization	**Pass**	**48483**	KING: Meter & Regulator Inst Repl-Company	**2025**	$	25,437,668	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Utilization	**Pass**	**738579**	Meter Purchases- New Customer Additions - Ultra-Sonic	**2025**	$	25,202,313	New meters are required for customer expansion projects. Meters are used to determine the gas consumption input of customer billing.	Fail	See investment description, IRPAs not applicable
GTA East & Toronto	**40 - Whitby**	Utilization	**Pass**	**13546**	MXGI Area 40	**2025**	$	24,311,546	Meters: Meters are used to determine the gas consumption input of customer billing. The replacement program for meters is mandated by Measurement Canada. The program includes: testing, repair, and replacement requirements of meters and instruments. All verified meters are approved by Measurement Canada with an issuance of a certificate which identifies that the meter complies with Electricity and Gas Specification S-EG-02. The Company must ensure all measurement devices remain in compliance for annual audits by Measurement Canada. Measurement Canada specifies tolerances under which the meter must operate in the field. The Company must demonstrate that all aspects of its meter sampling, maintenance, and replacement comply with these criteria in order to be accredited by Measurement Canada to be an "Authorized Service Provider" and adhere to Measurement Canada's accreditation standard S-A-01. Meters may also require exchange for issues such as: damages, leaks, customer billing issues. Regulation: Regulators are the last line of defense for over-pressure to the customer. The condition of regulation systems is determined by regulator performance, corrosion of piping and regulators, and adherence to installation specifications. Failure of the regulation system can cause pressured gas to enter the premise, resulting in failure of gas equipment, loss of containment, and potentially fire or explosion.	Fail	See investment description, IRPAs not applicable
GTA West	**Div_17 - Halton**	Utilization	**Pass**	**48464**	HALT: Meter & Regulator Inst Repl-Contractor	**2025**	$	22,416,991	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
Southeast	**Div_07 - Waterloo**	Utilization	**Pass**	**48406**	WATE: Meter & Regulator Inst Repl-Contractor	**2025**	$	21,612,993	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Utilization	**Pass**	**48546**	SUDB: Meter & Regulator Inst Repl-Company	**2025**	$	21,011,183	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
Southeast	**80 - Niagara**	Utilization	**Pass**	**13549**	MXGI Area 80	**2025**	$	19,028,151	Meters: Meters are used to determine the gas consumption input of customer billing. The replacement program for meters is mandated by Measurement Canada. The program includes: testing, repair, and replacement requirements of meters and instruments. All verified meters are approved by Measurement Canada with an issuance of a certificate which identifies that the meter complies with Electricity and Gas Specification S-EG-02. The Company must ensure all measurement devices remain in compliance for annual audits by Measurement Canada. Measurement Canada specifies tolerances under which the meter must operate in the field. The Company must demonstrate that all aspects of its meter sampling, maintenance, and replacement comply with these criteria in order to be accredited by Measurement Canada to be an "Authorized Service Provider" and adhere to Measurement Canada's accreditation standard S-A-01. Meters may also require exchange for issues such as: damages, leaks, customer billing issues. Regulation: Regulators are the last line of defense for over-pressure to the customer. The condition of regulation systems is determined by regulator performance, corrosion of piping and regulators, and adherence to installation specifications. Failure of the regulation system can cause pressured gas to enter the premise, resulting in failure of gas equipment, loss of containment, and potentially fire or explosion.	Fail	See investment description, IRPAs not applicable

Southeast	**Div_16 - Hamilton**	Utilization	**Pass**	Dollar Threshold	**48439**	HAMI: Meter & Regulator Inst Repl-Contractor	**2025**	$	18,102,135	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_33 - Thunder Bay**	Utilization	**Pass**	Dollar Threshold	**48513**	TBAY: Meter & Regulator Inst Repl-Company	**2025**	$	17,614,651	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_46 - North Bay & Orillia**	Utilization	**Pass**	Dollar Threshold	**48586**	NBAY: Meter & Regulator Inst Repl-Company	**2025**	$	15,550,617	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
Southwest	**Div_01 - Windsor**	Utilization	**Pass**	Dollar Threshold	**48297**	WIND: Meter & Regulator Inst Repl-Company	**2025**	$	14,693,971	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
Southeast	**Div_06 - Brantford**	Utilization	**Pass**	Dollar Threshold	**48385**	BRAN: Meter & Regulator Inst Repl-Company	**2025**	$	14,406,256	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
GTA West	**50 - Barrie**	Utilization	**Pass**	Dollar Threshold	**13547**	MXGI Area 50	**2025**	$	14,126,482	Meters: Meters are used to determine the gas consumption input of customer billing. The replacement program for meters is mandated by Measurement Canada. The program includes: testing, repair, and replacement requirements of meters and instruments. All verified meters are approved by Measurement Canada with an issuance of a certificate which identifies that the meter complies with Electricity and Gas Specification S-EG-02. The Company must ensure all measurement devices remain in compliance for annual audits by Measurement Canada. Measurement Canada specifies tolerances under which the meter must operate in the field. The Company must demonstrate that all aspects of its meter sampling, maintenance, and replacement comply with these criteria in order to be accredited by Measurement Canada to be an "Authorized Service Provider" and adhere to Measurement Canada's accreditation standard S-A-01. Meters may also require exchange for issues such as: damages, leaks, customer billing issues. Regulation: Regulators are the last line of defense for over-pressure to the customer. The condition of regulation systems is determined by regulator performance, corrosion of piping and regulators, and adherence to installation specifications. Failure of the regulation system can cause pressured gas to enter the premise, resulting in failure of gas equipment, loss of containment, and potentially fire or explosion.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Utilization	**Pass**	Dollar Threshold	**738582**	SMC-Meter & Regulator Additions South - Ultra-Sonic	**2025**	$	13,964,564	Meter & Reg Install- New	Fail	See investment description, IRPAs not applicable
Head Office/All	**00 - Head Office**	Utilization	**Pass**	Dollar Threshold	**743151**	Mid-Market LVM Project	**2027**	$	12,915,045	Risk/Opportunity: Changing instrumentation for existing 10,000 mid-market accounts that have become obsolete to the Bright Lync system, which will provide daily volumes for these accounts, drive accuracy in billing, provide insights into the usage of the systems that these are connected to. Assets: n/a Related Projects: n/a	Fail	See investment description, IRPAs not applicable
Southeast	**Div_06 - Brantford**	Utilization	**Pass**	Dollar Threshold	**48386**	BRAN: Meter & Regulator Inst Repl-Contractor	**2025**	$	12,623,732	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Utilization	**Pass**	Dollar Threshold	**48679**	SMC-Meter Purchases Additions North - Diaphragm	**2025**	$	11,324,006	Meter & Reg Install- New	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Utilization	**Pass**	Dollar Threshold	**502199**	DIMP LUG Local & Remote First Cut Reg Sets	**2025**	$	7,123,883	The Farm Tap regulator purpose is to reduce pressure from XHP/HP to meet the design criteria for the downstream 2nd cut regulator. A malfunctioning Farm Tap regulator has the potential to create downstream hazards. A failure of the regulator set could potentially cause a higher than acceptable pressure entering the customer's premise. This over-pressure can result in downstream customer appliances failing, loss of containment inside the premise, fire, and explosion. The Farm Tap consists of the inlet/outlet riser, a regulator, and a relief. The condition of the Farm Tap population is largely unknown. As they are installed away from the premise and near the property line, they are exposed to more elements originating from the roadway. Their placement can also make them susceptible to third party damage from maintenance equipment and vehicles. Farm Taps have not been part of pro-active inspection programs. They historically have not been included in MXGI regulator exchanges. 2021 DIMP survey for LUG - potential for some immediates	Fail	See investment description, IRPAs not applicable
Northern & Eastern	**Div_45 - Timmins**	Utilization	**Pass**	Dollar Threshold	**48570**	TIMM: Meter & Regulator Inst Repl-Company	**2025**	$	7,116,648	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Utilization	**Pass**	Dollar Threshold	**8543**	DIMP LEG >400 Series Reg Sets	**2025**	$	5,696,943	These meter sets primarily serve commercial, industrial, and high density residential customers, typically with a meter > 400 series. They require proper operation to ensure gas does not exceed supply pressure. There are 62,959 of these meter sets. These sets consist of regulator(s), relief(s), riser, and meter. Failure of the regulation system has the potential to cause an over pressure to the customer's supply line and appliances. Over-pressure can result in a loss of containment within the building making the event of ignition, fire, and explosion possible. The condition of these Commercial/Industrial LPDMS is largely unknown. They have not been part of pro-active inspection programs. A survey on a sample population indicated a number of potential issues including: - Old Regulators - Corrosion of piping and regulators - Non-Adherence to installation specifications	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Utilization	**Pass**	Dollar Threshold	**8804**	DIMP LEG Local & Remote First Cut Reg Sets	**2025**	$	3,986,970	The Farm Tap regulator purpose is to reduce pressure from XHP/HP to meet the design criteria for the downstream 2nd cut regulator. A malfunctioning Farm Tap regulator has the potential to create downstream hazards. A failure of the regulator set could potentially cause a higher than acceptable pressure entering the customer's premise. This over-pressure can result in downstream customer appliances failing, loss of containment inside the premise, fire, and explosion. There are 10,095 Farm Taps. The Farm Tap consists of the inlet/outlet riser, a regulator, and a relief. The condition of the Farm Tap population is largely unknown. As they are installed away from the premise and near the property line, they are exposed to more elements originating from the roadway. Their placement can also make them susceptible to third party damage from maintenance equipment and vehicles. Farm Taps have not been part of pro-active inspection programs. They historically have not been included in MXGI regulator exchanges.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Utilization	**Pass**	Dollar Threshold	**738581**	SMC-Meter & Regulator Additions North - Ultra-Sonic	**2025**	$	3,861,414	Meter & Reg Install- New	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Utilization	**Pass**	Dollar Threshold	**738584**	SMC-Meter Purchases Replacements - North - Ultra-Sonic	**2025**	$	3,306,004	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Utilization	**Pass**	Dollar Threshold	**738583**	SMC-Meter & Regulator Replacements - South - Ultra-Sonic	**2025**	$	3,306,004	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
Southwest	**Div_02 - Chatham**	Utilization	**Pass**	Dollar Threshold	**48328**	CHAT: Meter & Regulator Inst Repl-Company	**2025**	$	1,763,276	Meter & Reg Install- Replacement	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Utilization	**Pass**	Dollar Threshold	**736034**	DIMP LUG >400 Series Reg Sets	**2025**	$	1,117,330	These meter sets primarily serve commercial, industrial, and high density residential customers, typically with a meter > 400 series. They require proper operation to ensure gas does not exceed supply pressure. There are 62,959 of these meter sets. These sets consist of regulator(s), relief(s), riser, and meter. Failure of the regulation system has the potential to cause an over pressure to the customer's supply line and appliances. Over-pressure can result in a loss of containment within the building making the event of ignition, fire, and explosion possible. The condition of these Commercial/Industrial LPDMS is largely unknown. They have not been part of pro-active inspection programs. A survey on a sample population indicated a number of potential issues including: - Old Regulators - Corrosion of piping and regulators - Non-Adherence to installation specifications	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Utilization	**Pass**	Dollar Threshold	**17969**	2026 Assets Downstream of Bulk Meters	**2026**	$	446,701	The company owns all assets upstream of the meter outlet. However, there are existing configurations where the company has installed underground headers downstream of a bulk meter feeding multiple premises. Some of these headers and services, downstream of the meter, have been maintained by the company since installation without a formal transfer to the customer, while others have been maintained by the customer. In most cases, the customer may not be aware of their responsibility to maintain assets downstream of the meter. This results in: - Unknown condition of buried piping. Likely not inspected via leak survey and corrosion survey. - Vintage/obsolete regulators. Not exchanged as part of the meter exchange program. - Corrosion of regulator set piping. Not inspected as part of the meter exchange program. - Issues adhering to current installation specifications. Changes in site conditions and policies over time can result in the regulator set having a number of vent and clearance issues. - Records gap. Individual units/premises do not exist in the asset system. This means that leaks and emergencies cannot be assigned to the exact location. Some records for buried pipe are missing or incomplete. All of these potential issues can result in loss of containment, both inside and outside the premise. Loss of containment within the building makes the event of ignition, fire, and explosion possible. Poor records can result in lagging emergency response. There are 82 Bulk Meter Headers in the system. -18 locations are multi-residential sites that had not been maintained since installation, nor delineation formally defined. As of 2018, there are 12 of these locations remaining. -35 locations are farms with industrial fans. -31 locations are large campus sites such as college/university campuses, military bases, industrial campuses.	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Utilization	**Pass**	Dollar Threshold	**17970**	2027 Assets Downstream of Bulk Meters	**2027**	$	430,034	The company owns all assets upstream of the meter outlet. However, there are existing configurations where the company has installed underground headers downstream of a bulk meter feeding multiple premises. Some of these headers and services, downstream of the meter, have been maintained by the company since installation without a formal transfer to the customer, while others have been maintained by the customer. In most cases, the customer may not be aware of their responsibility to maintain assets downstream of the meter. This results in: - Unknown condition of buried piping. Likely not inspected via leak survey and corrosion survey. - Vintage/obsolete regulators. Not exchanged as part of the meter exchange program. - Corrosion of regulator set piping. Not inspected as part of the meter exchange program. - Issues adhering to current installation specifications. Changes in site conditions and policies over time can result in the regulator set having a number of vent and clearance issues. - Records gap. Individual units/premises do not exist in the asset system. This means that leaks and emergencies cannot be assigned to the exact location. Some records for buried pipe are missing or incomplete. All of these potential issues can result in loss of containment, both inside and outside the premise. Loss of containment within the building makes the event of ignition, fire, and explosion possible. Poor records can result in lagging emergency response. There are 82 Bulk Meter Headers in the system. -18 locations are multi-residential sites that had not been maintained since installation, nor delineation formally defined. As of 2018, there are 12 of these locations remaining. -35 locations are farms with industrial fans. -31 locations are large campus sites such as college/university campuses, military bases, industrial campuses.	Fail	See investment description, IRPAs not applicable
Head Office/All	**01 - All**	Utilization	**Pass**	Dollar Threshold	**17971**	2028 Assets Downstream of Bulk Meters	**2028**	$	422,234	The company owns all assets upstream of the meter outlet. However, there are existing configurations where the company has installed underground headers downstream of a bulk meter feeding multiple premises. Some of these headers and services, downstream of the meter, have been maintained by the company since installation without a formal transfer to the customer, while others have been maintained by the customer. In most cases, the customer may not be aware of their responsibility to maintain assets downstream of the meter. This results in: - Unknown condition of buried piping. Likely not inspected via leak survey and corrosion survey. - Vintage/obsolete regulators. Not exchanged as part of the meter exchange program. - Corrosion of regulator set piping. Not inspected as part of the meter exchange program. - Issues adhering to current installation specifications. Changes in site conditions and policies over time can result in the regulator set having a number of vent and clearance issues. - Records gap. Individual units/premises do not exist in the asset system. This means that leaks and emergencies cannot be assigned to the exact location. Some records for buried pipe are missing or incomplete. All of these potential issues can result in loss of containment, both inside and outside the premise. Loss of containment within the building makes the event of ignition, fire, and explosion possible. Poor records can result in lagging emergency response. There are 82 Bulk Meter Headers in the system. -18 locations are multi-residential sites that had not been maintained since installation, nor delineation formally defined. As of 2018, there are 12 of these locations remaining. -35 locations are farms with industrial fans. -31 locations are large campus sites such as college/university campuses, military bases, industrial campuses.	Fail	See investment description, IRPAs not applicable

Head Office/All	**01 - All**	Utilization	**Pass**	Dollar Threshold	**101968**	2029 Assets Downstream of Bulk Meters	**2029**	$	404,722	The company owns all assets upstream of the meter outlet. However, there are existing configurations where the company has installed underground headers downstream of a bulk meter feeding multiple premises. Some of these headers and services, downstream of the meter, have been maintained by the company since installation without a formal transfer to the customer, while others have been maintained by the customer. In most cases, the customer may not be aware of their responsibility to maintain assets downstream of the meter. This results in: - Unknown condition of buried piping. Likely not inspected via leak survey and corrosion survey. - Vintage/obsolete regulators. Not exchanged as part of the meter exchange program. - Corrosion of regulator set piping. Not inspected as part of the meter exchange program. - Issues adhering to current installation specifications. Changes in site conditions and policies over time can result in the regulator set having a number of vent and clearance issues. - Records gap. Individual units/premises do not exist in the asset system. This means that leaks and emergencies cannot be assigned to the exact location. Some records for buried pipe are missing or incomplete. All of these potential issues can result in loss of containment, both inside and outside the premise. Loss of containment within the building makes the event of ignition, fire, and explosion possible. Poor records can result in lagging emergency response. There are 82 Bulk Meter Headers in the system. -18 locations are multi-residential sites that had not been maintained since installation, nor delineation formally defined. As of 2018, there are 12 of these locations remaining. -35 locations are farms with industrial fans. -31 locations are large campus sites such as college/university campuses, military bases, industrial campuses.	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Utilization	**Pass**	Dollar Threshold	**102818**	2025 - LAB FACILITIES UPGRADE	**2025**	$	99,056	Upgrades for Lab equipment including: temperature probes, pressure monitors and transducers, etc	Fail	See investment description, IRPAs not applicable
Head Office Support	**Div_54 - Head Office Support**	Utilization	**Pass**	Dollar Threshold	**102709**	2025 Odourant Upgrades - ED Units	**2025**	$	37,146	The expenditures in this portfolio include projects to upgrade odourant systems to ensure compliance to current codes, such as replacing old tanks and painting rusted containment pans and tank stands. Additionally, performance capability will be added by installing heat tracer lines, heated cabinets, improved tank valves and indoor regulator panels. This work will help to ensure safe, compliant and continuous odourization. This forecast will help mitigate the risk of tank rupture, frequent freeze off and nuisance odour calls.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_92 - Union North Storage**	LNG	**Pass**		**49955**	Hagar JVG Compressor Upgrade	**2031**	$	27,003,506	Issue/Concern: The Boil-Off Gas (BOG) compressor is one of the two compressors used to power the refrigerant process which cools the natural gas feedstock to -160°C at which point the natural gas turns into a liquid. The BOG compressor was also used to recover BOG (i.e., natural gas vapours) from the liquefied natural gas (LNG) storage tank which occurs on a continuous basis due to the ambient warming of the tank exterior. In 2012, a separate compressor was installed to manage the LNG storage tank boil-off gas. The BOG compressor is necessary to produce LNG. The consequence of compressor failure is dominated by customer impact. Risk associated with failure of the BOG compressor is heavily influenced by the time of year, weather severity and time to mitigate the failure. Over its 50 years of operation, the 240 horsepower Ingersoll Rand BOG compressor has amassed 325,000 operational hours. The compressor is obsolete and, although normal wear components are still available in the marketplace, some core compressor replacement parts such as cylinders, crankshafts, pistons, etc., required to support a critical failure may no longer manufactured by the original equipment manufacturer(OEM). In the event of a critical failure, securing used parts (which are rare) or aftermarket custom machining services are the only options for a timely repair. This was the case in 2017 when an aftermarket service was solicited to develop a weld and machine repair of a compressor cylinder which had failed. The aftermarket service was able to design a custom repair which took three months to complete. In the event that the cylinder is not repairable, a custom-designed aftermarket casting or a complete replacement of the compressor may be options. These options would take the plant out of service for at least one operational season. Assets: BOG compressor Related Programs: Not applicable	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_92 - Union North Storage**	LNG	**Pass**		**48709**	Hagar KVGR and Cycle Mix Cooler	**2034**	$	19,259,051	Issue/Concern: The Hagar Liquefied Natural Gas (LNG) Plant was installed in 1968 to provide security of supply to the Sudbury industrial and distribution markets. The KVGR Compressor is one of the two compressors used to power the refrigerant process which cools the natural gas feedstock to -160°C at which point the natural gas turns into a liquid. The KVGR Compressor is necessary to produce LNG. The consequence of compressor failure is dominated by customer impact. Risk associated with failure of the KVGR Compressor is heavily influenced by the time of year, weather severity and time to mitigate the failure. Over its 50 years of operation, the 1,500 horsepower Ingersoll Rand KVGR Compressor has amassed 140,000 operational hours. The compressor is obsolete and, although normal wear components are still available in the marketplace, some core compressor replacement items such as cylinders, crankshafts, pistons, etc., required to support a critical failure may no longer manufactured by the original equipment manufacturer (OEM). In the event of a critical failure, securing used parts (which are rare) or aftermarket custom machining services may be the only option for a timely repair. In the event custom machining services are not able to make a repair, a custom-designed aftermarket casting option or complete replacement of the compressor would be required rendering the LNG plant out of service for at least one operational season . Assets: Compressor and Cycle Mix Cooler Related Programs: Not applicable.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	LNG	**Pass**		**48714**	Hagar Cold Box	**2032**	$	11,091,650	Issue/Concern: The Cold Box is several heat exchangers in series used to cool the natural gas feedstock to -160°C at which point the natural gas turns into a liquid. The Cold Box is the core of the liquefied natural gas (LNG) station and is necessary to produce LNG. The consequence of a Cold Box failure is dominated by customer impact. Risk of associated failure is heavily influenced by thermal cycling and operational hours. Over its 50 years of operation, the Cold Box has amassed 140,000 operational hours. Significant failure modes include leakage of natural gas or refrigerants out of the piping into the interior of the Cold Box shell reaching potentially explosive levels or heat exchanger cross leaks that reduce the effectiveness of the refrigeration process. Both of these failure modes impair LNG production to the extent the plant cannot meet its annual production requirements. As the Cold Box internals are encased in very densely packed insulation and clad in an outer steel jacket, troubleshooting and repair of either of these failure modes is extremely difficult and time consuming. Assets: Cold Box Related Programs: Not applicable	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_92 - Union North Storage**	LNG	**Pass**		**502916**	Hagar LNG Tank Boil Off Gas Recovery System	**2027**	$	10,897,412	Issue/Concern/Opportunity: During sudden atmospheric pressure changes, boil-off gas venting from the liquified natural gas (LNG) storage tank vents occurs frequently. The current boil-off compressor is undersized for Hagar, which is one of Gas Distribution and Storage's (GDS's) largest emitter of unrecovered (or destroyed) natural gas at approximately 590,000 m3/year. The decision on whether the project is justified under greenhouse gas (GHG) compliance or based on the Corporate Emission Reduction Plans is currently in the works. In consideration of EGI's Corporate Emission Reduction Plans and targets, Hagar is a single-point source and can be recovered by installing a single process within the existing LNG facility. Assets: Hagar LNG storage tank Related Investments: Not applicable.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_92 - Union North Storage**	LNG	**Pass**		**743000**	Hagar LNG Tank Modifications	**2025**	$	3,095,495	Issue/Concern/Opportunity: Boil-off gas from the LNG tank is the single largest contributor to methane emissions at Enbridge, current nozzle connections are not sized properly to mitigate the emissions. Faulty PRV isolation valve; stairway/platform not built to current standards; tank does not have redundant PRV capabilities; tank cannot accommodate new LNG plant Justification: Integrity, OPP, increased capabilities Assets: LNG Tank, PRVs, BOG valve, foundation Related Investments:	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	LNG	**Pass**		**742645**	Hagar Control Room MCC Replacement	**2028**	$	3,041,352	Issue/Concern/Opportunity: Existing MCC equipment has reached end of product lifecycle and should be upgraded to a current product consistent with other stations. Justification: Spare part availability is questionable. Limited to existing spares and equipment taken out of service and salvaged for spare parts. Assets: Related Investments:	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_92 - Union North Storage**	LNG	**Pass**	Dollar Threshold	**49967**	Hagar Desication Skid	**2028**	$	1,058,259	Issue/Concern: Purification skid building sits in a pool of water due to site water drainage issues and the compressor is still the original unit. Concrete base for the compressor is starting to fail and entire structure and piping should be raised to eliminate standing water in the building. Asset: Desiccation Building Related Program: N/A	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_92 - Union North Storage**	LNG	**Pass**	Dollar Threshold	**736935**	Hagar Obsolete Mechanical - Replace	**2026**	$	936,443	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - the OEM supplied auxiliary system components were manufactured by others. Many of these auxiliary system components are no longer available. Once the parts are no longer produced they must be reverse engineered and replaced which normally requires modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor and LNG auxiliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devices. *Related Program* Not Applicable	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_92 - Union North Storage**	LNG	**Pass**	Dollar Threshold	**736939**	Hagar Obsolete Instrumentation-Replace	**2026**	$	936,443	*Issue/Concern* Instrumentation assets with finite life expectancy include: (i) PLC's; (ii) Transmitters & switches; (iii) Actuators; (iv) Human Machine Interfaces (HMI's) & Video Displays. Many of these assets have a short life expectancy and experience planned obsolescence. Like-for-like replacements may not be available and replacement of failed components may require some re-engineering to provide the required functionality. Large instrumentation assets are replaced, through specific named projects, however small instrumentation asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete instrumentation assets, is the most practical way to address end of life issues and ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a member of the control & communication asset sub-class. *Related Program* Not Applicable	Fail	See investment description, IRPAs not applicable

STO - UG	**Div_92 - Union North Storage**	LNG	**Pass**	Dollar Threshold	**736938**	Hagar Obsolete Electrical-Replace	**2026**	$	936,443	*Issue/Concern* Electrical assets with finite life expectancy include: (i) electrical distribution (panels, wiring); (ii) Motor Control Centres (MCC's); (iii) Auxiliary Power Units (APU's) & Transfer Switches; (iv) Variable Frequency Drives (VFD's); (v) Phase inverters and Transformers. Many of these assets at the edge of their useful life and like-for-like replacements may not available. Replacement of failed components may require some re-engineering to provide the required functionality. Large electrical assets are replaced, through specific named projects, however small electrical asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete electrical assets, is the most practical way to address end of life issues and to ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a memebr ot the electrical asset sub-class. *Related Program* Not Applicable	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_92 - Union North Storage**	LNG	**Pass**	Dollar Threshold	**735291**	Hagar Pipeduct Refurbishment	**2025**	$	185,730	Issue/Concern/Opportunity: As a result of the completed integrity assessment and need repairs to the ductbox over the last few years. Justification: This is the last investment required for complete these repairs outside of the box. Assets: Coldbox, Vaporizer and Tank Related Investments: 48703 Piping integrity assessment of the piping system between the LNG tank and the Cold Box installed in 1968. There is a potential system reliability issue stemming around an LNG piping failure between the cold box, tank and vaporizers due to integrity related issues. This 50 year old stainless steel pipe is encapsulated in insulation and encased in a welded steel box. Although not as susceptible to loss of containment as carbon steel, there are integrity risks associated with this piping system that need to be investigated: metallurgy, structural integrity, weld issues, stress cracking, expansion joint integrity, insulation integrity, etc. Inspection of this piping system is one of the higher priority items identified in the 3rd party Jenmar consultant report. The initial investigation phase of this work carried out in 2018 included cutting inspection ports in the welded steel piping duct box in several locations to inspect the LNG piping , boil off gas piping, expansion joints, box condition and insulation. Two locations of significant water infiltration were found at either end of the piping system requiring new insulation and piping duct box remediation due to corrosion. At the LNG tank end of the duct box, a short section of LNG piping was replaced due to a pipe support, welded directly to the pipe, failing under expansion stress and removing a divot from the LNG feed piping.	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_92 - Union North Storage**	LNG	**Pass**	Dollar Threshold	**742934**	Hagar Dessicant Valve Replacement	**2028**	$	160,814	Issue/Concern/Opportunity: The Hagar dessicant skid valves were replace in 2018 and it was determined that the temperature differential was deteriorating the new valves. Four valves were replaced in 2019 and it was decided to replace the remaining 4 valves before they become inoperable. Justification: Assets: Hagar Dessicant Skid Related Investments:	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	LNG	**Pass**	Dollar Threshold	**742643**	Hagar Boil Off Compressor PLC Processor & Firmware Upgrades	**2025**	$	24,764	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	See investment description, IRPAs not applicable
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**		**48715**	Dawn C Compression Lifecycle	**2029**	$	147,157,006	Issue/Concern: **** An Asset Health Review is underway and will inform a third-party Reliability, Availability and Maintainability Study to quantify risks associated with asset failures. These activities will support additional detailed alternatives analysis and final scoping which will in turn inform the project cost estimate, timing and business case. Dawn C Plant is one of the nine centrifugal compressors located at the Dawn Compressor Station. It is primarily used to lift from lower storage pressure levels, experienced later in the operations seaosn, to intermediate pressure levels. The intermediate pressure level is typically elevated further in pressure by another compressor to reach the desired Dawn outlet pressure. Dawn Plant C and Plant D have a suction pressure rating of 195 psig, the lowest rating of the compressor fleet at Dawn. Considering the other compressors at Dawn have a 225 psig minimum inlet rating, Dawn Plants C and D become very critical when pool storage levels fall below 225 psig, as they typically do late in the operational season. Overall, compression can pose a very large consequence of failure as compressors are integral assets required to achieve the Dawn to Parkway Transmission System deliverability requirements throughout the year. The consequence of compressor failure is dominated by gas cost impacts to customers. Transmission system consequences associated with failure of a single compressor are heavily influenced by the time of year, weather severity and time to mitigate the failure. Siemens, the original equipment manufacturer (OEM) of the Dawn C compressor, has indicated that 40 years is the typical timeframe for supporting the supply of engine parts required to recover from a critical engine failure or to complete recommended overhauls. Dawn Plant C was installed in 1984, which indicates that the RB211-24A engine in Plant C is reaching end of life. Justification: By continuing to comply with OEM-recommended Preventive Maintenance (PM) schedules and overhauls, compressor reliability risk is controlled to moderate levels but risk increases gradually over the 25,000-hour recommended interval between overhauls. Availability of parts is essential to repair internal engine failures and complete overhauls. Notably, the RB211-24A in Plant C has non-standard dimensions and cannot be retrofitted with more modern editions of the RB211 without significant plant retrofits. Similar to the 40-year old Dawn Plant B, which was replaced and retired in 2017 due to the risks associated with discontinued OEM support of critical engine parts, it is expected that Dawn Plant C will be exposed to a similar level of risk as the global inventory of spare components diminishes.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**		**48732**	Waubuno Compression Lifecycle	**2027**	$	31,794,554	Issue/Concern/Opportunity: **** An Asset Health Review is underway and will inform a third-party Reliability, Availability and Maintainability Study to quantify risks associated with asset failures. These activities will support additional detailed alternatives analysis and final scoping which will in turn inform the project cost estimate, timing and business case. The Waubuno compressor elevates available pipeline pressure to the Waubuno Pool Maximum Operating Pressure (MOP). Compression increases the working inventory value of the pool by approximately3.5 PJ on top of what the pipeline alone can achieve. The compressor is operated approximately 45 days per year in late summer to early fall to top off the pool. The consequence of compressor failure is dominated by customer impact. Risk associated with failure of the Waubuno compressor is heavily influenced by the level of the pool at which the failure occurs and time to mitigate the failure. The Joy Compressor (manufactured in 1985) was a used compressor package and installed at Waubuno in 1988. The Joy Compressor Company changed ownership approximately 20 years ago whereupon original equipment manufacturer (OEM) support for the compressor was discontinued. Although normal wear components are still available in the marketplace, replacement major compressor items such as cylinders, crankshafts, and rods, etc., required to support a critical failure are no longer available. In the event of a critical failure, sourcing used parts (which are rare) or aftermarket custom machining services would be the only options for repair. This was the case in 2007 when a discharge valve seat failed, resulting in catastrophic damage to cylinder 611. An extensive search across the used parts dealers was required to secure a viable used cylinder head. Other internal damage was repaired through custom machining services. Justification: In the event of a future failure, if usable parts or custom machining are not available, the two options would be custom-designed aftermarket castings (if possible) or replacement of the entire compressor. However, both options would render the compressor out of service for at least one operational season. Assets: Waubuno Compressor Related Programs: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**		**742977**	Dawn D C to G Conversion	**2026**	$	6,404,950	Issue/Concern/Opportunity: The RB211 C model of engine will no longer be supported by Siemens in the next 3-5 years and part availability and obsolescence will be a concern resulting in costly and long repairs. Siemens has developed a replacement that removes the obsolete parts from the C model and replacing them with similar G model components. It is desirable to do this upgrade during a scheduled overhaul so that 3rd party costs are reduced. Justification: The RB211 C Model will become obsolete and industry parts will become harder to obtain. This investment will upgrade the current C model engines to a G model. Assets: Dawn D Related Investments: 733780 Dawn D Overhaul	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**		**743096**	Lobo B C to G Conversion	**2027**	$	6,037,687	Issue/Concern/Opportunity: The RB211 C model of engine will no longer be supported by Siemens in the next 3-5 years and part availability and obsolescence will be a concern resulting in costly and long repairs. Siemens has developed a replacement that removes the obsolete parts from the C model and replacing them with similar G model components. It is desirable to do this upgrade during a scheduled overhaul so that 3rd party costs are reduced. Justification: The RB211 C Model will become obsolete and industry parts will become harder to obtain. This investment will upgrade the current C model engines to a G model. Assets: Lobo B Related Investments: 48239 Lobo B Overhaul	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742852**	Dawn Plant D: Improve Injection Performance	**2029**	$	5,969,159	***2025-2034 AMP*** *Issue/Concern/Opportunity* Plant D has been recently upgraded to produce higher flow capacities during low end withdrawal. The unintended consequence of this upgrade is diminished capability of Plant D during injections. At best, Plant D can now produce 1000 psig discharge pressure during injection - from a 700 psig inlet pressure. Since most reservoirs surrounding Dawn have a final pool pressure that is much greater than 1000 psig, the unit has become very constrained and has been mostly relegated to withdrawal use only. *Justification* Improved utilization of Plant D during injection. Increased utilization will provide Operations with another option during injection and restore the previous utilization that was available prior to the last upgrade. *Assets* Dawn Plant D. *Related Investments* This proposed investment is a supplement to the proposed upgrades of the RB211-24C - to a current production version engine (likely RB211-24G - non-DLE)	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743097**	Bright B C to G Conversion	**2028**	$	5,664,801	Issue/Concern/Opportunity: The RB211 C model of engine will no longer be supported by Siemens in the next 3-5 years and part availability and obsolescence will be a concern resulting in costly and long repairs. Siemens has developed a replacement that removes the obsolete parts from the C model and replacing them with similar G model components. It is desirable to do this upgrade during a scheduled overhaul so that 3rd party costs are reduced. Justification: The RB211 C Model will become obsolete and industry parts will become harder to obtain. This investment will upgrade the current C model engines to a G model. Assets: Bright B Related Investments: 49958 Bright B Overhaul	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**735801**	Parkway D Gas Generator Midlife Overhaul	**2027**	$	5,529,018	Issue/Concern/Opportunity: The consequence of compressor failure is dominated by gas cost impacts to customers. The compressor package is comprised of a gas turbine engine driver, compressor, power turbine and ancillary equipment such as lube oil, fuel supply, and electronic control systems, which are required for the compressor to operate. The gas turbine engine is very complex and carries the greatest failure risk of all of the compressor package components. By continuing to comply with original equipment manufacturer (OEM) recommended Preventive Maintenance (PM) schedules and overhauls, compressor reliability risks are controlled to moderate levels. In the case of performing regular OEM prescribed overhauls, the risk of unit failure is proposed as a sawtooth function, whereby risk increases gradually over the recommended interval between overhauls and then drops suddenly after an overhaul. Critical internal wear components are on a path to failure and generally in sync with operating hours. If the operating hours are extended too far, the resulting additional operational stress on internal components, such as high temperature coatings and bearings, will increase the component scrap rate when performing the overhaul. This will add significant (10 to 20% or more) cost to the base overhaul and increases the risk of a random failure leading to system unreliability and further cost increases. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743095**	Dawn G C to G Conversion	**2029**	$	5,501,813	Issue/Concern/Opportunity: The RB211 C model of engine will no longer be supported by Siemens in the next 3-5 years and part availability and obsolescence will be a concern resulting in costly and long repairs. Siemens has developed a replacement that removes the obsolete parts from the C model and replacing them with similar G model components. It is desirable to do this upgrade during a scheduled overhaul so that 3rd party costs are reduced. Justification: The RB211 C Model will become obsolete and industry parts will become harder to obtain. This investment will upgrade the current C model engines to a G model. Assets: Dawn G Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743094**	Dawn E C to G Conversion	**2030**	$	5,494,170	Issue/Concern/Opportunity: The RB211 C model of engine will no longer be supported by Siemens in the next 3-5 years and part availability and obsolescence will be a concern resulting in costly and long repairs. Siemens has developed a replacement that removes the obsolete parts from the C model and replacing them with similar G model components. It is desirable to do this upgrade during a scheduled overhaul so that 3rd party costs are reduced. Justification: The RB211 C Model will become obsolete and industry parts will become harder to obtain. This investment will upgrade the current C model engines to a G model. Assets: Dawn E Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**743003**	S_COR-61009 Foundation Replacement	**2031**	$	5,058,890	Issue/Concern/Opportunity: Foundation degradation has led to decreased reliability of engine, possibility of castrophic crankshaft failure Justification:Engine foundation has reached end of life at 50 years. Assets:Foundation of K709 Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742839**	Parkway B Gas Generator Midlife Overhaul	**2034**	$	5,043,499	Issue/Concern/Opportunity: The consequence of compressor failure is dominated by gas cost impacts to customers. The compressor package is comprised of a gas turbine engine driver, compressor, power turbine and ancillary equipment such as lube oil, fuel supply, and electronic control systems, which are required for the compressor to operate. The gas turbine engine is very complex and carries the greatest failure risk of all of the compressor package components. By continuing to comply with original equipment manufacturer (OEM) recommended Preventive Maintenance (PM) schedules and overhauls, compressor reliability risks are controlled to moderate levels. In the case of performing regular OEM prescribed overhauls, the risk of unit failure is proposed as a sawtooth function, whereby risk increases gradually over the recommended interval between overhauls and then drops suddenly after an overhaul. Critical internal wear components are on a path to failure and generally in sync with operating hours. If the operating hours are extended too far, the resulting additional operational stress on internal components, such as high temperature coatings and bearings, will increase the component scrap rate when performing the overhaul. This will add significant (10 to 20% or more) cost to the base overhaul and increases the risk of a random failure leading to system unreliability and further cost increases. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**49956**	Bright A1 Gas Generator - Mid life Overhaul	**2028**	$	4,046,286	Issue/Concern/Opportunity: The consequence of compressor failure is dominated by gas cost impacts to customers. The compressor package is comprised of a gas turbine engine driver, compressor, power turbine and ancillary equipment such as lube oil, fuel supply, and electronic control systems, which are required for the compressor to operate. The gas turbine engine is very complex and carries the greatest failure risk of all of the compressor package components. By continuing to comply with original equipment manufacturer (OEM) recommended Preventive Maintenance (PM) schedules and overhauls, compressor reliability risks are controlled to moderate levels. In the case of performing regular OEM prescribed overhauls, the risk of unit failure is proposed as a sawtooth function, whereby risk increases gradually over the recommended interval between overhauls and then drops suddenly after an overhaul. Critical internal wear components are on a path to failure and generally in sync with operating hours. If the operating hours are extended too far, the resulting additional operational stress on internal components, such as high temperature coatings and bearings, will increase the component scrap rate when performing the overhaul. This will add significant (10 to 20% or more) cost to the base overhaul and increases the risk of a random failure leading to system unreliability and further cost increases. Justification: Extension of interval can result in unexpected or catastrophic failure. Assets: RB211-G DLE 1790-863 Related Investments: Not applicable.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743083**	Lobo-AMP-Upgrading Shafer Operators to Bettis Operators	**2029**	$	4,030,632	Issue/Concern: Coming from the OPs team for the 10 year-asset management plan project. Lobo-Upgrading Shafer Operators to Bettis Operators (OBV-1040, OBV-1025, OBV-1020, OBV-1015, OBV-1000, OBV-1010, OBV-1240)	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**742860**	SCOR:BDS001-Upgrade	**2026**	$	3,482,145	***2025-2034 AMP*** *Issue/Concern/Opportunity* The blowdown Silencer at SCOR was designed for the operating model that existed in the year 2000. Since then, there have been significant increases in yard piping volume. In addition, there is a section of pipe feeding the BDS with a MOP of 1000 psig. The DOW Header system (1550 MOP) ties into this 1000 psig pipe. Initial assessment shows that, in the worst case, the 1000 psig MOP inlet pipe will easily be exceeded by gas from the DOW Header system. *Justification* MOP Exceedance during an ESD. *Assets* SCOR BDS-001 *Related Investments* Tie-in of the ANR/LINK piping to BDS-001 is a process design issue. This investment would be related to OPP work on ANR/Link.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742294**	Dawn Valve 1 Replacement and Piping Modifications	**2025**	$	3,392,663	Issue/Concern/Opportunity: A stem packing leak was identified at Valve 1 (Dawn South Yard). This valve must be replaced to meet external compliance. A large portion of the surrounding piping would need to be removed/modified due to the orientation from original construction. Associated piping with the Great Lakes Measurement Station will be replaced with a single run. This relates to SAP WO 41095628. Justification: Valve 1 must be replaced to meet external compliance. Furthermore, the Great Lakes Measurement Station is not required. To improve the reliability and integrity of this system, all unnecessary valves and piping will be removed, including two dead legs. Removing the old valves and pipe will reduce the chance of additional leaks. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743137**	Parkway-AMP- A Avon upgrade to 200 series	**2026**	$	3,308,051	Issue/Concern: Coming from the OPs team for the 10 year-asset management plan project. Parkway AMP- A Avon upgrade to 200 series Upgrade to be completed in conjunction with overhaul	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12960**	SM:100MOD Hdr Valves-Replace	**2028**	$	3,143,620	*Issue/Concern*: Operations have identified compressor station yard isolation valves that do not have sufficient seal quality to provide isolation during normal maintenance activities or emergency situations. Valve condition is under investigation in the Asset Health Review. Condition assessment results are rudimentary. Leaking valve seals are not necessarily valves that leak to the atmosphere or pose a loss of containment threat. The valves referenced in this business case are those that allow gas to flow, when in the closed position. These leaking valves pose: (i) a process safety threat; (ii) a loss of system performance by creating recycle loops; and (iii) decreased ability to provide a safe work environment for maintenance activities that require double lock and bleed. If valve condition is not maintained at a reasonable level, the ability to isolate assets during an emergency, will be compromised. Valves in question are sometimes used to separate piping with different MOPs. If these valves are allowed to leak, there is an increased threat of overpressuring lower MOP pipe as gas bleeds through the valve from higher MOP pipe. *Asset*: ¼ Turn Isolation valves. There are dozens of these valves in service. *Related Programs*/BCs: Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**48239**	Lobo B Gas Generator End-of-Life Overhaul	**2033**	$	3,128,945	The consequence of compressor failure is dominated by gas cost impacts to customers. The compressor package is comprised of a gas turbine engine driver, compressor, power turbine and ancillary equipment such as lube oil, fuel supply, and electronic control systems, which are required for the compressor to operate. The gas turbine engine is very complex and carries the greatest failure risk of all of the compressor package components. By continuing to comply with original equipment manufacturer (OEM) recommended Preventive Maintenance (PM) schedules and overhauls, compressor reliability risks are controlled to moderate levels. In the case of performing regular OEM prescribed overhauls, the risk of unit failure is proposed as a saw tooth function, whereby risk increases gradually over the recommended interval between overhauls and then drops suddenly after an overhaul. Critical internal wear components are on a path to failure and generally in sync with operating hours. If the operating hours are extended too far, the resulting additional operational stress on internal components, such as high temperature coatings and bearings, will increase the component scrap rate when performing the overhaul. This will add significant (10 to 20 per cent or more) cost to the base overhaul and increases the risk of a random failure leading to system unreliability and further cost increases. Justification: Risk of unexpected or catastrophic failure if intervals are extended Assets Lobo B RB211-24C	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**49958**	Bright B Gas Generator End-of-Life Overhaul	**2030**	$	3,119,400	Issue/Concern/Opportunity: The consequence of compressor failure is dominated by gas cost impacts to customers. The compressor package is comprised of a gas turbine engine driver, compressor, power turbine and ancillary equipment such as lube oil, fuel supply, and electronic control systems, which are required for the compressor to operate. The gas turbine engine is very complex and carries the greatest failure risk of all of the compressor package components. By continuing to comply with original equipment manufacturer (OEM) recommended Preventive Maintenance (PM) schedules and overhauls, compressor reliability risks are controlled to moderate levels. In the case of performing regular OEM prescribed overhauls, the risk of unit failure is proposed as a sawtooth function, whereby risk increases gradually over the recommended interval between overhauls and then drops suddenly after an overhaul. Critical internal wear components are on a path to failure and generally in sync with operating hours. If the operating hours are extended too far, the resulting additional operational stress on internal components, such as high temperature coatings and bearings, will increase the component scrap rate when performing the overhaul. This will add significant (10 to 20% or more) cost to the base overhaul and increases the risk of a random failure leading to system unreliability and further cost increases. Justification: Extension of interval can result in unexpected or catastrophic failure. Assets: Bright B RB211-24C Related Investments: Not applicable.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743140**	Lobo-AMP-A1 AVON-38123-1535-161G-A5000 upgrade to 200 series	**2027**	$	3,118,366	Issue/Concern: Coming from the engineering team for the 10 year-asset management plan project. Lobo-AMP-A1 AVON-38123-1535-161G-A5000 upgrade to 200 series. Upgrade to be completed in conjunction with scheduled overhaul	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742845**	Bright Plant A2 Exhaust Stack Replacement	**2033**	$	2,937,171	The existing exhaust stack was installed back in 2007 and will require to be replaced by 2032 as per its life cycle	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743141**	Lobo-AMP-A2 AVON 1534-101G/10, 37433 upgrade to 200 series	**2028**	$	2,925,776	Issue/Concern: Coming from the engineering team for the 10 year-asset management plan project. Lobo-AMP-A2 AVON 1534-101G/10, 37433 upgrade to 200 series. Upgrade to be completed in conjunction with scheduled overhaul	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**733780**	Dawn D Gas Generator - Mid life Overhaul	**2026**	$	2,537,336	Issue/Concern/Opportunity: The consequence of compressor failure is dominated by gas cost impacts to customers. The compressor package is comprised of a gas turbine engine driver, compressor, power turbine and ancillary equipment such as lube oil, fuel supply, and electronic control systems, which are required for the compressor to operate. The gas turbine engine is very complex and carries the greatest failure risk of all of the compressor package components. By continuing to comply with original equipment manufacturer (OEM) recommended Preventive Maintenance (PM) schedules and overhauls, compressor reliability risks are controlled to moderate levels. In the case of performing regular OEM prescribed overhauls, the risk of unit failure is proposed as a sawtooth function, whereby risk increases gradually over the recommended interval between overhauls and then drops suddenly after an overhaul. Critical internal wear components are on a path to failure and generally in sync with operating hours. If the operating hours are extended too far, the resulting additional operational stress on internal components, such as high temperature coatings and bearings, will increase the component scrap rate when performing the overhaul. This will add significant (10 to 20% or more) cost to the base overhaul and increases the risk of a random failure leading to system unreliability and further cost increases. Justification: Extension of interval can result in unexpected or catastrophic failure. Assets: RB211-G DLE 1790-864 Related Investments: Not applicable.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734150**	Large Diameter - Valve Replacement 2025	**2025**	$	2,476,396	*Issue/Concern*: Methane regulations were finalized April 26, 2018. AS part of these regulations, Enbridge must evaluate vented methane at all of its compressor stations and complete repairs of all leaks within 30 days. Although many of these leaks are the results of small bore fitting leaks and connections, some are the result of large bore valve leaks to atmosphere or leaks within the piping. If the leak is on an isolation valve to a compressor station, the leak can cause the compressor to pressure up and bleed methane to the atmosphere Justification: This program permits the replacement o these valves, when they are found in the 3x annual leak surveys. . Without upgrade to the associated methane vents EGD will be out of compliance with requirements of the Canadian Environmental Protection Act. *Assets* : Compressor station valves - individual valves have not been identified, at this point *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**49954**	Avon 1534 Gas Generator (37433)End-of-Life Overhaul	**2026**	$	2,439,981	Issue/Concern/Opportunity: The consequence of compressor failure is dominated by gas cost impacts to customers. The compressor package is comprised of a gas turbine engine driver, compressor, power turbine and ancillary equipment such as lube oil, fuel supply, and electronic control systems, which are required for the compressor to operate. The gas turbine engine is very complex and carries the greatest failure risk of all of the compressor package components. By continuing to comply with original equipment manufacturer (OEM) recommended Preventive Maintenance (PM) schedules and overhauls, compressor reliability risks are controlled to moderate levels. In the case of performing regular OEM prescribed overhauls, the risk of unit failure is proposed as a sawtooth function, whereby risk increases gradually over the recommended interval between overhauls and then drops suddenly after an overhaul. Critical internal wear components are on a path to failure and generally in sync with operating hours. If the operating hours are extended too far, the resulting additional operational stress on internal components, such as high temperature coatings and bearings, will increase the component scrap rate when performing the overhaul. This will add significant (10 to 20% or more) cost to the base overhaul and increases the risk of a random failure leading to system unreliability and further cost increases. Justification: Extension of interval can result in unexpected or catastrophic failure Asset: 37433 Related Investments: Not applicable.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742939**	Parkway East Blowdown Recovery Compressor	**2027**	$	2,404,593	Issue/Concern/Opportunity: The site does not have a blowdown recovery unit that were installed at all the other sites. Installing a unit would significantly reduce natural gas blown to atmosphere during compressor blowdowns Justification: The installation of a BDR would reduce the amount of natural gas blown to atmosphere. Assets: Parkway East Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**736276**	Large Diameter - Valve Replacement 2026	**2026**	$	2,346,136	*Issue/Concern*: Methane regulations were finalized April 26, 2018. AS part of these regulations, Enbridge must evaluate vented methane at all of its compressor stations and complete repairs of all leaks within 30 days. Although many of these leaks are the results of small bore fitting leaks and connections, some are the result of large bore valve leaks to atmosphere or leaks within the piping. If the leak is on an isolation valve to a compressor station, the leak can cause the compressor to pressure up and bleed methane to the atmosphere Justification: This program permits the replacement o these valves, when they are found in the 3x annual leak surveys. . Without upgrade to the associated methane vents EGD will be out of compliance with requirements of the Canadian Environmental Protection Act. *Assets* : Compressor station valves - individual valves have not been identified, at this point *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12961**	SM:100MOD Hdr Valves-Replace	**2032**	$	2,341,267	*Issue/Concern* Operations have identified compressor station yard isolation valves that to not provide sufficient seal quality that they could be trusted to provide isolation during normal maintenance activities or emergency situations. Valve condition - i.e. it's ability to perform it's intended function - is under investigation in the Asset Health Review. Condition assessment results are rudimentary. Leaking valve seals are not necessarily valves that leak to atmosphere or pose a loss of containment threat. The valves referenced in this business case are those that allow gas to flow, when in the closed position. These leaking valves pose: (i) a process safety threat; (ii) a loss of system performance by creating recycle loops; and (iii) decreased ability to provide a safe work environment for maintenance activities that require double lock and bleed. If valve condition is not maintained at a reasonable level, the ability to isolate assets during an emergency, will be compromised. Valves in question are sometimes used to separate piping with different MOPs. If these valves are allowed to leak, there is an increased threat of overpressuring lower MOP pipe as gas bleeds through the valve from higher MOP pipe. *Asset* ¼ Turn Isolation valves . There are dozens of these valves in service. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**48231**	Parkway A Gas Generator(38148) End-of-Life Overhaul	**2027**	$	2,300,071	Issue/Concern/Opportunity: The consequence of compressor failure is dominated by gas cost impacts to customers. The compressor package is comprised of a gas turbine engine driver, compressor, power turbine and ancillary equipment such as lube oil, fuel supply, and electronic control systems, which are required for the compressor to operate. The gas turbine engine is very complex and carries the greatest failure risk of all of the compressor package components. By continuing to comply with original equipment manufacturer (OEM) recommended Preventive Maintenance (PM) schedules and overhauls, compressor reliability risks are controlled to moderate levels. In the case of performing regular OEM prescribed overhauls, the risk of unit failure is proposed as a sawtooth function, whereby risk increases gradually over the recommended interval between overhauls and then drops suddenly after an overhaul. Critical internal wear components are on a path to failure and generally in sync with operating hours. If the operating hours are extended too far, the resulting additional operational stress on internal components, such as high temperature coatings and bearings, will increase the component scrap rate when performing the overhaul. This will add significant (10 to 20% or more) cost to the base overhaul and increases the risk of a random failure leading to system unreliability and further cost increases. Justification: Potential for unexpected or catastrophic failure if timing is extended. Assets: Avon serial 38148 Related Investments: Not applicable.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742940**	Dawn South Blowdown Recovery Unit	**2028**	$	2,275,588	Issue/Concern/Opportunity: The site does not have a blowdown recovery unit that were installed at all the other sites. Installing a unit would significantly reduce natural gas blown to atmosphere during compressor blowdowns Justification: The installation of a BDR would reduce the amount of natural gas blown to atmosphere. Assets: Dawn South Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742863**	DAWN:Power Gas-Convert to N2	**2026**	$	2,267,974	***2025-2034 AMP*** *Issue/Concern/Opportunity* The central power gas system at Dawn is currently powered by natural gas. This investment supports greenhouse gas emissions reductions targets by eliminating raw gas discharge to the environment when valves are turned in the yard. This investment will allow existing gas/hydraulic actuators to remain in service in the Dawn yard. This investment is considered a cost-effective alternative to replacing over 100 yard valves at Dawn with electric actuators or a similar non-emitting technology. Nitrogen power gas has been selected over air due to its inert nature and the ability to provide redundancy and emergency backup with the existing natural gas supply. *Justification* Reduction of raw methane greenhouse gas emissions from valve actuators *Assets* Dawn North Power Gas System *Related Investments* N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12883**	SCOR:60009-Fdn Blk-Replace	**2033**	$	2,243,605	*Issue/Concern* Due to the age of the compressor infrastructure, hours operating and oil contamination, engine block foundations are deteriorating. Industry benchmarks suggest that reciprocating engine block foundations degrade in 25 years or less for engines that run 24/7 . Excessive bearing deflections place cyclic stresses on the crankshaft of the unit leading to increased frequency of bearing failure and increased potential for a crankshaft fatigue failure. Unit reliability will diminished dramatically if repairs are not performed. Worst case consequence is unit unavailability during a design day. Compressor foundations have been considered in the Asset Health Review. Condition assessment is largely visual. The telltale sign of poor foundation condition is the existence of cracks on the surface of the foundation, with oil seeping out of the crack. Cracks typically extend to a depth that is consistent with the bottom of the unit's anchor bolts. Without remediation, failing foundations will allow unit settlement, creating a misalignment of bearings. Frequency of bearing failures increases - reducing operation reliability. Collateral damage to the crankshaft is also common. *Asset* Compressor foundations. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12884**	SCOR:60011-Fdn Blk-Replace	**2032**	$	2,239,431	Issue/Concern: Due to the age of the compressor infrastructure, hours operating and oil contamination, engine block foundations are deteriorating. Industry benchmarks suggest that reciprocating engine block foundations degrade in 25 years or less for engines that run 24/7. Excessive bearing deflections place cyclic stresses on the crankshaft of the unit leading to increased frequency of bearing failure and increased potential for a crankshaft fatigue failure. Unit reliability will diminish dramatically if repairs are not performed. Worst case consequence is unit unavailability during a design day. Compressor foundations have been considered in the Asset Health Review. Condition assessment is largely visual. The telltale sign of poor foundation condition is the existence of cracks on the surface of the foundation, with oil seeping out of the crack. Cracks typically extend to a depth that is consistent with the bottom of the unit's anchor bolts. Without remediation, failing foundations will allow unit settlement, creating a misalignment of bearings. Frequency of bearing failures increases reducing operation reliability. Collateral damage to the crankshaft is also common. Asset: Compressor foundations. Related Program: Not applicable.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734151**	Large Diameter - Valve Replacement 2027	**2027**	$	2,211,607	*Issue/Concern*: Methane regulations were finalized April 26, 2018. AS part of these regulations, Enbridge must evaluate vented methane at all of its compressor stations and complete repairs of all leaks within 30 days. Although many of these leaks are the results of small bore fitting leaks and connections, some are the result of large bore valve leaks to atmosphere or leaks within the piping. If the leak is on an isolation valve to a compressor station, the leak can cause the compressor to pressure up and bleed methane to the atmosphere Justification: This program permits the replacement o these valves, when they are found in the 3x annual leak surveys. . Without upgrade to the associated methane vents EGD will be out of compliance with requirements of the Canadian Environmental Protection Act. *Assets* : Compressor station valves - individual valves have not been identified, at this point *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**742862**	SCOR:Power Gas-Convert to N2	**2026**	$	2,159,348	***2025-2034 AMP*** *Issue/Concern/Opportunity* The central power gas system at SCOR was designed around a minimum pressure of 550 psig. Power gas is sourced from TR1, TR2 and ANR/LINK. TR1 & TR2 are expected to operate at less than 550 psig once TR7 is in-service. ANR/Link is expected to still be able to supply greater than 550 psig into the power gas system, but this situation provides no redundancy. Unforeseen situations may arise (ANR/LINK outage) that could make the ESVs at SCOR ineffective. There is a need to upgrade the power gas system to ensure that ESVs will continue to operate as designed. *Justification* Ensure that TR1 & TR2 can be operated at pressures less than 550 psig, while ensuring reliable operation of ESV valves. *Assets* SCOR Power Gas System *Related Investments* N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**48240**	Lobo A1 Gas Generator (38425) End-of-Life Overhaul	**2034**	$	2,098,095	Issue/Concern/Opportunity: The consequence of compressor failure is dominated by gas cost impacts to customers. The compressor package is comprised of a gas turbine engine driver, compressor, power turbine and ancillary equipment such as lube oil, fuel supply, and electronic control systems, which are required for the compressor to operate. The gas turbine engine is very complex and carries the greatest failure risk of all of the compressor package components. By continuing to comply with original equipment manufacturer (OEM) recommended Preventive Maintenance (PM) schedules and overhauls, compressor reliability risks are controlled to moderate levels. In the case of performing regular OEM prescribed overhauls, the risk of unit failure is proposed as a sawtooth function, whereby risk increases gradually over the recommended interval between overhauls and then drops suddenly after an overhaul. Critical internal wear components are on a path to failure and generally in sync with operating hours. If the operating hours are extended too far, the resulting additional operational stress on internal components, such as high temperature coatings and bearings, will increase the component scrap rate when performing the overhaul. This will add significant (10 to 20% or more) cost to the base overhaul and increases the risk of a random failure leading to system unreliability and further cost increases. Justification: Potential for unexpected or catastrophic failure if timing is extended. Asset: Avon serial 38425 Related Investments: Not applicable.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**736277**	Large Diameter - Valve Replacement 2028	**2028**	$	2,075,019	*Issue/Concern*: Methane regulations were finalized April 26, 2018. AS part of these regulations, Enbridge must evaluate vented methane at all of its compressor stations and complete repairs of all leaks within 30 days. Although many of these leaks are the results of small bore fitting leaks and connections, some are the result of large bore valve leaks to atmosphere or leaks within the piping. If the leak is on an isolation valve to a compressor station, the leak can cause the compressor to pressure up and bleed methane to the atmosphere Justification: This program permits the replacement o these valves, when they are found in the 3x annual leak surveys. . Without upgrade to the associated methane vents EGD will be out of compliance with requirements of the Canadian Environmental Protection Act. *Assets* : Compressor station valves - individual valves have not been identified, at this point *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743031**	Large Diameter - Valve Replacement 2033	**2033**	$	2,018,674	*Issue/Concern*: Methane regulations were finalized April 26, 2018. AS part of these regulations, Enbridge must evaluate vented methane at all of its compressor stations and complete repairs of all leaks within 30 days. Although many of these leaks are the results of small bore fitting leaks and connections, some are the result of large bore valve leaks to atmosphere or leaks within the piping. If the leak is on an isolation valve to a compressor station, the leak can cause the compressor to pressure up and bleed methane to the atmosphere Justification: This program permits the replacement o these valves, when they are found in the 3x annual leak surveys. . Without upgrade to the associated methane vents EGD will be out of compliance with requirements of the Canadian Environmental Protection Act. *Assets* : Compressor station valves - individual valves have not been identified, at this point *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743033**	Large Diameter - Valve Replacement 2034	**2034**	$	2,017,399	*Issue/Concern*: Methane regulations were finalized April 26, 2018. AS part of these regulations, Enbridge must evaluate vented methane at all of its compressor stations and complete repairs of all leaks within 30 days. Although many of these leaks are the results of small bore fitting leaks and connections, some are the result of large bore valve leaks to atmosphere or leaks within the piping. If the leak is on an isolation valve to a compressor station, the leak can cause the compressor to pressure up and bleed methane to the atmosphere Justification: This program permits the replacement o these valves, when they are found in the 3x annual leak surveys. . Without upgrade to the associated methane vents EGD will be out of compliance with requirements of the Canadian Environmental Protection Act. *Assets* : Compressor station valves - individual valves have not been identified, at this point *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734155**	Large Diameter - Valve Replacement 2032	**2032**	$	2,017,140	*Issue/Concern*: Methane regulations were finalized April 26, 2018. AS part of these regulations, Enbridge must evaluate vented methane at all of its compressor stations and complete repairs of all leaks within 30 days. Although many of these leaks are the results of small bore fitting leaks and connections, some are the result of large bore valve leaks to atmosphere or leaks within the piping. If the leak is on an isolation valve to a compressor station, the leak can cause the compressor to pressure up and bleed methane to the atmosphere Justification: This program permits the replacement o these valves, when they are found in the 3x annual leak surveys. . Without upgrade to the associated methane vents EGD will be out of compliance with requirements of the Canadian Environmental Protection Act. *Assets* : Compressor station valves - individual valves have not been identified, at this point *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734152**	Large Diameter - Valve Replacement 2029	**2029**	$	2,015,316	*Issue/Concern*: Methane regulations were finalized April 26, 2018. AS part of these regulations, Enbridge must evaluate vented methane at all of its compressor stations and complete repairs of all leaks within 30 days. Although many of these leaks are the results of small bore fitting leaks and connections, some are the result of large bore valve leaks to atmosphere or leaks within the piping. If the leak is on an isolation valve to a compressor station, the leak can cause the compressor to pressure up and bleed methane to the atmosphere Justification: This program permits the replacement o these valves, when they are found in the 3x annual leak surveys. . Without upgrade to the associated methane vents EGD will be out of compliance with requirements of the Canadian Environmental Protection Act. *Assets* : Compressor station valves - individual valves have not been identified, at this point *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734154**	Large Diameter - Valve Replacement 2031	**2031**	$	2,015,045	*Issue/Concern*: Methane regulations were finalized April 26, 2018. AS part of these regulations, Enbridge must evaluate vented methane at all of its compressor stations and complete repairs of all leaks within 30 days. Although many of these leaks are the results of small bore fitting leaks and connections, some are the result of large bore valve leaks to atmosphere or leaks within the piping. If the leak is on an isolation valve to a compressor station, the leak can cause the compressor to pressure up and bleed methane to the atmosphere Justification: This program permits the replacement o these valves, when they are found in the 3x annual leak surveys. . Without upgrade to the associated methane vents EGD will be out of compliance with requirements of the Canadian Environmental Protection Act. *Assets* : Compressor station valves - individual valves have not been identified, at this point *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734153**	Large Diameter - Valve Replacement 2030	**2030**	$	2,012,516	*Issue/Concern*: Methane regulations were finalized April 26, 2018. AS part of these regulations, Enbridge must evaluate vented methane at all of its compressor stations and complete repairs of all leaks within 30 days. Although many of these leaks are the results of small bore fitting leaks and connections, some are the result of large bore valve leaks to atmosphere or leaks within the piping. If the leak is on an isolation valve to a compressor station, the leak can cause the compressor to pressure up and bleed methane to the atmosphere Justification: This program permits the replacement o these valves, when they are found in the 3x annual leak surveys. . Without upgrade to the associated methane vents EGD will be out of compliance with requirements of the Canadian Environmental Protection Act. *Assets* : Compressor station valves - individual valves have not been identified, at this point *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742933**	Dawn G Exhaust Silencer Replacement	**2025**	$	1,997,214	Issue/Concern/Opportunity: The Dawn G exhaust silencer was installed in 1993 with the plant and is in need of replacement. There are internal support welds broken and holes in the exterior as found through annual inspections. Justification: The exhaust needs to be replaced for continued operation of the plant as well as strucual integrity. Assets: Dawn G Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**48229**	Parkway A PLC Upgrade	**2027**	$	1,968,788	The Parkway A plant compressor plant is currently being controlled by an Allen Bradley PLC 5. This series of PLCs has been obsolete for several years and replacement parts cannot be purchased any more. This PLC controls the entire plant and the plant cannot be operated with out it. Should a failure happen, the plant will remain unavailable until a usable spare part can be recovered from another plant and installed and configured, rendering the other plant unavailable for use	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**740935**	Parkway 602 Disch Valve - Replace	**2025**	$	1,861,955	Issue/Concern: The 602 discharge valve associated with A Plant at Parkway is no longer provides adequate seal quality resulting in significant bypassing. Significant volumes of gas are being vented through the plant silencer as a result. Solution Impact: Reduction of Methane emissions, improvement of process safety, improvement to operability and operational reliability.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742823**	Bright C Rewheel	**2025**	$	1,702,522	Issue/Concern/Opportunity: The Bright C compressor operating window does not match the operating windows of the other plants at Bright. This makes it a poor fit when other units are running and will lead to very low hours on this unit. We have already seen a failure of the bright C Compressor due to operating it outside of its parameters. Justification: The Bright C unit has very little hours on it because there is a small window of operability due to the mismatched compressor wheel. Assets: Bright C Compressor Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**49965**	Dawn F2 Gas Producer Overhaul	**2030**	$	1,675,058	Issue/Concern/Opportunity: The consequence of compressor failure is dominated by gas cost impacts to customers. The compressor package is comprised of a gas turbine engine driver, compressor, power turbine and ancillary equipment such as lube oil, fuel supply, and electronic control systems, which are required for the compressor to operate. The gas turbine engine is very complex and carries the greatest failure risk of all of the compressor package components. By continuing to comply with original equipment manufacturer (OEM) recommended Preventive Maintenance (PM) schedules and overhauls, compressor reliability risks are controlled to moderate levels. In the case of performing regular OEM prescribed overhauls, the risk of unit failure is proposed as a saw tooth function, whereby risk increases gradually over the recommended interval between overhauls and then drops suddenly after an overhaul. Critical internal wear components are on a path to failure and generally in sync with operating hours. If the operating hours are extended too far, the resulting additional operational stress on internal components, such as high temperature coatings and bearings, will increase the component scrap rate when performing the overhaul. This will add significant (10 to 20 per cent or more) cost to the base overhaul and increases the risk of a random failure leading to system unreliability and further cost increases. Justification: Extension of interval can result in unexpected or catastrophic failure Asset: Taurus 70- TC06299/OHC15-B3953 Related Investments: Not applicable.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_92 - Union North Storage**	Compression Stations	**Pass**	**101493**	Hagar Solar 2 Control Panel Upgrade	**2026**	$	1,583,641	Issue/Concern/Opportunity: Obsolete control panel Justification: Currently, the compressor plant is controlled by logic relays from 1968. These cannot be replaced and additional safely measures cannot be introduced to bring the controls up to current standards. Assets: Hagar Solar plant #2 Related Investments: 101371	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743152**	Parkway-A-AMP-Asset life cycle- Inlet Plenum (Jet)	**2029**	$	1,461,104	Issue/Concern: Parkway-A-AMP-Asset life cycle- Inlet Plenum (Jet)--life cycle replacement :35-year of install :1988-expected date of replacement:2023	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742951**	Parkway C Seal Vent Capture	**2025**	$	1,306,299	Issue/Concern/Opportunity: Vented methane from dry gas seals is a targeted area of focus for GHG emissions. STO currently meets the targets but it is expected the federal regulations will seek to lower the allowable emission rates. Eliminating this vented gas will reduce our vented emissions. Siemens has a capture system where vented seal gas is compressed and reinjected into the system, resulting in no primary seal leakage. Justification: This investment will reduce vented emissions from dry gas seals. Assets: Parkway C Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742950**	Dawn H Seal Vent Capture	**2025**	$	1,306,299	Issue/Concern/Opportunity: Vented methane from dry gas seals is a targeted area of focus for GHG emissions. STO currently meets the targets but it is expected the federal regulations will seek to lower the allowable emission rates. Eliminating this vented gas will reduce our vented emissions. Siemens has a capture system where vented seal gas is compressed and reinjected into the system, resulting in no primary seal leakage. Justification: This investment will reduce vented emissions from dry gas seals. Assets: Dawn H Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742953**	Lobo C Seal Vent Capture	**2026**	$	1,237,586	Issue/Concern/Opportunity: Vented methane from dry gas seals is a targeted area of focus for GHG emissions. STO currently meets the targets but it is expected the federal regulations will seek to lower the allowable emission rates. Eliminating this vented gas will reduce our vented emissions. Siemens has a capture system where vented seal gas is compressed and reinjected into the system, resulting in no primary seal leakage. Justification: This investment will reduce vented emissions from dry gas seals. Assets: Lobo C Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742952**	Parkway D Seal Vent Capture	**2026**	$	1,237,586	Issue/Concern/Opportunity: Vented methane from dry gas seals is a targeted area of focus for GHG emissions. STO currently meets the targets but it is expected the federal regulations will seek to lower the allowable emission rates. Eliminating this vented gas will reduce our vented emissions. Siemens has a capture system where vented seal gas is compressed and reinjected into the system, resulting in no primary seal leakage. Justification: This investment will reduce vented emissions from dry gas seals. Assets: Parkway D Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**8624**	SCHT:Control Room-Expand	**2025**	$	1,233,595	*Issue/Concern* Chatham D was built in 1997. Electrical, communications and instrumentation infrastructure has grown (due to compliance and communication enhancements) since initial installation of the station. Currently, there is insufficient space to accommodate any new devices. Lately, new devices have been installed on a external wall, which is a patch at best. Existing air compressor is approaching the end of it's lifecycle. ESD valves are actuated using compressed air. Existing air compressor is becoming increasingly unreliable and an unplanned failure has the potential to shutdown the entire plant. Air compressor is also too small. The location of Chatham D is a 30 minute drive from SCOR, making valve actuator failures a nuisance. *Asset* Air compressor , Instrumentation *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**735627**	Bright A1 Scrubber Replacement	**2025**	$	1,225,816	Issue/Concern/Opportunity: the Bright A1 scrubber is one of the oldest in our transmission fleet. This vessel needs to be manually entered to clean out the mesh and replace the filter pad every few years.. The buckets full of rust shoveled out of the interior and considering the degradation found at the Dawn Plant D scrubber, are all indicator that it is reaching end of life. Justification: Assets: Bright A1 Scrubber Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742647**	STO PLC Controller Replacement Program	**2034**	$	1,210,239	Replacement program for 1756-L7X Processors. There are approx 80 L7X Processors in STO that will need to be upgraded over 5 years at an average cost of 17.5k Each. Issue/Concern/Opportunity: PLC Processor firmware becomes outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742955**	Lobo D Seal Vent Capture	**2027**	$	1,166,623	Issue/Concern/Opportunity: Vented methane from dry gas seals is a targeted area of focus for GHG emissions. STO currently meets the targets but it is expected the federal regulations will seek to lower the allowable emission rates. Eliminating this vented gas will reduce our vented emissions. Siemens has a capture system where vented seal gas is compressed and reinjected into the system, resulting in no primary seal leakage. Justification: This investment will reduce vented emissions from dry gas seals. Assets: Lobo D Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742954**	Dawn I Seal Vent Capture	**2027**	$	1,166,623	Issue/Concern/Opportunity: Vented methane from dry gas seals is a targeted area of focus for GHG emissions. STO currently meets the targets but it is expected the federal regulations will seek to lower the allowable emission rates. Eliminating this vented gas will reduce our vented emissions. Siemens has a capture system where vented seal gas is compressed and reinjected into the system, resulting in no primary seal leakage. Justification: This investment will reduce vented emissions from dry gas seals. Assets: Dawn I Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**8661**	SSOM:622xx Vssl Closure-Upgrade	**2028**	$	1,132,211	*Issue/Concern* Older style filter closures are a hazard to personnel because it is difficult to determine whether the filter vessel has been completely depressurized before attempting to open the closure door. Sentry Style closures are the current standard at Storage. These closures reduce the risk that someone could inadvertently attempt to open the filter door, while it still contained pressurized gas. *Asset* Compressor Filter/Separators *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742729**	Dawn Fire Foam Water Pipe and Tank Replacement	**2028**	$	1,128,395	Issue/Concern/Opportunity: Dawn C, D, E, F, and G fire suppression systems require water for the creation of foam. Some of the water in the storage tanks are discoloured and there may be contaminants in the water which may compromise the ability to create foam. Furthermore, the tanks that hold the water show some corrosion which may further compromise the ability to create foam. Piping and tanks are to be replaced at Dawn C, D, E, F, and G to ensure that there are no contaminants being introduced. Justification: Piping and tanks are to be replaced at Dawn C, D, E, F, and G to ensure that there are no contaminants being introduced. This will ensure that the water is not compromised in the event that foam has to be created for fire suppression. Safety and reliability will be improved as a result of these changes. Assets: Dawn C, D, E, F, and G Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742949**	Bright B Seal Vent Capture	**2028**	$	1,094,572	Issue/Concern/Opportunity: Vented methane from dry gas seals is a targeted area of focus for GHG emissions. STO currently meets the targets but it is expected the federal regulations will seek to lower the allowable emission rates. Eliminating this vented gas will reduce our vented emissions. Siemens has a capture system where vented seal gas is compressed and reinjected into the system, resulting in no primary seal leakage. Justification: This investment will reduce vented emissions from dry gas seals. Assets: Bright B Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742948**	Dawn G Seal Vent Capture	**2028**	$	1,094,572	Issue/Concern/Opportunity: Vented methane from dry gas seals is a targeted area of focus for GHG emissions. STO currently meets the targets but it is expected the federal regulations will seek to lower the allowable emission rates. Eliminating this vented gas will reduce our vented emissions. Siemens has a capture system where vented seal gas is compressed and reinjected into the system, resulting in no primary seal leakage. Justification: This investment will reduce vented emissions from dry gas seals. Assets: Dawn G Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742947**	Dawn E Seal Vent Capture	**2033**	$	1,064,851	Issue/Concern/Opportunity: Vented methane from dry gas seals is a targeted area of focus for GHG emissions. STO currently meets the targets but it is expected the federal regulations will seek to lower the allowable emission rates. Eliminating this vented gas will reduce our vented emissions. Siemens has a capture system where vented seal gas is compressed and reinjected into the system, resulting in no primary seal leakage. Justification: This investment will reduce vented emissions from dry gas seals. Assets: Dawn E Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742946**	Dawn D Seal Vent Capture	**2033**	$	1,064,851	Issue/Concern/Opportunity: Vented methane from dry gas seals is a targeted area of focus for GHG emissions. STO currently meets the targets but it is expected the federal regulations will seek to lower the allowable emission rates. Eliminating this vented gas will reduce our vented emissions. Siemens has a capture system where vented seal gas is compressed and reinjected into the system, resulting in no primary seal leakage. Justification: This investment will reduce vented emissions from dry gas seals. Assets: Dawn D Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742963**	Bright C Seal Vent Capture	**2032**	$	1,064,041	Issue/Concern/Opportunity: Vented methane from dry gas seals is a targeted area of focus for GHG emissions. STO currently meets the targets but it is expected the federal regulations will seek to lower the allowable emission rates. Eliminating this vented gas will reduce our vented emissions. Siemens has a capture system where vented seal gas is compressed and reinjected into the system, resulting in no primary seal leakage. Justification: This investment will reduce vented emissions from dry gas seals. Assets: Bright C Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742962**	Lobo B Seal Vent Capture	**2032**	$	1,064,041	Issue/Concern/Opportunity: Vented methane from dry gas seals is a targeted area of focus for GHG emissions. STO currently meets the targets but it is expected the federal regulations will seek to lower the allowable emission rates. Eliminating this vented gas will reduce our vented emissions. Siemens has a capture system where vented seal gas is compressed and reinjected into the system, resulting in no primary seal leakage. Justification: This investment will reduce vented emissions from dry gas seals. Assets: Lobo B Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742957**	Bright A2 Seal Vent Capture	**2029**	$	1,063,079	Issue/Concern/Opportunity: Vented methane from dry gas seals is a targeted area of focus for GHG emissions. STO currently meets the targets but it is expected the federal regulations will seek to lower the allowable emission rates. Eliminating this vented gas will reduce our vented emissions. Siemens has a capture system where vented seal gas is compressed and reinjected into the system, resulting in no primary seal leakage. Justification: This investment will reduce vented emissions from dry gas seals. Assets: Bright A2 Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742956**	Bright A1 Seal Vent Capture	**2029**	$	1,063,079	Issue/Concern/Opportunity: Vented methane from dry gas seals is a targeted area of focus for GHG emissions. STO currently meets the targets but it is expected the federal regulations will seek to lower the allowable emission rates. Eliminating this vented gas will reduce our vented emissions. Siemens has a capture system where vented seal gas is compressed and reinjected into the system, resulting in no primary seal leakage. Justification: This investment will reduce vented emissions from dry gas seals. Assets: Bright A1 Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742961**	Lobo A2 Seal Vent Capture	**2031**	$	1,062,936	Issue/Concern/Opportunity: Vented methane from dry gas seals is a targeted area of focus for GHG emissions. STO currently meets the targets but it is expected the federal regulations will seek to lower the allowable emission rates. Eliminating this vented gas will reduce our vented emissions. Siemens has a capture system where vented seal gas is compressed and reinjected into the system, resulting in no primary seal leakage. Justification: This investment will reduce vented emissions from dry gas seals. Assets: Lobo A2 Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742960**	Parkway B Seal Vent Capture	**2031**	$	1,062,936	Issue/Concern/Opportunity: Vented methane from dry gas seals is a targeted area of focus for GHG emissions. STO currently meets the targets but it is expected the federal regulations will seek to lower the allowable emission rates. Eliminating this vented gas will reduce our vented emissions. Siemens has a capture system where vented seal gas is compressed and reinjected into the system, resulting in no primary seal leakage. Justification: This investment will reduce vented emissions from dry gas seals. Assets: Parkway B Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742958**	Lobo A1 Seal Vent Capture	**2030**	$	1,061,602	Issue/Concern/Opportunity: Vented methane from dry gas seals is a targeted area of focus for GHG emissions. STO currently meets the targets but it is expected the federal regulations will seek to lower the allowable emission rates. Eliminating this vented gas will reduce our vented emissions. Siemens has a capture system where vented seal gas is compressed and reinjected into the system, resulting in no primary seal leakage. Justification: This investment will reduce vented emissions from dry gas seals. Assets: Lobo A1 Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742959**	Parkway A Seal Vent Capture	**2030**	$	1,061,602	Issue/Concern/Opportunity: Vented methane from dry gas seals is a targeted area of focus for GHG emissions. STO currently meets the targets but it is expected the federal regulations will seek to lower the allowable emission rates. Eliminating this vented gas will reduce our vented emissions. Siemens has a capture system where vented seal gas is compressed and reinjected into the system, resulting in no primary seal leakage. Justification: This investment will reduce vented emissions from dry gas seals. Assets: Parkway A Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742192**	Dawn Aux 4 Switchgear Replacement	**2032**	$	1,058,009	Issue/Concern/Opportunity: The switchgear is original to the plant construction and due to its age should be considered for replacement. Upgrade to a design consistent with the new compressor station builds. Justification: The switchgear is critical to the operation of Plant E, Plant G, Plant I and the Dehy. A failure of the switchgear or one of the transfer switches could result in an extended unplanned outage on all of these plants. Assets: Aux 4 Switchgear Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742189**	Dawn Aux 3 Switchgear Replacement	**2030**	$	1,056,704	Issue/Concern/Opportunity: The switchgear is original to the plant construction and due to its age should be considered for replacement. The configuration of breakers feeding transfer switches is also unique and not consistent with new designs and presents an increased risk of failure. Justification: The switchgear is critical to the operation of Plant D and Plant F. A failure of the switchgear or one of the transfer switches could result in an extended unplanned outage on one or both of the plants. Assets: Aux 3 Switchgear Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**8842**	MM:HMI Hi Perf Grafx-Replace	**2026**	$	1,047,820	*Issue/Concern* Existing graphics screens were installed in 2016 and have a life expectancy of of 3 to 5 years. Unlike most video equipment, these screens operate 24/7, and regular replacement is advocated to provide optimal alarm and fatigue management. *Asset* Affected asset includes the video display system. Existing display system was installed in 2016. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734141**	Methane Leak Remediation : Valve Replacement 2025	**2025**	$	990,559	Issue/Concern/Opportunity: Valve leakage determined via 3rd party leak detection assessment. Repairs are required and mitigation timeframes determined as per quantified leak rates. Justification: Valves account for over $80k in lost gas per year and require rebuild or replacement as per methane emission regulation. Assets: To be determined on an annual basis Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742932**	Bright A2 Electric Starter Conversion	**2033**	$	968,964	Issue/Concern/Opportunity: The natural gas starter on the RB211Cs use natural gas to start the unit which is then discharged to atmosphere. There are new technologies, either electric starters or electric/hydraulic that have no emissions while starting. Justification: Converting the units will eliminate natural gas discharged to the atmosphere. Assets: Bright A2 Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742931**	Bright A1 Electric Starter Conversion	**2032**	$	968,227	Issue/Concern/Opportunity: The natural gas starter on the RB211Cs use natural gas to start the unit which is then discharged to atmosphere. There are new technologies, either electric starters or electric/hydraulic that have no emissions while starting. Justification: Converting the units will eliminate natural gas discharged to the atmosphere. Assets: Bright A1 Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742928**	Dawn G Electric Starter Conversion	**2029**	$	967,352	Issue/Concern/Opportunity: The natural gas starter on the RB211Cs use natural gas to start the unit which is then discharged to atmosphere. There are new technologies, either electric starters or electric/hydraulic that have no emissions while starting. Justification: Converting the units will eliminate natural gas discharged to the atmosphere. Assets: Dawn G Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742930**	Bright B Electric Starter Conversion	**2031**	$	967,221	Issue/Concern/Opportunity: The natural gas starter on the RB211Cs use natural gas to start the unit which is then discharged to atmosphere. There are new technologies, either electric starters or electric/hydraulic that have no emissions while starting. Justification: Converting the units will eliminate natural gas discharged to the atmosphere. Assets: Bright B Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742929**	Lobo B Electric Starter Conversion	**2030**	$	966,008	Issue/Concern/Opportunity: The natural gas starter on the RB211Cs use natural gas to start the unit which is then discharged to atmosphere. There are new technologies, either electric starters or electric/hydraulic that have no emissions while starting. Justification: Converting the units will eliminate natural gas discharged to the atmosphere. Assets: Lobo B Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742780**	Bickford GAC Structure Improvements	**2028**	$	963,278	Issue/Concern/Opportunity: The current gas aftercooler structure has lots of rust and is flaking due to its age. Frost heave is also an issue. Justification: Repairing the GAC structure will improve the structural integrity and withstand the load of the aftercoolers. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742922**	Dawn D Electric Starter Conversion	**2027**	$	962,049	Issue/Concern/Opportunity: The natural gas starter on the RB211Cs use natural gas to start the unit which is then discharged to atmosphere. There are new technologies, either electric starters or electric/hydraulic that have no emissions while starting. Justification: Converting the units will eliminate natural gas discharged to the atmosphere. Assets: Dawn D Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734142**	Methane Leak Remediation : Valve Replacement 2026	**2026**	$	938,454	Issue/Concern/Opportunity: Valve leakage determined via 3rd party leak detection assessment. Repairs are required and mitigation timeframes determined as per quantified leak rates. Justification: Valves account for over $80k in lost gas per year and require rebuild or replacement as per methane emission regulation. Assets: To be determined on an annual basis Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742825**	Airport Compressor GAC Structure Improvements	**2029**	$	925,030	Issue/Concern/Opportunity: The current gas aftercooler structure has lots of rust and is flaking due to its age. Frost heave is also an issue. Justification: Repairing the GAC structure will improve the structural integrity and withstand the load of the aftercoolers. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742829**	Payne GAC Structure Improvements	**2030**	$	923,745	Issue/Concern/Opportunity: The current gas aftercooler structure has lots of rust and is flaking due to its age. Frost heave is also an issue. Justification: Repairing the GAC structure will improve the structural integrity and withstand the load of the aftercoolers. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742927**	Dawn E Electric Starter Conversion	**2028**	$	902,633	Issue/Concern/Opportunity: The natural gas starter on the RB211Cs use natural gas to start the unit which is then discharged to atmosphere. There are new technologies, either electric starters or electric/hydraulic that have no emissions while starting. Justification: Converting the units will eliminate natural gas discharged to the atmosphere. Assets: Dawn E Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734143**	Methane Leak Remediation : Valve Replacement 2027	**2027**	$	884,643	Issue/Concern/Opportunity: Valve leakage determined via 3rd party leak detection assessment. Repairs are required and mitigation timeframes determined as per quantified leak rates. Justification: Valves account for over $80k in lost gas per year and require rebuild or replacement as per methane emission regulation. Assets: To be determined on an annual basis Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742650**	STO Big Data Collection Setup	**2026**	$	879,801	Issue/Concern/Opportunity: Prepare the necessary infrastructure to begin collecting "Big Data" on our industrial control systems. Start preliminary steps to understand how to analyze this data to achieve greater Gas Turbine Fuel efficiency and Compressor efficiencies. Justification: Currently only small localized data collection is in place on our control systems. This data is not currently gathered and analyzed in a central database mainly due to its cumbersome access and that there is no tools in place to analyze it. Bringing Big data to the control system level will allow for future high performance analytics and potential machine learning. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734144**	Methane Leak Remediation : Valve Replacement 2028	**2028**	$	830,007	Issue/Concern/Opportunity: Valve leakage determined via 3rd party leak detection assessment. Repairs are required and mitigation timeframes determined as per quantified leak rates. Justification: Valves account for over $80k in lost gas per year and require rebuild or replacement as per methane emission regulation. Assets: To be determined on an annual basis Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**743071**	SSOM: Yard Piping Mod (2031)	**2031**	$	809,422	Issue/Concern/Opportunity: Generalized investment related to process piping improvements at Sombra Compressor Station. Affects process and personnel safety, access/egress, debottlenecking, operability. Justification: Due to the nature of its development, there are several key areas within Sombra compressor station which have poor access/egress and are a potential cause of safety incidents. Inaccessible valves and piping, no ease of egress during an emergency, and ergonomic hazards. Furthermore, significant improvements could be made to improve process flow, by improving piping configuration. A process hazard assessment (PHA) may also be conducted for this location to ensure piping systems are designed safely. Improved process flow conditions have the potential to lead to improved functionality, reduced environmental impact, and improvements to process and personnel safety, as well as overall operability and maintainability. Assets: Corunna Compressor Station Piping system, pressure vessels, tanks, etc.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**743063**	SSOM: Yard Piping Mod (2030)	**2030**	$	809,413	Issue/Concern/Opportunity: Generalized investment related to process piping improvements at Sombra Compressor Station. Affects process and personnel safety, access/egress, debottlenecking, operability. Justification: Due to the nature of its development, there are several key areas within Sombra compressor station which have poor access/egress and are a potential cause of safety incidents. Inaccessible valves and piping, no ease of egress during an emergency, and ergonomic hazards. Furthermore, significant improvements could be made to improve process flow, by improving piping configuration. A process hazard assessment (PHA) may also be conducted for this location to ensure piping systems are designed safely. Improved process flow conditions have the potential to lead to improved functionality, reduced environmental impact, and improvements to process and personnel safety, as well as overall operability and maintainability. Assets: Corunna Compressor Station Piping system, pressure vessels, tanks, etc.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743039**	Methane Leak Remediation : Valve Replacement 2033	**2033**	$	807,470	Issue/Concern/Opportunity: Valve leakage determined via 3rd party leak detection assessment. Repairs are required and mitigation timeframes determined as per quantified leak rates. Justification: Valves account for over $80k in lost gas per year and require rebuild or replacement as per methane emission regulation. Assets: To be determined on an annual basis Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743040**	Methane Leak Remediation : Valve Replacement 2034	**2034**	$	806,960	Issue/Concern/Opportunity: Valve leakage determined via 3rd party leak detection assessment. Repairs are required and mitigation timeframes determined as per quantified leak rates. Justification: Valves account for over $80k in lost gas per year and require rebuild or replacement as per methane emission regulation. Assets: To be determined on an annual basis Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734148**	Methane Leak Remediation : Valve Replacement 2032	**2032**	$	806,856	Issue/Concern/Opportunity: Valve leakage determined via 3rd party leak detection assessment. Repairs are required and mitigation timeframes determined as per quantified leak rates. Justification: Valves account for over $80k in lost gas per year and require rebuild or replacement as per methane emission regulation. Assets: To be determined on an annual basis Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742306**	Dawn F and I Recycle Valves to Air	**2028**	$	806,767	Issue/Concern/Opportunity: Regulations relating to the release of methane and certain volatile organic compounds are moving towards the requirement of methane driven pneumatic controllers and pumps no longer bleeding methane. The regulation requires replacement of installed methane driven high bleed devices with no or low bleed devices. These devices are used to control gas pressure and flow. To reduce methane emissions, the recycle valves will convert from operating off power gas to instrument air. Justification: This is to reduce emissions and maintain compliance. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734145**	Methane Leak Remediation : Valve Replacement 2029	**2029**	$	806,126	Issue/Concern/Opportunity: Valve leakage determined via 3rd party leak detection assessment. Repairs are required and mitigation timeframes determined as per quantified leak rates. Justification: Valves account for over $80k in lost gas per year and require rebuild or replacement as per methane emission regulation. Assets: To be determined on an annual basis Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734147**	Methane Leak Remediation : Valve Replacement 2031	**2031**	$	806,018	Issue/Concern/Opportunity: Valve leakage determined via 3rd party leak detection assessment. Repairs are required and mitigation timeframes determined as per quantified leak rates. Justification: Valves account for over $80k in lost gas per year and require rebuild or replacement as per methane emission regulation. Assets: To be determined on an annual basis Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734146**	Methane Leak Remediation : Valve Replacement 2030	**2030**	$	805,007	Issue/Concern/Opportunity: Valve leakage determined via 3rd party leak detection assessment. Repairs are required and mitigation timeframes determined as per quantified leak rates. Justification: Valves account for over $80k in lost gas per year and require rebuild or replacement as per methane emission regulation. Assets: To be determined on an annual basis Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**742270**	SSOM: East Drain Hdr Upgrade	**2028**	$	738,909	Issue/Concern/Opportunity: One of the primary drain headers at Sombra Compressor was originally installed as 1-inch pipe. This is no longer of adequate size to handle the needs of the site. Further, Operations has reported that - due to the narrow ID - this piping regularly plugs with debris rendering it difficult or at times impossible to properly drain down piping and equipment. Justification: Improperly size drain piping can have a significant impact on operability and maintainability of associated piping and equipment, incurring significant added costs. Piping that is plugged or otherwise non-operational can be a process safety hazard. It may also indirectly impact personnel safety as proper venting and draining is not always possible. Assets: Sombra Compressor Station Related Investments: Due to the potential complexities and unknowns associated with the wider drain system at Sombra Compressor Station, this investment focuses on the eastern section of the plant drain header. A subsequent investment the following year will be entered to address the western portion of the plant.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**48224**	Sandwich Compressor Overhaul	**2027**	$	718,772	The consequence of compressor failure is dominated by gas cost impacts to customers. The compressor package is comprised of a gas turbine engine driver, compressor, power turbine and ancillary equipment such as lube oil, fuel supply, and electronic control systems, which are required for the compressor to operate. By continuing to comply with original equipment manufacturer (OEM) recommended Preventive Maintenance (PM) schedules and overhauls, compressor reliability risks are controlled to moderate levels. In the case of performing regular OEM prescribed overhauls, the risk of unit failure is proposed as a saw tooth function, whereby risk increases gradually over the recommended interval between overhauls and then drops suddenly after an overhaul. Critical internal wear components are on a path to failure and generally in sync with operating hours. If the operating hours are extended too far, the resulting additional operational stress on internal components, such as high temperature coatings and bearings, will increase the component scrap rate when performing the overhaul. This will add significant (10 to 20 per cent or more) cost to the base overhaul and increases the risk of a random failure leading to system unreliability and further cost increases.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734204**	Obsolete MCC Replace 2032-34	**2032**	$	699,146	Issue/Concern: This program is to proactively address the staggered obsolescence of MCCs. The intent is to avoid the hazard introduced in 2001 of an MCC with a limited future availability. Justification: Parts availability will be affected.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**19389**	SCOR:810002 IDC-Replace	**2028**	$	696,685	*Issue/Concern* An Industrial Data Center is a central element to modern SCADA systems. IDCs are the central collection point for all SCADA data received at a facility. IDCs store and process data related to HMIs and Video Walls. IDC equipment has a finite life expectancy of about 5 years - similar to a network server. Failure of the IDC would make SCOR incapable of being controlled remotely and could shutdown the entire station until repairs are made. *Asset* Affected asset is the entire Corunna Station. Failure of SCADA to SCOR could strand as much as half of working volume. *Related Program* Not applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101925**	High Performance Coating Program 2025	**2025**	$	693,391	Issue/Concern: High Performance Coating (HPC) is required on above-grade piping to reduce the chance of external corrosion. HPC has an expected life of approximately 15 years while standard coatings only typically last 5-8 years. HPC was recently mandated as the coating system to be used going forward, however, the majority of the sites only have standard coating, which is at end of life. STO has approximately 45 remote sites, 4 Compressor facilities and 1 LNG facility (Hagar).	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**8848**	SCOR:810001 IDC-Replace 2026	**2028**	$	686,129	*Issue/Concern* An Industrial Data Center is a central element to modern SCADA systems. IDCs are the central collection point for all SCADA data received at a facility. IDCs store and process data related to HMIs and Video Walls. IDC equipment has a finitely life expectancy of about 5 years - similar to network servers. Failure of the IDC would make SCOR incapable of being controlled remotely and could shutdown the entire station until repairs are made. *Asset* Affected asset is the entire Corunna Station. Failure of SCADA to SCOR could strand as much as half of working volume. *Related Program* Not applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**48274**	Dawn G Siemens MCC replacement	**2025**	$	676,923	The manufacturer has informed us that the equipment is obsolete in favour of a new style. Parts availability is affected. An MCC failure could result in a compressor plant outage for a couple of weeks to complete a temporary repair. Depending on the time of year and system demands, this has the potential for significant losses. These MCCs feed essential motors and equipment which are required to maintain operation.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**8849**	SCOR:810001 IDC-Replace 2031	**2031**	$	657,656	An Industrial Data Center is a central element to modern SCADA systems. IDCs are the central collection point for all SCADA data received at a facility. IDCs store and process data related to HMIs and Video Walls. A failure of an IDC system, could potentially disrupt the entire SCOR plant. Existing IDC has achieved end of life.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101927**	High Performance Coating Program 2026	**2026**	$	656,918	Issue/Concern: High Performance Coating (HPC) is required on above-grade piping to reduce the chance of external corrosion. HPC has an expected life of approximately 15 years while standard coatings only typically last 5-8 years. HPC was recently mandated as the coating system to be used going forward, however, the majority of the sites only have standard coating, which is at end of life. STO has approximately 45 remote sites, 4 Compressor facilities and 1 LNG facility (Hagar).	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742870**	Dawn E GAC Valve Removals	**2029**	$	648,126	Issue/Concern/Opportunity: The valves on the outlet of the aftercoolers are leaking and no longer required. The scope would be to remove all the valves at the GAC and replace them with spool pieces. This would be consistent with what was completed at Dawn D. Note that each spool piece is 12-16" diameter and there will be approximately 20 spools to be made. Justification: Removing the valves and putting in spool pieces will reduce the amount of valve maintenance required. Overall reliability of the system will be improved. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101898**	Dawn Compressor Building Lighting 2030-34	**2030**	$	635,089	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**100113**	Bright MCR MCC Replacement	**2026**	$	624,940	The manufacturer has informed us that the equipment is obsolete in favour of a new style. Parts availability is affected. An MCC failure could result in a compressor plant outage for a couple of weeks to complete a temporary repair. Depending on the time of year and system demands, this has the potential for significant losses. These MCCs feed essential motors and equipment which are required to maintain operation.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101928**	High Performance Coating Program 2027	**2027**	$	619,250	Issue/Concern: High Performance Coating (HPC) is required on above-grade piping to reduce the chance of external corrosion. HPC has an expected life of approximately 15 years while standard coatings only typically last 5-8 years. HPC was recently mandated as the coating system to be used going forward, however, the majority of the sites only have standard coating, which is at end of life. STO has approximately 45 remote sites, 4 Compressor facilities and 1 LNG facility (Hagar).	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742162**	Parkway D Siemens Control Panel Obsolete Equipment	**2026**	$	612,586	Siemens has identified a number of components in the Siemens Unit Control Panel that are obsolete or are nearing obsolescence. Spare parts for obsolete equipment can no longer be purchased and we are relying on internal company spares. Therefore the equipment identified by Siemens should be replaced with the recommended components. The component replacements will bring the panels up to current Siemens standards and will ensure continued support from the OEM.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742353**	Dawn P44 Valve and Actuator Replacement	**2028**	$	606,270	Issue/Concern/Opportunity: This is an old valve associated with an old Shafer operator. The actuator has suffered from a number of leaks and there have been issues with the valves passing due to the age of the valve. The scope would be to replace the valve and actuator to current standards. This would remediate the existing leaks. Justification: Replacement of the valve and actuator/operator is required to remediate any existing leaks, which will improve reliability and integrity of the system. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**740925**	SCOR:171 Emerg Vent System - Upgrade	**2025**	$	598,086	While addressing the recommendations related to the Corunna 2018 Site Wide PHA (HAZOP), in issue was discovered that did not seem to be caught by the HAZOP. Specifically, 1. The NPS16 piping which connects the Blowdown Silencer (171-S-001) was a proven MOP of only 1000 psig. In addition, the silencer has a MAWP of 1150 psig. As delta Pressuring has evolved, use of the 1550 sig Dow Moore Header has become more prevalent. 1550 psig piping is directly connected to the blowdown system through the Dow Moore EVV (171-EVV-019). Initial assessment shows that the current state of the Dow Moore header system has the potential to overpressure the NPS16 blowdown piping during a station ESD. 2. EVVs connect to 1200 psig headers are separated from the 1550 psig DM Header by only a check valve. This is not allow by code.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101930**	High Performance Coating Program 2028	**2028**	$	581,005	Issue/Concern: High Performance Coating (HPC) is required on above-grade piping to reduce the chance of external corrosion. HPC has an expected life of approximately 15 years while standard coatings only typically last 5-8 years. HPC was recently mandated as the coating system to be used going forward, however, the majority of the sites only have standard coating, which is at end of life. STO has approximately 45 remote sites, 4 Compressor facilities and 1 LNG facility (Hagar).	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742156**	Lobo C Siemens Control Panel Obsolete Equipment	**2027**	$	579,807	Siemens has identified a number of components in the Siemens Unit Control Panel that are obsolete or are nearing obsolescence. Spare parts for obsolete equipment can no longer be purchased and we are relying on internal company spares. Therefore the equipment identified by Siemens should be replaced with the recommended components. The component replacements will bring the panels up to current Siemens standards and will ensure continued support from the OEM.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742157**	Lobo D Siemens Control Panel Obsolete Equipment	**2027**	$	579,807	Siemens has identified a number of components in the Siemens Unit Control Panel that are obsolete or are nearing obsolescence. Spare parts for obsolete equipment can no longer be purchased and we are relying on internal company spares. Therefore the equipment identified by Siemens should be replaced with the recommended components. The component replacements will bring the panels up to current Siemens standards and will ensure continued support from the OEM.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734275**	High Performance Coating Program 2032	**2032**	$	564,799	Issue/Concern: High Performance Coating (HPC) is required on above-grade piping to reduce the chance of external corrosion. HPC has an expected life of approximately 15 years while standard coatings only typically last 5-8 years. HPC was recently mandated as the coating system to be used going forward, however, the majority of the sites only have standard coating, which is at end of life. STO has approximately 45 remote sites, 4 Compressor facilities and 1 LNG facility (Hagar).	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101931**	High Performance Coating Program 2029	**2029**	$	564,288	Issue/Concern: High Performance Coating (HPC) is required on above-grade piping to reduce the chance of external corrosion. HPC has an expected life of approximately 15 years while standard coatings only typically last 5-8 years. HPC was recently mandated as the coating system to be used going forward, however, the majority of the sites only have standard coating, which is at end of life. STO has approximately 45 remote sites, 4 Compressor facilities and 1 LNG facility (Hagar).	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734274**	High Performance Coating Program 2031	**2031**	$	564,213	Issue/Concern: High Performance Coating (HPC) is required on above-grade piping to reduce the chance of external corrosion. HPC has an expected life of approximately 15 years while standard coatings only typically last 5-8 years. HPC was recently mandated as the coating system to be used going forward, however, the majority of the sites only have standard coating, which is at end of life. STO has approximately 45 remote sites, 4 Compressor facilities and 1 LNG facility (Hagar).	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101933**	High Performance Coating Program 2030	**2030**	$	563,505	Issue/Concern: High Performance Coating (HPC) is required on above-grade piping to reduce the chance of external corrosion. HPC has an expected life of approximately 15 years while standard coatings only typically last 5-8 years. HPC was recently mandated as the coating system to be used going forward, however, the majority of the sites only have standard coating, which is at end of life. STO has approximately 45 remote sites, 4 Compressor facilities and 1 LNG facility (Hagar).	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**742263**	SCHT: Dehy Maintenance	**2026**	$	558,723	Issue/Concern/Opportunity: Last completed in 2018, the Chatham D dehydration unit is due for reconditioning. To include replacement of all random packing, chemical flushing, and replacement or reconditioning of tri-ethylene glycol. Justification: Glycol dehydration packages require regular maintenance and replacement TEG and packing in order to continue functioning properly, and to ensure specified dew points can be achieved. Optimizing glycol condition and recirculation rates increases fuel savings, reduces emissions, and ensures asset reliability. Assets: Chatham D dehydration package. Related Investments: Three (3) isolation valves associated with the Contactor Tower are to be replaced through a separate investment. The two projects should be completed together, so as to minimize any duplicated efforts.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**13031**	SCOR:MCC3 APU PLC-Rplace	**2025**	$	548,001	*Issue/Concern* The current Allan Bradley SLC50 APU control systems have reached the end of their life cycle and are no longer supported by the manufacturer. APUs are back-up generators. These operating systems need to be converted/upgraded to the new Allan Bradley Control Logix systems. A failure of the SLC50 prevents operations from controlling the associated APU until it can be replaced requiring an entire plant to be shut down during a hydro outage. The SLC50 unit is no longer carried by the manufacturer and refurbished units are difficult to obtain increasing down time in the event of a failure. Replaced SLC50 units can be stored as replacement parts for units still using this device until all replacements are complete. *Assets* Replacement of one SLC50 (APU Control) is needed at SCOR. Existing PLCs are now more than 15 years old. *Related Program* PLC replacement projects are expected to be named projects upon completion of the 10 year plan.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742096**	Bright A1 Siemens Control Panel Obsolete Equipment	**2028**	$	546,072	Siemens has identified a number of components in the Siemens Unit Control Panel that are obsolete or are nearing obsolescence. Spare parts for obsolete equipment can no longer be purchased and we are relying on internal company spares. Therefore the equipment identified by Siemens should be replaced with the recommended components. The component replacements will bring the panels up to current Siemens standards and will ensure continued support from the OEM.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742159**	Parkway B Siemens Control Panel Obsolete Equipment	**2028**	$	546,072	Siemens has identified a number of components in the Siemens Unit Control Panel that are obsolete or are nearing obsolescence. Spare parts for obsolete equipment can no longer be purchased and we are relying on internal company spares. Therefore the equipment identified by Siemens should be replaced with the recommended components. The component replacements will bring the panels up to current Siemens standards and will ensure continued support from the OEM.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12927**	SCOR:64108 JWC-Replace	**2032**	$	540,637	*Issue/Concern* Aging jacket water coolers (JWC) have presented an integrity concern, based on visual inspection. Jacket water coolers provide the primary cooling for compressor units. Tubes are relatively thin walled material, thin walls are needed for optimum heat transfer. The cooled glycol is currently shared by all compressors and is known to have experienced low pH levels (corrosive), which, when combine with thin walled tubes, creates the potential for thinning of the tube walls due to wall loss. Wall thinning will increase over time. GAC's are engineered for a specific result, and would require time to reverse engineer technical requirements and procure/install a replacement. Outage would likely be 6 months, which will impact operational reliability. Tubes are technically able to be plugged, but access to the header box is through threaded hex plugs, that have a reputation for not sealing properly after being removed. Failure of the GAC cooling fins will also result in an environmental incident, because it is not possible to have secondary containment around these assets. *Asset* Gas Aftercooler tube bundles. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12928**	SCOR:64109 JWC-Replace	**2032**	$	540,637	*Issue/Concern* Aging jacket water coolers (JWC) have presented an integrity concern, based on visual inspection. Jacket water coolers provide the primary cooling for compressor units. Tubes are relatively thin walled material, thin walls are needed for optimum heat transfer. The cooled glycol is currently shared by all compressors and is known to have experienced low pH levels (corrosive), which, when combine with thin walled tubes, creates the potential for thinning of the tube walls due to wall loss. Wall thinning will increase over time. GAC's are engineered for a specific result, and would require time to reserve engineer technical requirements and procure/install a replacement. Outage would likely be 6 months, which will impact operational reliability. Tubes are technically able to be plugged, but access to the header box is through threaded hex plugs, that have a reputation for not sealing properly fter beig removed. Failure of the GAC cooling fins will also result in an environmental incident, because it is not possible to have secondary containment around these assets. *Asset* Gas Aftercooler tube bundles. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**501399**	SCOR:541 MOP/OPP-Upgrade	**2025**	$	533,767	*Issue/Concern* 541-V-733 is a vessel rated at 100 psig MAWP. It is interconnected to a 1000 psig flare line, only separated by a check valve. 541-V-733 is equipped with OPP in the form of a PSV (541-PSV-069) set at 15 psig. Flow capacity of 541-PSV-069 is undersized to protect against overpressure from the 1000 psig flare line. This contravenes code requirements and needs resolution. In addition, the new flare skid is connected to the end of the 1000 psig flare line, and requires a minimum pressure of 50 psig to flow gas into the flare. Since 541-V-733 is limited to operating at 15 psig inlet, all gas sent to the separator is vented to atmosphere through 541-PSV-069. *Asset* 541-Condensate Management System *Related Program* SCOR HAZOP Recommendations	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743145**	Parkway Portable Blowdown Recovery Compressor	**2028**	$	533,397	Issue/Concern/Opportunity: The Parkway East compressor station currently does not have a blowdown recovery compressor, so when piping or equipment must be isolated for maintenance activities, the gas must be blown to atmosphere, creating unnecessary methane emissions. This is not desirable for environmental, regulatory and financial reasons. This project is to purchase a portable blowdown recovery compressor unit. The equipment will enable us to isolate sections and to recover the natural gas back into our system. It is more economical than to install a permanent unit, given the complex number of tie-in points that would be necessary. Justification: There is a corporate and regulatory goal to reduce methane emissions. The project will save money (from unnecessary natural gas blowdowns) and methane emissions. The unit being proposed has already been successfully tested on site. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**740924**	SCOR:541 Condensate System MOP/OPP Upgrade	**2029**	$	533,214	Corunna 2018 wide PHA (HAZOP) identified the need to review the design of " 541-V-733 Flare Gas / Condensate Scrubber". Refer to Risk ID#56. Maximum Risk Level with Safeguards was 4 our of 5. In 2020 a review was conducted and determined that there are several issues that affect Risk. These items include: 1. Condensate lines from compressor separators were installed with buried PN20 (150#) flanges - which limits MOP to 275 psig - and ultimately connects to a 1000 psig MOP flare system. In addition, there are no hydrotest records for this PN20 piping. This MOP mismatch has inadequate OPP 2. Between the condensate lines and the flare system there is a 50 psig MAWP vessel (541-V-733), protected by a 15 psig PSV (541-PSV-069). This is yet another MOP mismatch without adequate OPP. 3. 541-V-733 is separated from the 1000 psig MOP flae system with only a check valve. This is not allowed by code.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734225**	TCO Obsolete Mechanical - Replace 2032-34	**2032**	$	529,656	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - the OEM supplied auxiliary system components were manufactured by others. Many of these auxiliary system components are no longer available. Once the parts are no longer produced they must be reverse engineered and replaced which normally requires modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxiliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devices. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742097**	Bright A2 Siemens Control Panel Obsolete Equipment	**2029**	$	515,770	Siemens has identified a number of components in the Siemens Unit Control Panel that are obsolete or are nearing obsolescence. Spare parts for obsolete equipment can no longer be purchased and we are relying on internal company spares. Therefore the equipment identified by Siemens should be replaced with the recommended components. The component replacements will bring the panels up to current Siemens standards and will ensure continued support from the OEM.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742161**	Parkway C Siemens Control Panel Obsolete Equipment	**2029**	$	515,770	Siemens has identified a number of components in the Siemens Unit Control Panel that are obsolete or are nearing obsolescence. Spare parts for obsolete equipment can no longer be purchased and we are relying on internal company spares. Therefore the equipment identified by Siemens should be replaced with the recommended components. The component replacements will bring the panels up to current Siemens standards and will ensure continued support from the OEM.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742385**	Iroquois Falls Compressor Control System Upgrade	**2029**	$	512,784	Issue/Concern/Opportunity: Replace Turbotronic 4 Control System with CNet and Flex I/O, considered life cycle Phase 3 (Noncurrent & Supportable) and will be moving to Phase 4 (Limited Service) in 2027. Replace with Turbotronic 5 Control System. Justification: Spare part availability is questionable as product is discontinued by manufacturer. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**48275**	Dawn E Siemens MCC replacement	**2026**	$	508,327	The manufacturer has informed us that the equipment is obsolete in favour of a new style. Parts availability is affected. An MCC failure could result in a compressor plant outage for a couple of weeks to complete a temporary repair. Depending on the time of year and system demands, this has the potential for significant losses. These MCCs feed essential motors and equipment which are required to maintain operation.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742102**	Bright A1 UMD Replacement	**2034**	$	504,605	VFD's installed in the UMD have a limited lifespan and could potentially fail. Part availability from the manufacturer has historically been difficult due to lack of necessary equipment approvals A failure could result in a compressor plant outage for a couple of weeks to complete a temporary repair to replace the failed component. Depending on the time of year and system demands, this has the potential for significant losses. These UMDs feed essential motors and equipment which are required to maintain operation.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742103**	Bright A2 UMD Replacement	**2034**	$	504,605	VFD's installed in the UMD have a limited lifespan and could potentially fail. Part availability from the manufacturer has historically been difficult due to lack of necessary equipment approvals A failure could result in a compressor plant outage for a couple of weeks to complete a temporary repair to replace the failed component. Depending on the time of year and system demands, this has the potential for significant losses. These UMDs feed essential motors and equipment which are required to maintain operation.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742230**	Dawn H Siemens Control Panel Obsolete Equipment	**2032**	$	503,866	Siemens has identified a number of components in the Siemens Unit Control Panel that are obsolete or are nearing obsolescence. Spare parts for obsolete equipment can no longer be purchased and we are relying on internal company spares. Therefore the equipment identified by Siemens should be replaced with the recommended components. The component replacements will bring the panels up to current Siemens standards and will ensure continued support from the OEM.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742130**	Bright C Siemens Control Panel Obsolete Equipment	**2030**	$	503,689	Siemens has identified a number of components in the Siemens Unit Control Panel that are obsolete or are nearing obsolescence. Spare parts for obsolete equipment can no longer be purchased and we are relying on internal company spares. Therefore the equipment identified by Siemens should be replaced with the recommended components. The component replacements will bring the panels up to current Siemens standards and will ensure continued support from the OEM.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742145**	Lobo A1 Conduit Replacement and Remote IO Cabinet	**2030**	$	503,339	Issue/Concern/Opportunity; Some of the conduits and wire from the Plant A Control Room to the Compressor building are from the original plant construction. These conduits serve motor loads and instrumentation. Due to their age, there is a potential for corrossion to occur in both the wire and conduit causing a failure. Justification: A wiring failure in one of these conduits could result in the plant being unavailable for an extended period of time. In some cases re-pulling wire in the existing conduit has been a very difficult task with limited success. The alternative would be to pull a new wire from the source to the device through the trenwa. This would require sourcing wire, an installer and lifting the trenwa covers for installation. This would take approx 1 week to complete and the unit would be unavailable during this time. Assets: Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742146**	Lobo A2 Conduit Replacement and Remote IO Cabinet	**2030**	$	503,339	Issue/Concern/Opportunity; Some of the conduits and wire from the Plant A Control Room to the Compressor building are from the original plant construction. These conduits serve motor loads and instrumentation. Due to their age, there is a potential for corrossion to occur in both the wire and conduit causing a failure. Justification: A wiring failure in one of these conduits could result in the plant being unavailable for an extended period of time. In some cases re-pulling wire in the existing conduit has been a very difficult task with limited success. The alternative would be to pull a new wire from the source to the device through the trenwa. This would require sourcing wire, an installer and lifting the trenwa covers for installation. This would take approx 1 week to complete and the unit would be unavailable during this time. Assets: Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742487**	Dawn P1029 Valve Replacement	**2028**	$	485,554	Issue/Concern/Opportunity: This is an old valve that has a history of leaks due to the age. The scope would be to replace the valve to current standards. This would remediate the existing leaks. Justification: Replacement of the valve is required to remediate any existing leaks, which will improve reliability and integrity of the system. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**502781**	SCOR:541 Drainage System-Upgrade	**2025**	$	485,372	*Issue/Concern* Storm water drainage is managed by a system of sump pumps which feed to the oily water separator, and finally is discharged to the fire pond (541-T-170) through a small pump (541-P-029). There are other "non-storm water" fluid sources that enter oily eater separator. During heavy rains, 541-P-029 has insufficient peak capacity, which results in uncontrolled overflow from the primary chamber of the oil water separator to the ground. Oevrflow appears to enter a nearby catch basin, which then flow through a drainage pipe network - directly into the ditch along Tecumseh Rd. In addition, compressor basements are prone to flooding during heavy weather. An ECA is in place which limits the discharge from the fire pond to the Tecumseh Rd ditch to 50,000 l/day. Operations has a traceable program to ensure that the controlled discharge is within allowable limits, but the uncontrolled overflow from the oily water separator is actually additional discharge that is neither recorded nor recognized. Uncontrolled overflow also is not subjected to a screening for "sheen", which is a requirement of the ECA. While the oily water separator design is such that the uncontrolled discharged is almost certainly clean enough to be discharged to the ditch, it cannot be proven, and as a result could be viewed as a contravention of the existing ECA. *Asset* 541-P-029 *Related Program* None Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12953**	SM:100MOV Yard Valve-Replace 2025	**2025**	$	466,049	*Issue/Concern* Operations have identified compressor station yard isolation valves that to not provide sufficient seal quality that they could be trusted to provide isolation during normal maintenance activities or emergency situations. Valve condition - i.e. it's ability to perform it's intended function - is in scope for the Asset Health Review. Condition assessment results are rudimentary. Leaking valve seals are not necessarily valves that leak to atmosphere or pose a loss of containment threat. Instead, these leaking valves pose: (i) a process safety threat; (ii) a loss of system performance by creating recycle loops; and (iii) decreased ability to provide a safe work environment for maintenance activities that require double lock and bleed. If valve condition is not maintained at a reasonable level, the ability to isolate assets during an emergency, will be compromised. Valves in question are sometimes used to separate piping with different MOPs. If these valves are allowed to leak, there is an increased threat of overpressuring lower MOP pipe as gas bleeds through the valve from higher MOP pipe. *Asset* ¼ Turn Isolation valves . There are dozens of these valves in service. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**740371**	Lobo B - Hydraulic Fuel Valve Replacement	**2025**	$	464,324	Issue/Concern/Opportunity: The Lobo B unit RB211 utilizes a Parker/Fisher hydraulic fuel metering valve which are now obsolete and no direct replacements are available. A failure of this valve would result in unplanned downtime for an extended period of time while either the valve was repaired (unknown if this is possible) or the new replacement valve was fitted by Siemens (60 + weeks). Justification: The existing hydraulic fuel metering valve is obsolete and no replacement is available. Replacing this valve would allow the used valve to be retained as a spare for Bright B, Dawn E and Dawn G. Assets: Lobo B Unit Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**501401**	SCOR:132 OPP-Upgrades	**2025**	$	451,167	*Issue/Concern* Assuming worst case consitions for 1200 psig reservoir headers, 132-PSV-003 has insufficient capacity to protect the fuel gas piping to 975 psig. Logically, the PSV is even more undersized to protect against worst DOW Header pressure. Piping in the fuel gas skid appears to have a MOP of 1200 psig. However, connections to the Transmission Header (900 psig MOP) also exist. Transmission Header has 4 large PSVs with 900 psig set points. Currently, the mode valves interconnecting LINK to Reservoir Headers (132-MV-030/031/032/033/036) are equipped with a 975 psig "Open Permissive", meaning that the valve is not allowed to open when pressure in fuel gas skid is higher than 975 psig. The Open Permissive is controlled by the Yard PLC. This is adequate pressure control, but overpressure protection is inadequate - in the event of a Yard PLC failure. Interconnection of DOW Header is particularly concerning, because the 1550 psig (PN150) system is directly connected to a 1200 psig system (PN100) by a single Mode Valve. *Asset* System 132 - Link/ANR (NGTL) free flow to Transmission. *Related Program* SCOR HAZOP Recommendations	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**49959**	Bright B Power Turbine - Mid life Overhaul	**2025**	$	450,877	The consequence of compressor failure is dominated by gas cost impacts to customers. The compressor package is comprised of a gas turbine engine driver, compressor, power turbine and ancillary equipment such as lube oil, fuel supply, and electronic control systems, which are required for the compressor to operate. The gas turbine engine is very complex and carries the greatest failure risk of all of the compressor package components. By continuing to comply with original equipment manufacturer (OEM) recommended Preventive Maintenance (PM) schedules and overhauls, compressor reliability risks are controlled to moderate levels. In the case of performing regular OEM prescribed overhauls, the risk of unit failure is proposed as a saw tooth function, whereby risk increases gradually over the recommended interval between overhauls and then drops suddenly after an overhaul. Critical internal wear components are on a path to failure and generally in sync with operating hours. If the operating hours are extended too far, the resulting additional operational stress on internal components, such as high temperature coatings and bearings, will increase the component scrap rate when performing the overhaul. This will add significant (10 to 20 per cent or more) cost to the base overhaul and increases the risk of a random failure leading to system unreliability and further cost increases.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12954**	SM:100MOV Yard Valve-Replace 2026	**2026**	$	438,782	*Issue/Concern* Operations have identified compressor station yard isolation valves that to not provide sufficient seal quality that they could be trusted to provide isolation during normal maintenance activities or emergency situations. Valve condition - i.e. it's ability to perform it's intended function - is in scope for the Asset Health Review. Condition assessment results are rudimentary. Leaking valve seals are not necessarily valves that leak to atmosphere or pose a loss of containment threat. Instead, these leaking valves pose: (i) a process safety threat; (ii) a loss of system performance by creating recycle loops; and (iii) decreased ability to provide a safe work environment for maintenance activities that require double lock and bleed. If valve condition is not maintained at a reasonable level, the ability to isolate assets during an emergency, will be compromised. Valves in question are sometimes used to separate piping with different MOPs. If these valves are allowed to leak, there is an increased threat of overpressuring lower MOP pipe as gas bleeds through the valve from higher MOP pipe. *Asset* ¼ Turn Isolation valves . There are dozens of these valves in service. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**8850**	SSOM:810001 IDC-Replace	**2028**	$	422,234	*Issue/Concern* An Industrial Data Center is a central element to modern SCADA systems. IDCs are the central collection point for all SCADA data received at a facility. IDCs store and process data related to HMIs and Video Walls. During Disaster Recovery, SSOM is intended to be able to operate SCOR remotely. SSOM has insufficient IDC capability for a Disaster Recovery Site (DRS). Existing IDC at SSOM is poorly located with inadequate security and inadequate cooling air supply. IDC equipment has a finitely life expectancy of about 5 years. Failure of the IDC would make SSOM incapable of being controlled remotely and could shutdown the entire station until repairs are made. *Asset* Affected asset is the entire Sombra Station. Failure of SCADA to SSOM could strand 20% of working volume. *Related Program* Not applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**13011**	SCOR:62211 Vessel Closure-Rplace	**2025**	$	417,365	*Issue/Concern* Older style filter closures are a hazard to personnel because it is difficult to determine whether the filter vessel has been completely depressurized before attempting to open the closure door. Sentry Style closures are the current standard at Storage. These closures reduce the risk that someone could inadvertently attempt to open the filter door, while it still contained pressurized gas. *Asset* Compressor Filter/Separators *Related Program* Not Applicable Working from ladder, leaking seals	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12864**	SCOR:Unit Pre-Heat-Convrt 2028	**2028**	$	416,956	*Issue/Concern* Currently, all SCOR compressor units share the same glycol coolant - Dowtherm SR1 - and are connected together through a common piping network, which is also connected to the boiler. Coolant being used is the wrong product for compressor equipment, it is intended for building heating systems. OEM recommended product is called NorKool. A consequence of the misapplied coolant product is cavitation pitting which occurs often on the outside surface of power cylinder liners. This pitting appears as small pinholes forming in the liner. A consequence of the piping network that connects all the compressor units and the boiler together is that all units are exposed to the same glycol contaminants. Without mitigation of the cavitation problem, cavitation induced pinholes will penetrate completely through the power cylinder liner. Holes in the power cylinder liners will allow two things to occur: (i) combustion chamber contents (fuel gas, exhaust gases, and air) will enter the glycol piping network (including the boiler) and (ii) glycol has the potential to contaminate lube. *Asset* Compressor heating and cooling system. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**17204**	SM:100MOV Yard Valve-Replace 2028	**2028**	$	414,748	*Issue/Concern* Operations have identified compressor station yard isolation valves that to not provide sufficient seal quality that they could be trusted to provide isolation during normal maintenance activities or emergency situations. Valve condition - i.e. it's ability to perform it's intended function - is in scope for the Asset Health Review. Condition assessment results are rudimentary. Leaking valve seals are not necessarily valves that leak to atmosphere or pose a loss of containment threat. Instead, these leaking valves pose: (i) a process safety threat; (ii) a loss of system performance by creating recycle loops; and (iii) decreased ability to provide a safe work environment for maintenance activities that require double lock and bleed. If valve condition is not maintained at a reasonable level, the ability to isolate assets during an emergency, will be compromised. Valves in question are sometimes used to separate piping with different MOPs. If these valves are allowed to leak, there is an increased threat of overpressuring lower MOP pipe as gas bleeds through the valve from higher MOP pipe. *Asset* ¼ Turn Isolation valves . There are dozens of these valves in service. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**740428**	Siemens Valve Controllers Replacement - Dawn H	**2026**	$	406,417	Issue/Concern/Opportunity: Siemens has issued a service bulletin stating that as of July 2020 they will no longer support valve controllers required for permissive in the start sequence of their compressors. There are three controllers, servicing 3 valves on each engine skid. Each valve/controller combination is unique in operation with no redundancy. If one controller fails, it must be replaced and the unit will be unavailable until the replacement and set-up is complete Justification: Neither Siemens not the original equipment manufacturer will support spare parts or repairs of the old valve controllers. and each unit requires three to operate. We have had three failed controllers in the last operating year. Assets: Dawn H Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742308**	Lobo A1, A2, and B Recycle Valves to Air	**2028**	$	404,629	Issue/Concern/Opportunity: Regulations relating to the release of methane and certain volatile organic compounds are moving towards the requirement of methane driven pneumatic controllers and pumps no longer bleeding methane. The regulation requires replacement of installed methane driven high bleed devices with no or low bleed devices. These devices are used to control gas pressure and flow. To reduce methane emissions, the recycle valves will convert from operating off power gas to instrument air. Justification: This is to reduce emissions and maintain compliance. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742182**	Parkway B UMD Replacement	**2034**	$	403,480	VFD's installed in the UMD have a limited lifespan and could potentially fail. Part availability from the manufacturer has historically been difficult due to lack of necessary equipment approvals A failure could result in a compressor plant outage for a couple of weeks to complete a temporary repair to replace the failed component. Depending on the time of year and system demands, this has the potential for significant losses. These UMDs feed essential motors and equipment which are required to maintain operation.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**102032**	SCOR:61009 Top End-O/H incl. Cam Upgrade	**2028**	$	401,122	*Issue/Concern* Compressors are rotating equipment that is designed with inexpensive components intended to wear preferentially. This preferential wear then preserves the condition of large and expensive components. Overhauls are performed at regular intervals - in accordance with the OEM recommended preventative maintenance schedules - to replace wear items. Typically, an inspection is performed prior to performing an overhaul. Without regular replacement of wear items, reliability will diminish drastically. If wear items are not replaced to be within OEM tolerances, then subsequent damage to main compressor components will result - which is a much costlier outcome. *Asset* K709 compressor unit. Engine Top End components subject to replacement include (but are not limited to): cylinder heads, intake/exhaust/start valves, fuel valves. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**102033**	SCOR:61011 Top End-O/H incl. Cam Upgrade	**2028**	$	401,122	*Issue/Concern* Compressors are rotating equipment that is designed with inexpensive components intended to wear preferentially. This preferential wear then preserves the condition of large and expensive components. Overhauls are performed at regular intervals - in accordance with the OEM recommended preventative maintenance schedules - to replace wear items. Typically, an inspection is performed prior to performing an overhaul. Without regular replacement of wear items, reliability will diminish drastically. If wear items are not replaced to be within OEM tolerances, then subsequent damage to main compressor components will result - which is a much costlier outcome. *Asset* K711 compressor unit. Engine Top End components subject to replacement include (but are not limited to): cylinder heads, intake/exhaust/start valves, fuel valves. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**102034**	SCOR:61010 Top End-O/H incl. Cam Upgrade	**2028**	$	401,122	*Issue/Concern* Compressors are rotating equipment that is designed with inexpensive components intended to wear preferentially. This preferential wear then preserves the condition of large and expensive components. Overhauls are performed at regular intervals - in accordance with the OEM recommended preventative maintenance schedules - to replace wear items. Typically, an inspection is performed prior to performing an overhaul. Without regular replacement of wear items, reliability will diminish drastically. If wear items are not replaced to be within OEM tolerances, then subsequent damage to main compressor components will result - which is a much costlier outcome. *Asset* K710 compressor unit. Engine Top End components subject to replacement include (but are not limited to): cylinder heads, intake/exhaust/start valves, fuel valves. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734214**	STO Obsolete Mechanical - Replace 2032-34	**2034**	$	399,512	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - the OEM supplied auxiliary system components were manufactured by others. Many of these auxiliary system components are no longer available. Once the parts are no longer produced they must be reverse engineered and replaced which normally requires modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxiliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devices. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734138**	SM:100MOV Yard Valve-Replace 2032	**2032**	$	398,227	*Issue/Concern* Operations have identified compressor station yard isolation valves that to not provide sufficient seal quality that they could be trusted to provide isolation during normal maintenance activities or emergency situations. Valve condition - i.e. it's ability to perform it's intended function - is in scope for the Asset Health Review. Condition assessment results are rudimentary. Leaking valve seals are not necessarily valves that leak to atmosphere or pose a loss of containment threat. Instead, these leaking valves pose: (i) a process safety threat; (ii) a loss of system performance by creating recycle loops; and (iii) decreased ability to provide a safe work environment for maintenance activities that require double lock and bleed. If valve condition is not maintained at a reasonable level, the ability to isolate assets during an emergency, will be compromised. Valves in question are sometimes used to separate piping with different MOPs. If these valves are allowed to leak, there is an increased threat of overpressuring lower MOP pipe as gas bleeds through the valve from higher MOP pipe. *Asset* ¼ Turn Isolation valves . There are dozens of these valves in service. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12952**	SM:100MOV Yard Valve-Replace 2027	**2029**	$	397,548	*Issue/Concern* Operations have identified compressor station yard isolation valves that to not provide sufficient seal quality that they could be trusted to provide isolation during normal maintenance activities or emergency situations. Valve condition - i.e. it's ability to perform it's intended function - is in scope for the Asset Health Review. Condition assessment results are rudimentary. Leaking valve seals are not necessarily valves that leak to atmosphere or pose a loss of containment threat. Instead, these leaking valves pose: (i) a process safety threat; (ii) a loss of system performance by creating recycle loops; and (iii) decreased ability to provide a safe work environment for maintenance activities that require double lock and bleed. If valve condition is not maintained at a reasonable level, the ability to isolate assets during an emergency, will be compromised. Valves in question are sometimes used to separate piping with different MOPs. If these valves are allowed to leak, there is an increased threat of overpressuring lower MOP pipe as gas bleeds through the valve from higher MOP pipe. *Asset* ¼ Turn Isolation valves . There are dozens of these valves in service. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12955**	SM:100MOV Yard Valve-Replace 2029	**2029**	$	397,548	*Issue/Concern* Operations have identified compressor station yard isolation valves that to not provide sufficient seal quality that they could be trusted to provide isolation during normal maintenance activities or emergency situations. Valve condition - i.e. it's ability to perform it's intended function - is in scope for the Asset Health Review. Condition assessment results are rudimentary. Leaking valve seals are not necessarily valves that leak to atmosphere or pose a loss of containment threat. Instead, these leaking valves pose: (i) a process safety threat; (ii) a loss of system performance by creating recycle loops; and (iii) decreased ability to provide a safe work environment for maintenance activities that require double lock and bleed. If valve condition is not maintained at a reasonable level, the ability to isolate assets during an emergency, will be compromised. Valves in question are sometimes used to separate piping with different MOPs. If these valves are allowed to leak, there is an increased threat of overpressuring lower MOP pipe as gas bleeds through the valve from higher MOP pipe. *Asset* ¼ Turn Isolation valves . There are dozens of these valves in service. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734137**	SM:100MOV Yard Valve-Replace 2031	**2031**	$	397,537	*Issue/Concern* Operations have identified compressor station yard isolation valves that to not provide sufficient seal quality that they could be trusted to provide isolation during normal maintenance activities or emergency situations. Valve condition - i.e. it's ability to perform it's intended function - is in scope for the Asset Health Review. Condition assessment results are rudimentary. Leaking valve seals are not necessarily valves that leak to atmosphere or pose a loss of containment threat. Instead, these leaking valves pose: (i) a process safety threat; (ii) a loss of system performance by creating recycle loops; and (iii) decreased ability to provide a safe work environment for maintenance activities that require double lock and bleed. If valve condition is not maintained at a reasonable level, the ability to isolate assets during an emergency, will be compromised. Valves in question are sometimes used to separate piping with different MOPs. If these valves are allowed to leak, there is an increased threat of overpressuring lower MOP pipe as gas bleeds through the valve from higher MOP pipe. *Asset* ¼ Turn Isolation valves . There are dozens of these valves in service. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734136**	SM:100MOV Yard Valve-Replace 2030	**2030**	$	397,532	*Issue/Concern* Operations have identified compressor station yard isolation valves that to not provide sufficient seal quality that they could be trusted to provide isolation during normal maintenance activities or emergency situations. Valve condition - i.e. it's ability to perform it's intended function - is in scope for the Asset Health Review. Condition assessment results are rudimentary. Leaking valve seals are not necessarily valves that leak to atmosphere or pose a loss of containment threat. Instead, these leaking valves pose: (i) a process safety threat; (ii) a loss of system performance by creating recycle loops; and (iii) decreased ability to provide a safe work environment for maintenance activities that require double lock and bleed. If valve condition is not maintained at a reasonable level, the ability to isolate assets during an emergency, will be compromised. Valves in question are sometimes used to separate piping with different MOPs. If these valves are allowed to leak, there is an increased threat of overpressuring lower MOP pipe as gas bleeds through the valve from higher MOP pipe. *Asset* ¼ Turn Isolation valves . There are dozens of these valves in service. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742445**	Lobo OBV-1030 Overhaul	**2025**	$	394,985	Issue/Concern/Opportunity: Valve leakage determined via 3rd party leak detection assessment. Repairs are required and mitigation timeframes determined as per quantified leak rates. Justification: Valves account for over $80k in lost gas per year and require rebuild or replacement as per methane emission regulation. Assets: To be determined on an annual basis Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**739291**	SCOR: Link ESV-009 Replace	**2025**	$	391,429	Issue/Concern/Opportunity: A below grade lease edge emergency shutdown valve (160-ESV-009) on the Link pipeline no longer seals adequately and is bypassing when closed. The valve is also nearing the end of its expected service life having been installed in 1995. This valve requires replacement. Justification: A lease edge shutdown valve is required to close in an emergency. Its function requires that it seals adequately. Assets: Link ESDV Asset Tag: 160-ESV-009 Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**100937**	Storage: Recip Compressor O/H	**2031**	$	382,859	*Issue/Concern* Compressors are rotating equipment that is designed with inexpensive components intended to wear preferentially. This preferential wear then preserves the condition of large and expensive components. Overhauls are performed at regular intervals - in accordance with the OEM recommended preventative maintenance schedules - to replace wear items. Typically, an inspection is performed prior to performing an overhaul. Without regular replacement of wear items, reliability will diminish drastically. If wear items are not replaced to be within OEM tolerances, then subsequent damage to main compressor components will result - which is a much costlier outcome. *Asset* . Engine Top End components subject to replacement include (but are not limited to): cylinder heads, intake/exhaust/start valves, fuel valves. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**742256**	SCHT: V-101 Iso Valves	**2029**	$	382,467	Issue/Concern/Opportunity: Emergency shutdown and isolation valves associated with 105-V-101 at Chatham D Compressor Station have reached the end of their anticipated service life and may not be functioning adequately. Justification: Emergency Shutdown Valves are designed to close and isolate connected piping in an emergency scenario. A malfunctioning ESV is therefore a potential process safety hazard. Inadequate isolation on pressure vessels increases maintenance costs of the associated piping system and may result in unsafe processes. Ensuring isolation valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: 105-V-101 105-HV-05 105-HV-06 105-HV-07 105-HV-08 105-HV-09 105-HV-10 105-HV-11 160-ESV-01	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743001**	Dawn Compressor Building Lighting 2032-34	**2034**	$	381,352	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**743054**	SCOR: Equipment Isolation (2029)	**2029**	$	379,427	Issue/Concern/Opportunity: Blanket Investment intended to capture the cost of replacing aging and malfunctioning valves at Corunna Compressor Station. Given the age of infrastructure at this location, these replacements are anticipated to be required within this timeline. This includes valves associated with primary equipment isolation, as well as isolation of secondary processes, safety systems, and instrumentation. Justification: Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted to ensure piping systems are designed safely. Inadequate isolation on pressure vessels increases maintenance costs of the associated piping system and may contribute to unsafe practices. Ensuring isolation valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: Corunna Compressor Station Pressure vessels, tanks, bypasses, pressurizing bridles, primary and secondary process header isolations.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**743060**	SCOR: Equipment Isolation (2031)	**2031**	$	379,417	Issue/Concern/Opportunity: Blanket Investment intended to capture the cost of replacing aging and malfunctioning valves at Corunna Compressor Station. Given the age of infrastructure at this location, these replacements are anticipated to be required within this timeline. This includes valves associated with primary equipment isolation, as well as isolation of secondary processes, safety systems, and instrumentation. Justification: Malfunctioning isolation valves prevent process piping from being adequately isolated as intended, and as per process hazard assessments (PHA) conducted to ensure piping systems are designed safely. Inadequate isolation on pressure vessels increases maintenance costs of the associated piping system and may contribute to unsafe practices. Ensuring isolation valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: Corunna Compressor Station Pressure vessels, tanks, bypasses, pressurizing bridles, primary and secondary process header isolations.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734197**	Obsolete Electrical-Replace 2032-34	**2032**	$	378,326	*Issue/Concern* Electrical assets with finite life expectancy include: (i) electrical distribution (panels, wiring); (ii) Motor Control Centres (MCC's); (iii) Auxiliary Power Units (APU's) & Transfer Switches; (iv) Variable Frequency Drives (VFD's); (v) Phase inverters and Transformers. Many of these assets at the edge of their useful life and like-for-like replacements may not available. Replacement of failed components may require some re-engineering to provide the required functionality. Large elecetrical assets are replaced, through specific named projects, however small electrical asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete electrical assets, is the most practical way to address end of life issues and to ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a memebr ot the electrical asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734198**	Obsolete Instrumentation-Replace 2032-34	**2032**	$	378,326	*Issue/Concern* Instrumentation assets with finite life expectancy include: (i) PLC's; (ii) Transmitters & switches; (iii) Actuators; (iv) Human Machine Interfaces (HMI's) & Video Displays. Many of these assets have a short life expectancy and experience planned obsolescence. Like-for-like replacements may not be available and replacement of failed components may require some re-engineering to provide the required functionality. Large instrumentation assets are replaced, through specific named projects, however small instrumentation asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete instrumentation assets, is the most practical way to address end of life issues and ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a member of the control & communication asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101571**	Obsolete PLC Program Upgrade 2026	**2026**	$	375,382	Currently various plants and stations are being controlled by an Allen Bradley PLC5. These units have been obsolete, for some time and spare parts can no longer be purchased. Therefore the PLC should be replaced with an Allen Bradley ControLogix PLC, which is the standard on all of our new stations. Spare parts are available and easily accessible.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**13010**	SCOR:62204 Vessel Closure-Rplace	**2025**	$	374,694	*Issue/Concern* Older style filter closures are a hazard to personnel because it is difficult to determine whether the filter vessel has been completely depressurized before attempting to open the closure door. Sentry Style closures are the current standard at Storage. These closures reduce the risk that someone could inadvertently attempt to open the filter door, while it still contained pressurized gas. *Asset* Compressor Filter/Separators *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**742251**	SSOM: ESV-6101 Replace	**2025**	$	373,637	Issue/Concern/Opportunity: Transmission plot edge emergency shutdown valve (160-ESV-6101) is no longer functioning adequately. Valve is bypassing, preventing proper isolation in an emergency shutdown situation. Justification: Emergency Shutdown Valves are designed to close and isolate connected piping in an emergency scenario. A malfunctioning ESV is therefore a potential process safety hazard. Assets: 160-ESV-6101 Related Investments: 160-ESV-6201 is also leaking and requires replacement. Given the proximity of this valve to ESV-6101 it would make sense to execute both projects in concert, to avoid duplicated costs.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**742252**	SSOM: ESV-6201 Replace	**2025**	$	373,637	Issue/Concern/Opportunity: Transmission plot edge emergency shutdown valve (160-ESV-6201) is no longer functioning adequately. Valve is bypassing, preventing proper isolation in an emergency shutdown situation. Justification: Emergency Shutdown Valves are designed to close and isolate connected piping in an emergency scenario. A malfunctioning ESV is therefore a potential process safety hazard. Assets: 160-ESV-6201 Related Investments: 160-ESV-6101 is also leaking and requires replacement (Inv. 742251). Given the proximity of this valve to ESV-6201 it would make sense to execute both projects in concert, to avoid duplicated costs.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742186**	Parkway C ControlNet to Ethernet and Flex IO Upgrade	**2026**	$	364,946	Critical communication between remote IO and other devices currently is currenlty done over ControlNet. Some of the Controlnet hardware is in the discontinued product lifecycle for Rockwell and production will be discontinued at the end of 2025 (Fiber Optic Conversion Modules). Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell. Flex IO is also mature in the product lifecycle and is expected to be discontinued at the end of 2029. Flex IO should be replaced with Flex 5000 or an alternative current product.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734353**	STO - UPS Battery replacements 2032-34	**2034**	$	363,193	*Issue/Concern* Un-interruptible Power Supplies (UPS) are a critical component in plant and meter station facilities. This unit must be operational in the event of a power failure to allow smooth transition to generator power. Consequence of a power failure, without a UPS, is uncontrolled shutdown of compression equipment; possible damage to compressor equipment and yard piping; and control system performance issues once power is restored. Failure of the UPS would make a compressor or meter station incapable of being controlled remotely and could shutdown an entire station until repairs are made. PLC's and RTU's are primary means of controlling Storage equipment and these devices need a UPS to maintain system SCADA and control during a power failure. *Justification* As per manufacturer and industry standards our UPS system batteries should be replaced on a ten (10) year basis. Locations Vary - as failure cannot be forecasted *Asset* Compressor stations and meter station. *Related Program* Not applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**735656**	Parkway East Generator Control Upgrade	**2025**	$	359,077	Issue/*Concern/*: Generator controls are proprietary to the manufacturer of the unit and are obsolete. The manufacturer has recommended that for continuous reliable operation, that the controls must be replaced Justification: This is the primary generator required to provide emergency power to the Parkway East facility , with the loss of utility power. Within that last 10 years, this has been used on multiple occasions and over a period of several weeks, after one substantial outage over the winter. Without backup generation, the Parkway East facility cannot compress gas, or measure gas, in the event of loss of utility power Assets: Parkway East CAT Generator Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742077**	Dawn Aux 4 PLC Replacement	**2027**	$	356,413	Currently, the Dawn Aux 4 is being controlled by an Allen Bradley PLC 5. This series of PLCs has been obsolete for several years and replacement parts cannot be purchased any more. This PLC controls the entire plant and the plant cannot be operated with out it. Should a failure happen, the plant will remain unavailable until a usable spare part can be recovered from another plant and installed and configured, rendering the other plant unavailable for use	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101572**	Obsolete PLC Program Upgrade 2027	**2027**	$	353,857	Currently various plants and stations are being controlled by an Allen Bradley PLC5. These units have been obsolete, for some time and spare parts can no longer be purchased. Therefore the PLC should be replaced with an Allen Bradley ControLogix PLC, which is the standard on all of our new stations. Spare parts are available and easily accessible.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742104**	Bright A2 ControlNet to Ethernet and Flex IO Upgrade	**2027**	$	345,194	Critical communication between remote IO and other devices currently is currenlty done over ControlNet. Some of the Controlnet hardware is in the discontinued product lifecycle for Rockwell and production will be discontinued at the end of 2025 (Fiber Optic Conversion Modules). Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell. Flex IO is also mature in the product lifecycle and is expected to be discontinued at the end of 2025. Flex IO should be replaced with Flex 5000 or an alternative current product.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742128**	Bright MCR ControlNet to Ethernet Upgrade	**2027**	$	345,194	Critical communication between remote IO and other devices currently is currently done over ControlNet. Some of the Controlnet hardware is in the discontinued product lifecycle for Rockwell and production will be discontinued at the end of 2025 (Fiber Optic Conversion Modules). Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742142**	Bright C ControlNet to Ethernet and Flex IO Upgrade	**2027**	$	345,194	Critical communication between remote IO and other devices currently is currenlty done over ControlNet. Some of the Controlnet hardware is in the discontinued product lifecycle for Rockwell and production will be discontinued at the end of 2025 (Fiber Optic Conversion Modules). Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell. Flex IO is also mature in the product lifecycle and is expected to be discontinued at the end of 2025. Flex IO should be replaced with Flex 5000 or an alternative current product.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742100**	Bright A1 ControlNet to Ethernet and Flex IO Upgrade	**2027**	$	345,194	Critical communication between remote IO and other devices currently is currenlty done over ControlNet. Some of the Controlnet hardware is in the discontinued product lifecycle for Rockwell and production will be discontinued at the end of 2025 (Fiber Optic Conversion Modules). Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell. Flex IO is also mature in the product lifecycle and is expected to be discontinued at the end of 2025. Flex IO should be replaced with Flex 5000 or an alternative current product.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12916**	SCOR:62011 Comp-Major O/H	**2028**	$	343,065	*Issue/Concern* Compressors are rotating equipment that is designed with inexpensive components intended to wear preferentially. This preferential wear then preserves the condition of large and expensive components. Overhauls are performed at regular intervals - in accordance with the OEM recommended preventative maintenance schedules - to replace wear items. Typically, an inspection is performed prior to performing an overhaul. Without regular replacement of wear items, reliability will diminish drastically. If wear items are not replaced to be within OEM tolerances, then subsequent damage to main compressor components will result - which is a much costlier outcome. *Asset* K711 compressor unit. Compressor components subject to replacement include (but are not limited to): packing glands, compressor rods, rider bands, pistons, cross heads, compressor valves and cylinder liners. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742193**	Dawn Aux 4 Generator 4-1 and 4-2 Control Panels	**2032**	$	338,616	Issue/*Concern*/: Generator controls are outdated. It is unknown if like for like replacements parts could be sourced in the event of a failure. Justification: These generators are required to provide emergency power for the Aux 4 loads with the loss of utility power and also provide power when Dawn is powering the microgrid. Assets: Generator 4-1 and 4-2 Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101573**	Obsolete PLC Program Upgrade 2028	**2028**	$	332,003	Currently various plants and stations are being controlled by an Allen Bradley PLC5. These units have been obsolete, for some time and spare parts can no longer be purchased. Therefore the PLC should be replaced with an Allen Bradley ControLogix PLC, which is the standard on all of our new stations. Spare parts are available and easily accessible.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12909**	SCOR:62004 Comp-Major O/H	**2033**	$	330,013	*Issue/Concern* Compressors are rotating equipment that is designed with inexpensive components intended to wear preferentially. This preferential wear then preserves the condition of large and expensive components. Overhauls are performed at regular intervals - in accordance with the OEM recommended preventative maintenance schedules - to replace wear items. Typically, an inspection is performed prior to performing an overall. Without regular replacement of wear items, reliability will diminish drastically. If wear items are not replaced to be within OEM tolerances, then subsequent damage to main compressor components will result - which is a much costlier outcome. *Asset* K704 compressor unit. Compressor components subject to replacement include (but are not limited to): packing glands, compressor rods, rider bands, pistons, cross heads, compressor valves and cylinder liners. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12910**	SCOR:62005 Comp-Major O/H	**2034**	$	329,892	*Issue/Concern* Compressors are rotating equipment that is designed with inexpensive components intended to wear preferentially. This preferential wear then preserves the condition of large and expensive components. Overhauls are performed at regular intervals - in accordance with the OEM recommended preventative maintenance schedules - to replace wear items. Typically, an inspection is performed prior to performing an overhaul. Without regular replacement of wear items, reliability will diminish drastically. If wear items are not replaced to be within OEM tolerances, then subsequent damage to main compressor components will result - which is a much costlier outcome. *Asset* K705 compressor unit. Compressor components subject to replacement include (but are not limited to): packing glands, compressor rods, rider bands, pistons, cross heads, compressor valves and cylinder liners. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12912**	SCOR:62007 Comp-Major O/H	**2032**	$	329,399	*Issue/Concern* Compressors are rotating equipment that is designed with inexpensive components intended to wear preferentially. This preferential wear then preserves the condition of large and expensive components. Overhauls are performed at regular intervals - in accordance with the OEM recommended preventative maintenance schedules - to replace wear items. Typically, an inspection is performed prior to performing an overhaul. Without regular replacement of wear items, reliability will diminish drastically. If wear items are not replaced to be within OEM tolerances, then subsequent damage to main compressor components will result - which is a much costlier outcome. *Asset* K707 compressor unit. Compressor components subject to replacement include (but are not limited to): packing glands, compressor rods, rider bands, pistons, cross heads, compressor valves and cylinder liners. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**102022**	SCHT:62001 Comp-Major O/H	**2029**	$	328,837	*Issue/Concern* Compressors are rotating equipment that is designed with inexpensive components intended to wear preferentially. This preferential wear then preserves the condition of large and expensive components. Overhauls are performed at regular intervals - in accordance with the OEM recommended preventative maintenance schedules - to replace wear items. Typically, an inspection is performed prior to performing an overall. Without regular replacement of wear items, reliability will diminish drastically. If wear items are not replaced to be within OEM tolerances, then subsequent damage to main compressor components will result - which is a much costlier outcome. *Asset* K901 compressor unit. Compressor components subject to replacement include (but are not limited to): packing glands, compressor rods, rider bands, pistons, cross heads, compressor valves and cylinder liners. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12915**	SCOR:62010 Comp-Major O/H	**2029**	$	328,837	*Issue/Concern* Compressors are rotating equipment that is designed with inexpensive components intended to wear preferentially. This preferential wear then preserves the condition of large and expensive components. Overhauls are performed at regular intervals - in accordance with the OEM recommended preventative maintenance schedules - to replace wear items. Typically, an inspection is performed prior to performing an overhaul. Without regular replacement of wear items, reliability will diminish drastically. If wear items are not replaced to be within OEM tolerances, then subsequent damage to main compressor components will result - which is a much costlier outcome. *Asset* K710 compressor unit. Compressor components subject to replacement include (but are not limited to): packing glands, compressor rods, rider bands, pistons, cross heads, compressor valves and cylinder liners. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12913**	SCOR:62008 Comp-Major O/H	**2031**	$	328,828	*Issue/Concern* Compressors are rotating equipment that is designed with inexpensive components intended to wear preferentially. This preferential wear then preserves the condition of large and expensive components. Overhauls are performed at regular intervals - in accordance with the OEM recommended preventative maintenance schedules - to replace wear items. Typically, an inspection is performed prior to performing an overhaul. Without regular replacement of wear items, reliability will diminish drastically. If wear items are not replaced to be within OEM tolerances, then subsequent damage to main compressor components will result - which is a much costlier outcome. *Asset* K708 compressor unit. Compressor components subject to replacement include (but are not limited to): packing glands, compressor rods, rider bands, pistons, cross heads, compressor valves and cylinder liners. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12914**	SCOR:62009 Comp-Major O/H	**2030**	$	328,824	*Issue/Concern* Compressors are rotating equipment that is designed with inexpensive components intended to wear preferentially. This preferential wear then preserves the condition of large and expensive components. Overhauls are performed at regular intervals - in accordance with the OEM recommended preventative maintenance schedules - to replace wear items. Typically, an inspection is performed prior to performing an overhaul. Without regular replacement of wear items, reliability will diminish drastically. If wear items are not replaced to be within OEM tolerances, then subsequent damage to main compressor components will result - which is a much costlier outcome. *Asset* K709 compressor unit. Compressor components subject to replacement include (but are not limited to): packing glands, compressor rods, rider bands, pistons, cross heads, compressor valves and cylinder liners. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**100117**	Obsolete PLC Program Upgrade 2025	**2025**	$	326,884	Currently various plants and stations are being controlled by an Allen Bradley PLC5. These units have been obsolete, for some time and spare parts can no longer be purchased. Therefore the PLC should be replaced with an Allen Bradley ControLogix PLC, which is the standard on all of our new stations. Spare parts are available and easily accessible.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742147**	Lobo A1 ControlNet to Ethernet and Flex IO Upgrade	**2028**	$	324,912	Critical communication between remote IO and other devices currently is currenlty done over ControlNet. Some of the Controlnet hardware is in the discontinued product lifecycle for Rockwell and production will be discontinued at the end of 2025 (Fiber Optic Conversion Modules). Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell. Flex IO is also mature in the product lifecycle and is nearing the end of product lifecycle. Flex IO should be replaced with Flex 5000 or an alternative current product.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742148**	Lobo A2 ControlNet to Ethernet and Flex IO Upgrade	**2028**	$	324,912	Critical communication between remote IO and other devices currently is currenlty done over ControlNet. Some of the Controlnet hardware is in the discontinued product lifecycle for Rockwell and production will be discontinued at the end of 2025 (Fiber Optic Conversion Modules). Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell. Flex IO is also mature in the product lifecycle and is nearing the end of product lifecycle. Flex IO should be replaced with Flex 5000 or an alternative current product.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742181**	Parkway B ControlNet to Ethernet and Flex IO Upgrade	**2028**	$	324,912	Critical communication between remote IO and other devices currently is currenlty done over ControlNet. Some of the Controlnet hardware is in the discontinued product lifecycle for Rockwell and production will be discontinued at the end of 2025 (Fiber Optic Conversion Modules). Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell. Flex IO is also mature in the product lifecycle and is expected to be discontinued at the end of 2029. Flex IO should be replaced with Flex 5000 or an alternative current product.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743009**	Obsolete PLC Program Upgrade 2033	**2033**	$	322,988	Currently various plants and stations are being controlled by an Allen Bradley PLC5. These units have been obsolete, for some time and spare parts can no longer be purchased. Therefore the PLC should be replaced with an Allen Bradley ControLogix PLC, which is the standard on all of our new stations. Spare parts are available and easily accessible.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743010**	Obsolete PLC Program Upgrade 2034	**2034**	$	322,784	Currently various plants and stations are being controlled by an Allen Bradley PLC5. These units have been obsolete, for some time and spare parts can no longer be purchased. Therefore the PLC should be replaced with an Allen Bradley ControLogix PLC, which is the standard on all of our new stations. Spare parts are available and easily accessible.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734200**	Obsolete PLC Program Upgrade 2032	**2032**	$	322,742	Currently various plants and stations are being controlled by an Allen Bradley PLC5. These units have been obsolete, for some time and spare parts can no longer be purchased. Therefore the PLC should be replaced with an Allen Bradley ControLogix PLC, which is the standard on all of our new stations. Spare parts are available and easily accessible.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101574**	Obsolete PLC Program Upgrade 2029	**2029**	$	322,451	Currently various plants and stations are being controlled by an Allen Bradley PLC5. These units have been obsolete, for some time and spare parts can no longer be purchased. Therefore the PLC should be replaced with an Allen Bradley ControLogix PLC, which is the standard on all of our new stations. Spare parts are available and easily accessible.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734199**	Obsolete PLC Program Upgrade 2031	**2031**	$	322,407	Currently various plants and stations are being controlled by an Allen Bradley PLC5. These units have been obsolete, for some time and spare parts can no longer be purchased. Therefore the PLC should be replaced with an Allen Bradley ControLogix PLC, which is the standard on all of our new stations. Spare parts are available and easily accessible.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101575**	Obsolete PLC Program Upgrade 2030	**2030**	$	322,003	Currently various plants and stations are being controlled by an Allen Bradley PLC5. These units have been obsolete, for some time and spare parts can no longer be purchased. Therefore the PLC should be replaced with an Allen Bradley ControLogix PLC, which is the standard on all of our new stations. Spare parts are available and easily accessible.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12975**	SCOR:622xx Bypass Valve-Upgrade 2026	**2025**	$	313,143	*Issue/Concern* All compressor units are SCOR employ a loading valve to gradually build up a pressure differential across the compressor. As the loading valve ramps closed, the unit discharge check valve opens and the unit is deemed to be on-line. Many of the loading valves at SCOR are 1/4 ball valves that were never intended to throttle and associated valve actuators provide ramp rates that vary on a day to day basis. 1/4 turn loading valve provides inconsistent operation while getting units on-line, and leads to failed start attempts. 1/4 Turn ball valves are inappropriate for this throttling application. Early wear of loading valves can occur over time, creating a permanent recycle flow that is a waste of fuel and results in diminished system performance. *Assets* Affected assets are K704 thru K711. It is assumed that K701/2/3 will be retired by 2025, and that associated compressor retirement will resolve the issue/concern. Loading valves were first installed when the unit was first placed into service. In-service dates range from 1968 to 1995. *Related Program* Loading valve replacement projects are expected to be named projects upon completion of the 10 year plan.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12922**	SCOR:620xx Cyl Liner-Replace	**2025**	$	312,005	*Issue/Concern* Compressor cylinder liners are wear items requiring periodic replacement - typically at 100,000 hours. The primary symptom of worn compressor cylinder liners is excessive rod run-out that does not respond adequately to adjustments. Excessive rod run out will cause increased flow rate from the packing vent, thereby increasing the load on flare or GHG recovery systems. Proposed regulations also impose an absolute limit of 0.023 m3/minute/cylinder on packing vent flow rate, after which repairs must be made within 30 days. Should the compressor cylinder liner be deemed to be the cause of excessive packing venting, the liner replacement will take much more than 30 days to accomplish. Proactive replacement of compressor cylinder liners, based on operating hours, is advocated to ensure continued compliance and maximum reliability. *Asset* Compressor unit TBD. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12923**	SCOR:620xx Cyl Liner-Replace	**2025**	$	312,005	*Issue/Concern* Compressor cylinder liners are wear items requiring periodic replacement - typically at 100,000 hours. The primary symptom of worn compressor cylinder liners is excessive rod run-out that does not respond adequately to adjustments. Excessive rod run out will cause increased flow rate from the packing vent, thereby increasing the load on flare or GHG recovery systems. Proposed regulations also impose an absolute limit of 0.023 m3/minute/cylinder on packing vent flow rate, after which repairs must be made within 30 days. Should the compressor cylinder liner be deemed to be the cause of excessive packing venting, the liner replacement will take much more than 30 days to accomplish. Proactive replacement of compressor cylinder liners, based on operating hours, is advocated to ensure continued compliance and maximum reliability. *Asset* Compressor unit TBD. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743130**	Parkway East-AMP-PLTA A - 610 Valve Operator replacements	**2025**	$	309,550	Issue/Concern: Coming from the OPs team for the 10 year-asset management plan project. Parkway East-AMP-PLTA A - 610 Valve Operator replacements	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742187**	Parkway D ControlNet to Ethernet and Flex IO Upgrade	**2029**	$	308,268	Critical communication between remote IO and other devices currently is currenlty done over ControlNet. Some of the Controlnet hardware is in the discontinued product lifecycle for Rockwell and production will be discontinued at the end of 2025 (Fiber Optic Conversion Modules). Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell. Flex IO is also mature in the product lifecycle and is expected to be discontinued at the end of 2029. Flex IO should be replaced with Flex 5000 or an alternative current product.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742229**	Dawn H ControlNet to Ethernet and Flex IO Upgrade	**2032**	$	302,361	Critical communication between remote IO and other devices currently is currenlty done over ControlNet. Some of the Controlnet hardware is in the discontinued product lifecycle for Rockwell and production will be discontinued at the end of 2025 (Fiber Optic Conversion Modules). Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell. Flex IO is also mature in the product lifecycle and is expected to be discontinued at the end of 2025. Flex IO should be replaced with Flex 5000 or an alternative current product.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**501153**	Parkway B GGLO scheduling valve & controller replacement	**2026**	$	301,458	When the compressor plant was installed, the oil scheduling valve and controller we being made obsolete but the OEM. Siemens had no approved alternative, so the old valve and controller were installed. There have been several failures in recent years. The replacement valve and controller is not a direct replacement	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**501149**	Bright A1 GGLO valve & Controller replacement	**2026**	$	301,458	When the compressor plant was installed, the oil scheduling valve and controller we being made obsolete but the OEM. Siemens had no approved alternative, so the old valve and controller were installed. There have been several failures in recent years. The replacement valve and controller is not a direct replacement	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**501148**	Dawn H GGLO Sheculing valve and controller replacement	**2026**	$	301,458	When the compressor plant was installed, the oil scheduling valve and controller we being made obsolete but the OEM. Siemens had no approved alternative, so the old valve and controller were installed. There have been several failures in recent years. The replacement valve and controller is not a direct replacement	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742414**	156 Fiber Communication Upgrade	**2028**	$	300,908	Radio communication link to 156 for RTU is unreliable. Investigate installing a Fiber optic link from Dawn.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**742258**	SCHT: Meter Isolation Valves	**2029**	$	298,020	Issue/Concern/Opportunity: Emergency shutdown and meter isolation valves at Chatham D Compressor Station have reached the end of their anticipated service life and may not be functioning adequately. This includes an ESV intended to isolate the associated piping system in the event of an emergency shutdown. Justification: Emergency Shutdown Valves are designed to close and isolate connected piping in an emergency scenario. A malfunctioning ESV is therefore a potential process safety hazard. Inadequate isolation capability at metering points increases maintenance costs of the associated piping system and may result in unsafe processes. Ensuring isolation valves function adequately is key to maintaining intended functionality. Properly functioning valves reduce environmental impact, process and personnel safety, and improves overall operability and maintainability. Assets: Associated with FR-20 105-HV-26 160-HV-30 160-ESV-08 Associated with FR-21 105-HV-25 160-HV-29 Associated with FR 23 105-HV-23 160-HV-27 Associated with FR-024 105-HV-02 105-HV-03	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12865**	SCOR:Unit Pre-Heat-Convrt 2028	**2028**	$	290,286	*Issue/Concern* Currently, all SCOR compressor units share the same glycol coolant - Dowtherm SR1 - and are connected together through a common piping network, which is also connected to the boiler. Coolant being used is the wrong product for compressor equipment, it is intended for building heating systems. OEM recommended product is called NorKool. A consequence of the misapplied coolant product is cavitation pitting which occurs often on the outside surface of power cylinder liners. This pitting appears as small pinholes forming in the liner. A consequence of the piping network that connects all the compressor units and the boiler together is that all units are exposed to the same glycol contaminants. Without mitigation of the cavitation problem, cavitation induced pinholes will penetrate completely through the power cylinder liner. Holes in the power cylinder liners will allow two things to occur: (i) combustion chamber contents (fuel gas, exhaust gases, and air) will enter the glycol piping network (including the boiler) and (ii) glycol has the potential to contaminate lube. *Asset* Compressor heating and cooling system. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734333**	SCOR:Obsolete Mech-Replace 2032-34	**2032**	$	289,181	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - 1964 to 1995 - the OEM supplied auxiliary system components were manufactired by others. Many of these auxiliary system components are no longer available. An example would auxiliary oil pumps used to circulate oil wen the unit is not running. These pumps are showing steadily declining performance. Once the pumps can no longer produce the required outlet pressure, the entire pump assembly must be reverse engineerd and replaced which also normally requires piping modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devicces. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742773**	Dawn Dehy Flash Tank Upgrade	**2028**	$	267,677	Issue/Concern/Opportunity: The original flash tank installed was designed to accommodate two dehy towers. Since then there were two additional towers built. The flash tank is severely undersized for the amount of glycol going through the towers. There have been a number of occasions where spillover occurs. The undersized flash tank will not allow for proper separation of vapour and liquid in the glycol. Justification: New upsized flash tank will improve glycol's ability to separate, resulting in greater integrity of the system. Safety will also be increased as there will not be any spillover. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101257**	Bright A Plant air compressors	**2025**	$	266,213	Issue/Concern/Opportunity: Intermittent purging of the regenerative air dryers causing the compressors to start and run needlessly and A Plant Air Compressor approaching end of life Justification: These dryers were the best option in 2008 based on the presumed volume demand at the time of installation, which appears now to be less than specified based on recent plant installations. An upgrade to the new Atlas Copco units now used in the new builds allows for consistent assets (spare parts) and lower run time on our air compressors. The generally accepted nominal life expectancy of any oil flooded rotary screw compressor is 10 years. A Plant compressors have been in service since 2008. The ten year lifespan is subject to a number of variables including ambient conditions, maintenance, etc. Assets: Bright A Plant Air Compressors & Air Dryers Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742383**	Dawn F1 Compressor Control System Upgrade	**2027**	$	264,027	Issue/Concern/Opportunity: Replace Turbotronic 4 Control System with CNet and Flex I/O, considered life cycle Phase 3 (Noncurrent & Supportable) and will be moving to Phase 4 (Limited Service) in 2027. Replace with Turbotronic 5 Control System. Justification: Spare part availability is questionable as product is discontinued by manufacturer. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742384**	Dawn F2 Compressor Control System Upgrade	**2027**	$	264,027	Issue/Concern/Opportunity: Replace Turbotronic 4 Control System with CNet and Flex I/O, considered life cycle Phase 3 (Noncurrent & Supportable) and will be moving to Phase 4 (Limited Service) in 2027. Replace with Turbotronic 5 Control System. Justification: Spare part availability is questionable as product is discontinued by manufacturer. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**743051**	SCOR-60009 Gas Aftercooler Replacement	**2031**	$	252,944	Issue/Concern/Opportunity: Gas aftercooler has reached estimated end of life Justification: A failed gas aftercooler can inadequately cool the hig pressure gas stream, leading to issues in downstream piping and equipment Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**743053**	SCOR-60010 Gas Aftercooler Replacement	**2031**	$	252,944	Issue/Concern/Opportunity: Gas aftercooler has reached estimated end of life Justification: A failed gas aftercooler can inadequately cool the hig pressure gas stream, leading to issues in downstream piping and equipment Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742177**	Parkway East Waukeshaw Generator Controls Upgrade	**2032**	$	251,954	Issue/Concern/: Generator controls is relay logic and is outdated. It is unknown if like for like replacements parts could be sourced in the event of a failure Justification: This is one of primary generators required to provide emergency power to the Parkway East facility , with the loss of utility power. Within that last 10 years, this has been used on multiple occasions and over a period of several weeks, after one substantial outage over the winter. Without backup generation, the Parkway East facility cannot compress gas, or measure gas, in the event of loss of utility power Assets: Parkway East Waukeshaw Generator Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742803**	Bickford Exhaust Ducting Replacement	**2025**	$	251,354	Issue/Concern/Opportunity: The Bickford Exhaust Ducting is corroding and holes have been observed. Justification: A failure of the ducting would result in an unplanned outage of the Bickford compressor unit. Assets: Bickford Compressor unit Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_92 - Union North Storage**	Compression Stations	**Pass**	**735296**	Hagar Blowdown and Knockout Tank	**2025**	$	247,640	Issue/Concern/Opportunity: Installing a Blowdown Silencer. It is a standard equipment at all compressor stations. Hagar currently doesn't have any blowdown silencer in order to decrease the noise during a compressor blowdown. Assets: Yard, Compressors	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**501151**	Bright A2 GGLO scheduling valve & controller replacement	**2032**	$	247,352	When the compressor plant was installed, the oil scheduling valve and controller we being made obsolete but the OEM. Siemens had no approved alternative, so the old valve and controller were installed. There have been several failures in recent years. The replacement valve and controller is not a direct replacement	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742160**	Parkway West MCR ControlNet to Ethernet Upgrade	**2026**	$	241,127	Critical communication between remote IO and other devices currently is currently done over ControlNet. Some of the Controlnet hardware is in the discontinued product lifecycle for Rockwell and production will be discontinued at the end of 2025 (Fiber Optic Conversion Modules). Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**100168**	Dawn G Surge Controller	**2028**	$	239,665	Issue/Concern/Opportunity: Current surge protection shuts unit down when experiencing minimal changes in suction pressure. When pumping to the mainline, surge control would allow the suction pressure to be as low as possible to help move storage volumes to Dawn. Justification: Lower suction pressures at Dawn would provide a 1-1.25% increase in flow. 1. 15 MMscfd by dropping the unit suction by 10 psi, and 2. 30 MMscfd by dropping the unit suction by 20 psi. Assets: Dawn G Surge Controller Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734321**	Methane Leak Remediation : Valve Replacement 2025	**2025**	$	237,230	Issue/Concern/Opportunity: Valve leakage determined via 3rd party leak detection assessment. Repairs are required and mitigation timeframes determined as per quantified leak rates. Justification: Leakage from valves contribute to lost gas annually and require rebuild or replacement as per methane emission regulation. Assets: To be determined on an annual basis Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743093**	Parkway-AMP-PLTB - Vent Fan replacement - Parkway East	**2025**	$	235,258	Issue/Concern: Coming from the OPs team for the 10 year-asset management plan project. Parkway-AMP-PLTB - Vent Fan replacement -Parkway East	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**3452**	SCOR:60010 iBalance-Upgrade	**2025**	$	234,857	*Issue/Concern* The power cylinder balancing for 8 of the compressors at the Corunna Compressor Station is performed manually compared to the current industry best practice monitoring technology (auto Balancing). These compressors are over 50 years old in some instances. Autobalancing systems provide improved reliability, reduced probability of crankshaft failure, more precise control of NOx emissions and reduced operating costs (fuel and maintenance). Without this change reliability and NOx emissions cannot improve further. Autobalancing of has the potential to provide early detection, and prevention of detonation events, which is the most likely cause of the K705 crankshaft failure in 2018. *Assets* Affected assets include 8 compressor units - installed between 1968 and 1995. *Related Program* Not applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**3456**	SCOR:60009 iBalance-Upgrade	**2025**	$	234,857	*Issue/Concern* The power cylinder balancing for 8 of the compressors at the Corunna Compressor Station is performed manually compared to the current industry best practice monitoring technology (auto Balancing). These compressors are over 50 years old in some instances. Autobalancing systems provide improved reliability, reduced probability of crankshaft failure, more precise control of NOx emissions and reduced operating costs (fuel and maintenance). Without this change reliability and NOx emissions cannot improve further. Autobalancing of has the potential to provide early detection, and prevention of detonation events, which is the most likely cause of the K705 crankshaft failure in 2018. *Assets* Affected assets include 8 compressor units - installed between 1968 and 1995. *Related Program* Not applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734203**	Obsolete MCC Replace 2031	**2031**	$	232,738	Issue/Concern: This program is to proactively address the staggered obsolescence of MCCs. The intent is to avoid the hazard introduced in 2001 of an MCC with a limited future availability. Justification: Parts availability will be affected.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**48723**	Obsolete MCC Replace 2030	**2030**	$	232,446	Issue/Concern: This program is to proactively address the staggered obsolescence of MCCs. The intent is to avoid the hazard introduced in 2001 of an MCC with a limited future availability. Justification: Parts availability will be affected.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742158**	Parkway East MCR ControlNet to Ethernet Upgrade and FlexIO	**2027**	$	227,887	Critical communication between remote IO and other devices currently is currently done over ControlNet. Some of the Controlnet hardware is in the discontinued product lifecycle for Rockwell and production will be discontinued at the end of 2025 (Fiber Optic Conversion Modules). Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734322**	Methane Leak Remediation : Valve Replacement 2026	**2026**	$	223,351	Issue/Concern/Opportunity: Valve leakage determined via 3rd party leak detection assessment. Repairs are required and mitigation timeframes determined as per quantified leak rates. Justification: Leakage from valves contribute to lost gas annually and require rebuild or replacement as per methane emission regulation. Assets: To be determined on an annual basis Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734217**	TCO Obsolete Mechanical - Replace 2025	**2025**	$	216,685	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - the OEM supplied auxiliary system components were manufactured by others. Many of these auxiliary system components are no longer available. Once the parts are no longer produced they must be reverse engineered and replaced which normally requires modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxiliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devices. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734323**	Methane Leak Remediation : Valve Replacement 2027	**2027**	$	215,017	Issue/Concern/Opportunity: Valve leakage determined via 3rd party leak detection assessment. Repairs are required and mitigation timeframes determined as per quantified leak rates. Justification: Leakage from valves contribute to lost gas annually and require rebuild or replacement as per methane emission regulation. Assets: To be determined on an annual basis Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742149**	Lobo MCR ControlNet to Ethernet Upgrade	**2028**	$	214,331	Critical communication between remote IO and other devices currently is currently done over ControlNet. Some of the Controlnet hardware is in the discontinued product lifecycle for Rockwell and production will be discontinued at the end of 2025 (Fiber Optic Conversion Modules). Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**737238**	High Performance Coating 2023 - Parkway	**2025**	$	212,169	Issue/Concern: High Performance Coating (HPC) is required on above-grade piping to reduce the chance of external corrosion. HPC has an expected life of approximately 15 years while standard coatings only typically last 5-8 years. HPC was recently mandated as the coating system to be used going forward, however, the majority of the sites only have standard coating, which is at end of life. STO has approximately 45 remote sites, 4 Compressor facilities and 1 LNG facility (Hagar). Parkway East valves and piping showing corrosion and lack of coating and have been for several years. Need to be remediated to ensure ongoing integrity of pipe and equipment.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742191**	Dawn Aux 3 Generator 3 Control Panel	**2032**	$	211,641	Issue/Concern/: Generator controls is relay logic and is outdated. It is unknown if like for like replacements parts could be sourced in the event of a failure Justification: This is one of primary generators required to provide emergency power to the Parkway East facility , with the loss of utility power. Within that last 10 years, this has been used on multiple occasions and over a period of several weeks, after one substantial outage over the winter. Without backup generation, the Parkway East facility cannot compress gas, or measure gas, in the event of loss of utility power Assets: Parkway East Waukeshaw Generator Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734324**	Methane Leak Remediation : Valve Replacement 2028	**2028**	$	211,117	Issue/Concern/Opportunity: Valve leakage determined via 3rd party leak detection assessment. Repairs are required and mitigation timeframes determined as per quantified leak rates. Justification: Leakage from valves contribute to lost gas annually and require rebuild or replacement as per methane emission regulation. Assets: To be determined on an annual basis Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742344**	Dow A FT50 Loader Control Replacement	**2026**	$	210,304	Issue/Concern/Opportunity: The existing loader control is a stand alone controller and is not currently working. Replace with a Siemens solution. Justification: Existing control is questionable and does not work correctly. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**48273**	Dow A Pool Siemens MCC replacement	**2025**	$	209,317	The manufacturer has informed us that the equipment is obsolete in favour of a new style. Parts availability is affected. An MCC failure could result in a compressor plant outage for a couple of weeks to complete a temporary repair. Depending on the time of year and system demands, this has the potential for significant losses. These MCCs feed essential motors and equipment which are required to maintain operation.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734219**	TCO Obsolete Mechanical - Replace 2026	**2026**	$	205,287	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - the OEM supplied auxiliary system components were manufactured by others. Many of these auxiliary system components are no longer available. Once the parts are no longer produced they must be reverse engineered and replaced which normally requires modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxiliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devices. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734328**	Methane Leak Remediation : Valve Replacement 2032	**2032**	$	202,707	Issue/Concern/Opportunity: Valve leakage determined via 3rd party leak detection assessment. Repairs are required and mitigation timeframes determined as per quantified leak rates. Justification: Leakage from valves contribute to lost gas annually and require rebuild or replacement as per methane emission regulation. Assets: To be determined on an annual basis Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**743018**	S_SOM-510-K-0821 Station Air Compressor Replacement	**2029**	$	202,361	Issue/Concern/Opportunity: Station air compressor is reaching end of life Justification: Compressed air powers multiple critical assets within the station Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734325**	Methane Leak Remediation : Valve Replacement 2029	**2029**	$	202,361	Issue/Concern/Opportunity: Valve leakage determined via 3rd party leak detection assessment. Repairs are required and mitigation timeframes determined as per quantified leak rates. Justification: Leakage from valves contribute to lost gas annually and require rebuild or replacement as per methane emission regulation. Assets: To be determined on an annual basis Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**743036**	SCRW-511-K-620 Station Air Compressor Replacement	**2031**	$	202,356	Issue/Concern/Opportunity: Station air compressor is reaching end of life Justification: Compressed air powers multiple critical assets within the station Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734327**	Methane Leak Remediation : Valve Replacement 2031	**2031**	$	202,356	Issue/Concern/Opportunity: Valve leakage determined via 3rd party leak detection assessment. Repairs are required and mitigation timeframes determined as per quantified leak rates. Justification: Leakage from valves contribute to lost gas annually and require rebuild or replacement as per methane emission regulation. Assets: To be determined on an annual basis Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734326**	Methane Leak Remediation : Valve Replacement 2030	**2030**	$	202,353	Issue/Concern/Opportunity: Valve leakage determined via 3rd party leak detection assessment. Repairs are required and mitigation timeframes determined as per quantified leak rates. Justification: Leakage from valves contribute to lost gas annually and require rebuild or replacement as per methane emission regulation. Assets: To be determined on an annual basis Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101318**	Parkway/Hagar Compressor Building Lighting 2030	**2030**	$	201,615	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742152**	Lobo A2 UPS Addition	**2030**	$	201,434	Issue/Concern/Opportunity; Lobo A1 and Lobo A2 share a UPS system that is common to both plants. Should this UPS fail, both plants will be unavailable for operation. Consider adding a new UPS and shifting all loads from A2 over to this new unit. Justification: A failure of the UPS will make both plants unavailable for operation. Each plant should have its own UPS to ensure a failure will only impact one units operation. Assets: Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743132**	Parkway East-AMP - POV 622 valve control upgrade	**2028**	$	197,127	Issue/Concern: Coming from the OPs team for the 10 year-asset management plan project. Parkway East-AMP - POV 622 valve control upgrade-Update the controls for the valve and the actuator. Supplying pressure control to the Lisgar. The controls are obsolete and there is a concern for reliability.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734220**	TCO Obsolete Mechanical - Replace 2027	**2027**	$	193,516	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - the OEM supplied auxiliary system components were manufactured by others. Many of these auxiliary system components are no longer available. Once the parts are no longer produced they must be reverse engineered and replaced which normally requires modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxiliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devices. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742357**	Edys Mills MCC Replacement	**2028**	$	192,480	Issue/Concern/Opportunity: Existing MCC equipment has reached end of product lifecycle and should be upgraded to a current product consistent with other stations. Justification: Spare part availability is questionable. Limited to existing spares and equipment taken out of service and salvaged for spare parts. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**501402**	SCOR:TBD OPP-Upgrades	**2025**	$	190,697	Issue/Concern: OPP Deficiencies related to small bore piping throughout the CCS facility as identified in the Site Wide HAZOP assessment. Created discrete investment (740930) and debited blanket dollars down accordingly	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101960**	Dawn Aux 4-2 Gen Top End O/H	**2025**	$	187,216	*Issue/Concern* Recip engines are rotating equipment that is designed with inexpensive components intended to wear preferentially. This preferential wear then preserves the condition of large and expensive components. Overhauls are performed at regular intervals - in accordance with the OEM recommended preventative maintenance schedules - to replace wear items. Typically, an inspection is performed prior to performing an overhaul. Without regular replacement of wear items, reliability will diminish drastically. If wear items are not replaced to be within OEM tolerances, then subsequent damage to main compressor components will result - which is a much costlier outcome. *Asset* Aux 4-2 Generator. Engine Top End components subject to replacement include (but are not limited to): cylinder heads, intake/exhaust/start valves, fuel valves. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734221**	TCO Obsolete Mechanical - Replace 2028	**2028**	$	181,564	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - the OEM supplied auxiliary system components were manufactured by others. Many of these auxiliary system components are no longer available. Once the parts are no longer produced they must be reverse engineered and replaced which normally requires modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxiliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devices. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734222**	TCO Obsolete Mechanical - Replace 2029	**2029**	$	176,340	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - the OEM supplied auxiliary system components were manufactured by others. Many of these auxiliary system components are no longer available. Once the parts are no longer produced they must be reverse engineered and replaced which normally requires modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxiliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devices. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734224**	TCO Obsolete Mechanical - Replace 2031	**2031**	$	176,316	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - the OEM supplied auxiliary system components were manufactured by others. Many of these auxiliary system components are no longer available. Once the parts are no longer produced they must be reverse engineered and replaced which normally requires modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxiliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devices. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734223**	TCO Obsolete Mechanical - Replace 2030	**2030**	$	176,095	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - the OEM supplied auxiliary system components were manufactured by others. Many of these auxiliary system components are no longer available. Once the parts are no longer produced they must be reverse engineered and replaced which normally requires modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxiliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devices. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742749**	Lobo-A1-AMP-Asset Life-Air compressor	**2026**	$	175,960	Issue/Concern/Opportunity: Based on the AMP project, life expectancy for this asset is 15 years, year of install is 2006 and expected date of replacement is 2021. Justification: End of the asset life.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742343**	Dow A MCC Replacement	**2030**	$	173,818	Issue/Concern/Opportunity: Existing MCC equipment has reached end of product lifecycle and should be upgraded to a current product consistent with other stations. Justification: Spare part availability is questionable. Limited to existing spares and equipment taken out of service and salvaged for spare parts. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742378**	Enniskillen MCC Replacement	**2028**	$	172,986	Issue/Concern/Opportunity: Existing MCC equipment has reached end of product lifecycle and should be upgraded to a current product consistent with other stations. Justification: Spare part availability is questionable. Limited to existing spares and equipment taken out of service and salvaged for spare parts. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742350**	Oil Springs East MCC Replacement	**2030**	$	168,780	Issue/Concern/Opportunity: Existing MCC equipment has reached end of product lifecycle and should be upgraded to a current product consistent with other stations. Justification: Spare part availability is questionable. Limited to existing spares and equipment taken out of service and salvaged for spare parts. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742841**	Airport Compressor Station Drip Tank Upgrade	**2028**	$	167,454	Issue/Concern/Opportunity: The current drip tank is undersized for the quantity of contaminants being collected from the natural gas. Scope would be to replace with a larger tank. This relates to SAP WO 41235933. Justification: Replacing the drip tank will improve operational process as the tank won't be required to be emptied as often. This also improves the integrity and reliability of drip system. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734337**	SM:Obsolete Instr-Replace 2032-34	**2032**	$	167,421	*Issue/Concern* Instrumentation assets with finite life expectancy include: (i) PLC's; (ii) SCADA devices; (iii) Transmitters & switches; (iv) Actuators; (v) Industrial Data Centres (IDC's); (vi) Human Machine Interfaces (HMI's) & Video Displays. Many of these assets have a short life expectancy and experience planned obsolescence. Like-for-like replacements may not be available and replacement of failed components may require some re-engineering to provide the required functionality. Large instrumentation assets are replaced, through specific named projects, however small instrumentation asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete instrumentation assets, is the most practical way to address end of life issues and ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a memebr ot the control & communication asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734335**	SM:Obsolete Elec-Replace 2032-34	**2032**	$	167,421	*Issue/Concern* Electrical assets with finite life expectancy include: (i) electrical distribution (panels, wiring); (ii) lighting; (iii) Motor Control Centres (MCC's); (iv) Auxiliary Power Units (APU's) & Transfer Switches; (v) Variable Frequency Drives (VFD's); (vi) Phase inverters and Transformers. Many of these assets at the edge of their useful life and like-for-like replacements may not available. Replacement of failed components may require some re-engineering to provide the required functionality. Large electrical assets are replaced, through specific named projects, however small electrical asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete electrical assets, is the most practical way to address end of life issues and to ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a member of the electrical asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734207**	STO Obsolete Mechanical - Replace 2025	**2025**	$	163,442	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - the OEM supplied auxiliary system components were manufactured by others. Many of these auxiliary system components are no longer available. Once the parts are no longer produced they must be reverse engineered and replaced which normally requires modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxiliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devices. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**741918**	Dawn Aux 4-1 Gen Top End O/H	**2025**	$	162,452	*Issue/Concern* Recip engines are rotating equipment that is designed with inexpensive components intended to wear preferentially. This preferential wear then preserves the condition of large and expensive components. Overhauls are performed at regular intervals - in accordance with the OEM recommended preventative maintenance schedules - to replace wear items. Typically, an inspection is performed prior to performing an overhaul. Without regular replacement of wear items, reliability will diminish drastically. If wear items are not replaced to be within OEM tolerances, then subsequent damage to main compressor components will result - which is a much costlier outcome. *Asset* Aux 4-1 Generator. Engine Top End components subject to replacement include (but are not limited to): cylinder heads, intake/exhaust/start valves, fuel valves. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742196**	Dawn CCR Building Siemens MCC Replacement	**2033**	$	161,010	In 2001, the manufacturer informed us that they would be making this line of equipment obsolete in the next 1 ½ years in favour of a new style. Parts availability will be affected.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**741631**	SSOM:TR5 EOP Elevation to MOP	**2026**	$	159,218	*Issue/Concern* Formal pressure elevation of TR5 is now possible because there is adequate OPP between TR1 , TR2 and TR5 at the TCPL meter station. Prior to this improvement, TR5 has only ever been operated at 935 psig making it the EOP. Operating at the MOP of 1050 psig, requires as engineering assessment by Pipelines Engineering and a modest expenditure to raise the set pressure of 160-PSV-7504. Increasing MOP above 1000 psig is an optimal match with Dawn because 1000 psig is a standard pressure plateau used to feed remote units. Current operation at less than 1000 psig requires carving out compression resources in a non-standard set-up - effectively orphaning compressor resources - which is inefficient. *Asset* 160 - Emergency Vent System *Related Program*	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12979**	SCOR:622xx Bypass Valve-Upgrade 2025	**2025**	$	156,572	*Issue/Concern* All compressor units are SCOR employ a loading valve to gradually build up a pressure differential across the compressor. As the loading valve ramps closed, the unit discharge check valve opens and the unit is deemed to be on-line. Many of the loading valves at SCOR are 1/4 ball valves that were never intended to throttle and associated valve actuators provide ramp rates that vary on a day to day basis. 1/4 turn loading valve provides inconsistent operation while getting units on-line, and leads to failed start attempts. 1/4 Turn ball valves are inappropriate for this throttling application. Early wear of loading valves can occur over time, creating a permanent recycle flow that is a waste of fuel and results in diminshed system performance. *Assets* Affected assets are K704 thru K711. It is assumed that K701/2/3 will be retired by 2025, and that associated compressor retirement will resolve the issue/concern. Loading valves were first installed when the unit was first placed into service. In-service dates range from 1968 to 1995. *Related Program* Loading valve replacement projects are expected to be named projects upon completion of the 10 year plan.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101893**	Dawn Compressor Building Lighting 2025	**2025**	$	156,013	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734208**	STO Obsolete Mechanical - Replace 2026	**2026**	$	154,845	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - the OEM supplied auxiliary system components were manufactured by others. Many of these auxiliary system components are no longer available. Once the parts are no longer produced they must be reverse engineered and replaced which normally requires modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxiliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devices. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**740891**	SCOR: 64111 Gearbox and Glycol Pump Upgrade	**2025**	$	154,199	Issue/Concern/Opportunity: Pump shaft regularly breaks and requires repairs and downtime from 2 -7 days. Problem stems from non-standard gearbox and pump installed on this engine from a different engine. Proper gearbox and SRBL pump already in inventory. Justification: Increase reliability of K711 engine, preventing a variety of potential failures Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742348**	Lobo A1/A2 MCC Soft Starter Replacements	**2033**	$	151,305	Issue/Concern/Opportunity: Existing MCC soft starter equipment has reached end of product lifecycle and should be upgraded to a current product consistent with other stations. Justification: Spare part availability is questionable. Limited to existing spares and equipment taken out of service and salvaged for spare parts. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**102733**	STO - UPS Battery replacements 2025	**2025**	$	148,584	*Issue/Concern* Un-interruptible Power Supplies (UPS) are a critical component in plant and meter station facilities. This unit must be operational in the event of a power failure to allow smooth transition to generator power. Consequence of a power failure, without a UPS, is uncontrolled shutdown of compression equipment; possible damage to compressor equipment and yard piping; and control system performance issues once power is restored. Failure of the UPS would make a compressor or meter station incapable of being controlled remotely and could shutdown an entire station until repairs are made. PLC's and RTU's are primary means of controlling Storage equipment and these devices need a UPS to maintain system SCADA and control during a power failure. *Justification* As per manufacturer and industry standards our UPS system batteries should be replaced on a ten (10) year basis. Locations Vary - as failure cannot be forecasted *Asset* Compressor stations and meter station. *Related Program* Not applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101894**	Dawn Compressor Building Lighting 2026	**2026**	$	147,807	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101883**	Obsolete Instrumentation-Replace 2026	**2026**	$	146,633	*Issue/Concern* Instrumentation assets with finite life expectancy include: (i) PLC's; (ii) Transmitters & switches; (iii) Actuators; (iv) Human Machine Interfaces (HMI's) & Video Displays. Many of these assets have a short life expectancy and experience planned obsolescence. Like-for-like replacements may not be available and replacement of failed components may require some re-engineering to provide the required functionality. Large instrumentation assets are replaced, through specific named projects, however small instrumentation asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete instrumentation assets, is the most practical way to address end of life issues and ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a member of the control & communication asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101874**	Obsolete Electrical-Replace 2026	**2026**	$	146,633	*Issue/Concern* Electrical assets with finite life expectancy include: (i) electrical distribution (panels, wiring); (ii) Motor Control Centres (MCC's); (iii) Auxiliary Power Units (APU's) & Transfer Switches; (iv) Variable Frequency Drives (VFD's); (v) Phase inverters and Transformers. Many of these assets at the edge of their useful life and like-for-like replacements may not available. Replacement of failed components may require some re-engineering to provide the required functionality. Large electerical assets are replaced, through specific named projects, however small electrical asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete electrical assets, is the most practical way to address end of life issues and to ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a memebr ot the electrical asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742337**	Bickford MCC Replacement	**2029**	$	146,628	Issue/Concern/Opportunity: Existing MCC equipment has reached end of product lifecycle and should be upgraded to a current product consistent with other stations. Justification: Spare part availability is questionable. Limited to existing spares and equipment taken out of service and salvaged for spare parts. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**737239**	High Performance Coating 2023 - Dawn Plant E	**2025**	$	145,977	Issue/Concern: High Performance Coating (HPC) is required on above-grade piping to reduce the chance of external corrosion. HPC has an expected life of approximately 15 years while standard coatings only typically last 5-8 years. HPC was recently mandated as the coating system to be used going forward, however, the majority of the sites only have standard coating, which is at end of life. STO has approximately 45 remote sites, 4 Compressor facilities and 1 LNG facility (Hagar).	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734209**	STO Obsolete Mechanical - Replace 2027	**2027**	$	145,966	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - the OEM supplied auxiliary system components were manufactured by others. Many of these auxiliary system components are no longer available. Once the parts are no longer produced they must be reverse engineered and replaced which normally requires modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxiliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devices. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734347**	STO - UPS Battery replacements 2026	**2026**	$	140,768	*Issue/Concern* Un-interruptible Power Supplies (UPS) are a critical component in plant and meter station facilities. This unit must be operational in the event of a power failure to allow smooth transition to generator power. Consequence of a power failure, without a UPS, is uncontrolled shutdown of compression equipment; possible damage to compressor equipment and yard piping; and control system performance issues once power is restored. Failure of the UPS would make a compressor or meter station incapable of being controlled remotely and could shutdown an entire station until repairs are made. PLC's and RTU's are primary means of controlling Storage equipment and these devices need a UPS to maintain system SCADA and control during a power failure. *Justification* As per manufacturer and industry standards our UPS system batteries should be replaced on a ten (10) year basis. Locations Vary - as failure cannot be forecasted *Asset* Compressor stations and meter station. *Related Program* Not applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**19388**	SCOR:525 UPS-Replace	**2028**	$	139,337	*Issue/Concern* Uninterruptible Power Supplies (UPS) are employed heavily at compressor and meter stations. UPS systems allow critical controls to continue operating during a power failure and allow the Auxiliary Power Unit (APU) to get started. Controls are powered by the UPS until the APU gets on-line. UPS systems have a short life expectancy. Typically, the DC batteries weaken over a three year period, meaning that the UPS system will have a reduced operational duration when a power outage occurs. Failure of a UPS system to provide sufficient temporary power during a power outage, would result in shutdown of running compressor units. *Asset* UPS Systems. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101895**	Dawn Compressor Building Lighting 2027	**2027**	$	139,331	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101885**	Obsolete Instrumentation-Replace 2027	**2027**	$	138,225	*Issue/Concern* Instrumentation assets with finite life expectancy include: (i) PLC's; (ii) Transmitters & switches; (iii) Actuators; (iv) Human Machine Interfaces (HMI's) & Video Displays. Many of these assets have a short life expectancy and experience planned obsolescence. Like-for-like replacements may not be available and replacement of failed components may require some re-engineering to provide the required functionality. Large instrumentation assets are replaced, through specific named projects, however small instrumentation asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete instrumentation assets, is the most practical way to address end of life issues and ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a member of the control & communication asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101875**	Obsolete Electrical-Replace 2027	**2027**	$	138,225	*Issue/Concern* Electrical assets with finite life expectancy include: (i) electrical distribution (panels, wiring); (ii) Motor Control Centres (MCC's); (iii) Auxiliary Power Units (APU's) & Transfer Switches; (iv) Variable Frequency Drives (VFD's); (v) Phase inverters and Transformers. Many of these assets at the edge of their useful life and like-for-like replacements may not available. Replacement of failed components may require some re-engineering to provide the required functionality. Large electerical assets are replaced, through specific named projects, however small electrical asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete electrical assets, is the most practical way to address end of life issues and to ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a memebr ot the electrical asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101961**	Dawn Aux 3 Gen Top End O/H	**2025**	$	137,688	*Issue/Concern* Recip engines are rotating equipment that is designed with inexpensive components intended to wear preferentially. This preferential wear then preserves the condition of large and expensive components. Overhauls are performed at regular intervals - in accordance with the OEM recommended preventative maintenance schedules - to replace wear items. Typically, an inspection is performed prior to performing an overhaul. Without regular replacement of wear items, reliability will diminish drastically. If wear items are not replaced to be within OEM tolerances, then subsequent damage to main compressor components will result - which is a much costlier outcome. *Asset* Aux 3 Generator. Engine Top End components subject to replacement include (but are not limited to): cylinder heads, intake/exhaust/start valves, fuel valves. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734210**	STO Obsolete Mechanical - Replace 2028	**2028**	$	136,951	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - the OEM supplied auxiliary system components were manufactured by others. Many of these auxiliary system components are no longer available. Once the parts are no longer produced they must be reverse engineered and replaced which normally requires modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxiliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devices. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743182**	Parkway -AMP -M&R relief tank installation	**2025**	$	136,202	Issue/Concern: Parkway -AMP -M&R relief tank installation, Tank has been bought and moved to Parkway needs to be installed on a concrete pad.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743183**	Parkway-AMP-TCPL Control Valve air conversion	**2025**	$	136,202	Issue/Concern: Parkway -AMP - TCPL Control Valve air conversion	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742309**	Parkway A and B Recycle Valves to Air	**2028**	$	134,461	Issue/Concern/Opportunity: Regulations relating to the release of methane and certain volatile organic compounds are moving towards the requirement of methane driven pneumatic controllers and pumps no longer bleeding methane. The regulation requires replacement of installed methane driven high bleed devices with no or low bleed devices. These devices are used to control gas pressure and flow. To reduce methane emissions, the recycle valves will convert from operating off power gas to instrument air. Justification: This is to reduce emissions and maintain compliance. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734330**	SCOR:525 UPS-Replace	**2031**	$	133,555	*Issue/Concern* Uninterruptible Power Supplies (UPS) are employed heavily at compressor and meter stations. UPS systems allow critical controls to continue operating during a power failure and allow the Auxiliary Power Unit (APU) to get started. Controls are powered by the UPS until the APU gets on-line. UPS systems have a short life expectancy. Typically, the DC batteries weaken over a three year period, meaning that the UPS system will have a reduced operational duration when a power outage occurs. Failure of a UPS system to provide sufficient temporary power during a power outage, would result in shutdown of running compressor units. *Asset* UPS Systems. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734211**	STO Obsolete Mechanical - Replace 2029	**2029**	$	133,011	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - the OEM supplied auxiliary system components were manufactured by others. Many of these auxiliary system components are no longer available. Once the parts are no longer produced they must be reverse engineered and replaced which normally requires modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxiliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devices. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734213**	STO Obsolete Mechanical - Replace 2031	**2031**	$	132,993	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - the OEM supplied auxiliary system components were manufactured by others. Many of these auxiliary system components are no longer available. Once the parts are no longer produced they must be reverse engineered and replaced which normally requires modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxiliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devices. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734212**	STO Obsolete Mechanical - Replace 2030	**2030**	$	132,826	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - the OEM supplied auxiliary system components were manufactured by others. Many of these auxiliary system components are no longer available. Once the parts are no longer produced they must be reverse engineered and replaced which normally requires modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxiliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devices. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734348**	STO - UPS Battery replacements 2027	**2027**	$	132,696	*Issue/Concern* Un-interruptible Power Supplies (UPS) are a critical component in plant and meter station facilities. This unit must be operational in the event of a power failure to allow smooth transition to generator power. Consequence of a power failure, without a UPS, is uncontrolled shutdown of compression equipment; possible damage to compressor equipment and yard piping; and control system performance issues once power is restored. Failure of the UPS would make a compressor or meter station incapable of being controlled remotely and could shutdown an entire station until repairs are made. PLC's and RTU's are primary means of controlling Storage equipment and these devices need a UPS to maintain system SCADA and control during a power failure. *Justification* As per manufacturer and industry standards our UPS system batteries should be replaced on a ten (10) year basis. Locations Vary - as failure cannot be forecasted *Asset* Compressor stations and meter station. *Related Program* Not applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**8852**	SSOM:UPS-replace 2027	**2032**	$	131,760	*Issue/Concern* Uninterruptible Power Supplies (UPS) are employed heavily at compressor and meter stations. UPS systems allow critical controls to continue operating during a power failure and allow the Auxiliary Power Unit (APU) to get started. Controls are powered by the UPS until the APU gets on-line. UPS systems have a short life expectancy. Typically, the DC batteries weaken over a three year period, meaning that the UPS system will have a reduced operational duration when a power outage occurs. Failure of a UPS system to provide sufficient temporary power during a power outage, would result in shutdown of running compressor units. *Asset* UPS Systems. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101896**	Dawn Compressor Building Lighting 2028	**2028**	$	130,726	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101886**	Obsolete Instrumentation-Replace 2028	**2028**	$	129,689	*Issue/Concern* Instrumentation assets with finite life expectancy include: (i) PLC's; (ii) Transmitters & switches; (iii) Actuators; (iv) Human Machine Interfaces (HMI's) & Video Displays. Many of these assets have a short life expectancy and experience planned obsolescence. Like-for-like replacements may not be available and replacement of failed components may require some re-engineering to provide the required functionality. Large instrumentation assets are replaced, through specific named projects, however small instrumentation asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete instrumentation assets, is the most practical way to address end of life issues and ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a member of the control & communication asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101876**	Obsolete Electrical-Replace 2028	**2028**	$	129,689	*Issue/Concern* Electrical assets with finite life expectancy include: (i) electrical distribution (panels, wiring); (ii) Motor Control Centres (MCC's); (iii) Auxiliary Power Units (APU's) & Transfer Switches; (iv) Variable Frequency Drives (VFD's); (v) Phase inverters and Transformers. Many of these assets at the edge of their useful life and like-for-like replacements may not available. Replacement of failed components may require some re-engineering to provide the required functionality. Large electerical assets are replaced, through specific named projects, however small electrical asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete electrical assets, is the most practical way to address end of life issues and to ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a memebr ot the electrical asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101897**	Dawn Compressor Building Lighting 2029	**2029**	$	126,965	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742999**	Dawn Compressor Building Lighting 2031	**2031**	$	126,948	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101887**	Obsolete Instrumentation-Replace 2029	**2029**	$	125,957	*Issue/Concern* Instrumentation assets with finite life expectancy include: (i) PLC's; (ii) Transmitters & switches; (iii) Actuators; (iv) Human Machine Interfaces (HMI's) & Video Displays. Many of these assets have a short life expectancy and experience planned obsolescence. Like-for-like replacements may not be available and replacement of failed components may require some re-engineering to provide the required functionality. Large instrumentation assets are replaced, through specific named projects, however small instrumentation asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete instrumentation assets, is the most practical way to address end of life issues and ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a member of the control & communication asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101877**	Obsolete Electrical-Replace 2029	**2029**	$	125,957	*Issue/Concern* Electrical assets with finite life expectancy include: (i) electrical distribution (panels, wiring); (ii) Motor Control Centres (MCC's); (iii) Auxiliary Power Units (APU's) & Transfer Switches; (iv) Variable Frequency Drives (VFD's); (v) Phase inverters and Transformers. Many of these assets at the edge of their useful life and like-for-like replacements may not available. Replacement of failed components may require some re-engineering to provide the required functionality. Large electerical assets are replaced, through specific named projects, however small electrical asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete electrical assets, is the most practical way to address end of life issues and to ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a memebr ot the electrical asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734196**	Obsolete Electrical-Replace 2031	**2031**	$	125,940	*Issue/Concern* Electrical assets with finite life expectancy include: (i) electrical distribution (panels, wiring); (ii) Motor Control Centres (MCC's); (iii) Auxiliary Power Units (APU's) & Transfer Switches; (iv) Variable Frequency Drives (VFD's); (v) Phase inverters and Transformers. Many of these assets at the edge of their useful life and like-for-like replacements may not available. Replacement of failed components may require some re-engineering to provide the required functionality. Large electerical assets are replaced, through specific named projects, however small electrical asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete electrical assets, is the most practical way to address end of life issues and to ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a memebr ot the electrical asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101884**	Obsolete Instrumentation-Replace 2031	**2031**	$	125,940	*Issue/Concern* Instrumentation assets with finite life expectancy include: (i) PLC's; (ii) Transmitters & switches; (iii) Actuators; (iv) Human Machine Interfaces (HMI's) & Video Displays. Many of these assets have a short life expectancy and experience planned obsolescence. Like-for-like replacements may not be available and replacement of failed components may require some re-engineering to provide the required functionality. Large instrumentation assets are replaced, through specific named projects, however small instrumentation asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete instrumentation assets, is the most practical way to address end of life issues and ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a member of the control & communication asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101888**	Obsolete Instrumentation-Replace 2030	**2030**	$	125,782	*Issue/Concern* Instrumentation assets with finite life expectancy include: (i) PLC's; (ii) Transmitters & switches; (iii) Actuators; (iv) Human Machine Interfaces (HMI's) & Video Displays. Many of these assets have a short life expectancy and experience planned obsolescence. Like-for-like replacements may not be available and replacement of failed components may require some re-engineering to provide the required functionality. Large instrumentation assets are replaced, through specific named projects, however small instrumentation asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete instrumentation assets, is the most practical way to address end of life issues and ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a member of the control & communication asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101878**	Obsolete Electrical-Replace 2030	**2030**	$	125,782	*Issue/Concern* Electrical assets with finite life expectancy include: (i) electrical distribution (panels, wiring); (ii) Motor Control Centres (MCC's); (iii) Auxiliary Power Units (APU's) & Transfer Switches; (iv) Variable Frequency Drives (VFD's); (v) Phase inverters and Transformers. Many of these assets at the edge of their useful life and like-for-like replacements may not available. Replacement of failed components may require some re-engineering to provide the required functionality. Large electerical assets are replaced, through specific named projects, however small electrical asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete electrical assets, is the most practical way to address end of life issues and to ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a memebr ot the electrical asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101955**	OSE #1 Top End O/H	**2028**	$	125,124	*Issue/Concern* Compressors are rotating equipment that is designed with inexpensive components intended to wear preferentially. This preferential wear then preserves the condition of large and expensive components. Overhauls are performed at regular intervals - in accordance with the OEM recommended preventative maintenance schedules - to replace wear items. Typically, an inspection is performed prior to performing an overhaul. Without regular replacement of wear items, reliability will diminish drastically. If wear items are not replaced to be within OEM tolerances, then subsequent damage to main compressor components will result - which is a much costlier outcome. *Asset* OSE #1 compressor unit. Engine Top End components subject to replacement include (but are not limited to): cylinder heads, intake/exhaust/start valves, fuel valves. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**503237**	Lobo North Yard Drip Tank Replacement	**2025**	$	125,058	Issue/Concern: The tank is original, with no visible site glass or level indication. Level indication must be checked by opening the tank and dipping. The tank does not have a vacuum gauge.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**48270**	Enniskillen Pool Siemens MCC replacement	**2028**	$	124,955	The manufacturer has informed us that the equipment is obsolete in favour of a new style. Parts availability is affected.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734349**	STO - UPS Battery replacements 2028	**2028**	$	124,501	*Issue/Concern* Un-interruptible Power Supplies (UPS) are a critical component in plant and meter station facilities. This unit must be operational in the event of a power failure to allow smooth transition to generator power. Consequence of a power failure, without a UPS, is uncontrolled shutdown of compression equipment; possible damage to compressor equipment and yard piping; and control system performance issues once power is restored. Failure of the UPS would make a compressor or meter station incapable of being controlled remotely and could shutdown an entire station until repairs are made. PLC's and RTU's are primary means of controlling Storage equipment and these devices need a UPS to maintain system SCADA and control during a power failure. *Justification* As per manufacturer and industry standards our UPS system batteries should be replaced on a ten (10) year basis. Locations Vary - as failure cannot be forecasted *Asset* Compressor stations and meter station. *Related Program* Not applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734350**	STO - UPS Battery replacements 2029	**2029**	$	120,919	*Issue/Concern* Un-interruptible Power Supplies (UPS) are a critical component in plant and meter station facilities. This unit must be operational in the event of a power failure to allow smooth transition to generator power. Consequence of a power failure, without a UPS, is uncontrolled shutdown of compression equipment; possible damage to compressor equipment and yard piping; and control system performance issues once power is restored. Failure of the UPS would make a compressor or meter station incapable of being controlled remotely and could shutdown an entire station until repairs are made. PLC's and RTU's are primary means of controlling Storage equipment and these devices need a UPS to maintain system SCADA and control during a power failure. *Justification* As per manufacturer and industry standards our UPS system batteries should be replaced on a ten (10) year basis. Locations Vary - as failure cannot be forecasted *Asset* Compressor stations and meter station. *Related Program* Not applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734352**	STO - UPS Battery replacements 2031	**2031**	$	120,903	*Issue/Concern* Un-interruptible Power Supplies (UPS) are a critical component in plant and meter station facilities. This unit must be operational in the event of a power failure to allow smooth transition to generator power. Consequence of a power failure, without a UPS, is uncontrolled shutdown of compression equipment; possible damage to compressor equipment and yard piping; and control system performance issues once power is restored. Failure of the UPS would make a compressor or meter station incapable of being controlled remotely and could shutdown an entire station until repairs are made. PLC's and RTU's are primary means of controlling Storage equipment and these devices need a UPS to maintain system SCADA and control during a power failure. *Justification* As per manufacturer and industry standards our UPS system batteries should be replaced on a ten (10) year basis. Locations Vary - as failure cannot be forecasted *Asset* Compressor stations and meter station. *Related Program* Not applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734351**	STO - UPS Battery replacements 2030	**2030**	$	120,751	*Issue/Concern* Un-interruptible Power Supplies (UPS) are a critical component in plant and meter station facilities. This unit must be operational in the event of a power failure to allow smooth transition to generator power. Consequence of a power failure, without a UPS, is uncontrolled shutdown of compression equipment; possible damage to compressor equipment and yard piping; and control system performance issues once power is restored. Failure of the UPS would make a compressor or meter station incapable of being controlled remotely and could shutdown an entire station until repairs are made. PLC's and RTU's are primary means of controlling Storage equipment and these devices need a UPS to maintain system SCADA and control during a power failure. *Justification* As per manufacturer and industry standards our UPS system batteries should be replaced on a ten (10) year basis. Locations Vary - as failure cannot be forecasted *Asset* Compressor stations and meter station. *Related Program* Not applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742222**	Dawn J ControlNet to Ethernet	**2031**	$	116,828	Critical communication between remote IO and other devices currently is currently done over ControlNet. Some of the Controlnet hardware is near the end of the product lifecycle for Rockwell and production will be discontinued in the near future. Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**100167**	Dawn G - Fire & Gas Detection Panel	**2025**	$	114,410	The Fire and Gas system at Dawn G is controlled with a Fanuc PLC. A single component failure would result in the plant being unavailable for use. In addition, there are catalytic gas detectors and UV flame detectors . The Fanuc PLC has been obsolete for over 10 years and spares can no longer be purchased. The catalytic gas detectors are manufactured in the US but can no longer be imported into Canada, so they cannot be replaced, should one fail.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**17117**	SCOR:Obsolete Mech-Replace 2025	**2025**	$	112,684	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - 1964 to 1995 - the OEM supplied auxiliary system components were manufactired by others. Many of these auxiliary system components are no longer available. An example would auxiliary oil pumps used to circulate oil wen the unit is not running. These pumps are showing steadily declining performance. Once the pumps can no longer produce the required outlet pressure, the entire pump assembly must be reverse engineerd and replaced which also normally requires piping modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devicces. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743129**	Parkway-AMP-Fire Water Pump - Overhaul-Parkway West	**2025**	$	111,438	Issue/Concern: Coming from the OPs team for the 10 year-asset management plan project. Parkway-AMP-Fire Water Pump - Overhaul- Parkway West	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743186**	Lobo-A1-AMP-asset life- Filters-Inlet filter	**2025**	$	111,438	Issue/Concern:Lobo-A1-AMP-asset life- Filters-Inlet filter-Fab Co metals-life cycle replacement :40-year of install :1970-expected date of replacement:2010	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743222**	Lobo-A2-AMP-asset life- Filters	**2025**	$	111,438	Issue/Concern: Lobo-A2-AMP-asset life- Filters--life cycle replacement :40-year of install :1972-expected date of replacement:2012	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**48278**	Dawn Aux 4 Siemens MCC replacement	**2026**	$	108,391	The manufacturer has informed us that the equipment is obsolete in favour of a new style. Parts availability is affected. An MCC failure could result in a compressor plant outage for a couple of weeks to complete a temporary repair. Depending on the time of year and system demands, this has the potential for significant losses. These MCCs feed essential motors and equipment which are required to maintain operation.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**17118**	SCOR:Obsolete Mech-Replace 2026	**2026**	$	106,092	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - 1964 to 1995 - the OEM supplied auxiliary system components were manufactired by others. Many of these auxiliary system components are no longer available. An example would auxiliary oil pumps used to circulate oil wen the unit is not running. These pumps are showing steadily declining performance. Once the pumps can no longer produce the required outlet pressure, the entire pump assembly must be reverse engineerd and replaced which also normally requires piping modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devicces. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743306**	Bickford Fuel Gas Upgrades	**2025**	$	105,247	Issue/Concern/Opportunity: The Bickford compressor fuel gas run has a bypass around the meter and first stage regulation. It also has a single first stage regulator. If the first stage regulator fails there is no redundancy and the 2nd stage cut freezes off. If the meter fails, using the bypass also bypasses the first stage regulator and the second stage regulators freeze off. In either case the compressor is unavailable. The proposal is to move the bypass to only go around the meter and add a redundant first stage regulator. Justification: This change will increase reliability of the plant . With delta pressurizing of the pool it will be required to run longer during the summer which makes reliability more important. Assets: Bickford Compressor Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101962**	OSE #1 Bottom End O/H	**2028**	$	104,270	*Issue/Concern* Compressors are rotating equipment that is designed with inexpensive components intended to wear preferentially. This preferential wear then preserves the condition of large and expensive components. Overhauls are performed at regular intervals - in accordance with the OEM recommended preventative maintenance schedules - to replace wear items. Typically, an inspection is performed prior to performing an overhaul. Without regular replacement of wear items, reliability will diminish drastically. If wear items are not replaced to be within OEM tolerances, then subsequent damage to main compressor components will result - which is a much costlier outcome. *Asset* OSE#1 compressor unit. Engine Bottom End components subject to replacement include (but are not limited to): pistons, rings, power cylinder liners, conrod bearings. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742411**	Sandwich Vibration Monitor Upgrade	**2029**	$	103,005	Issue/Concern/Opportunity: Replace obsolete Bently Nevada BN1701 vibration monitor with Rockwell Dynamix XM-1444 system. Upgrade 7200 series probes to 3300. Justification: Spare part availability is questionable as product is discontinued by manufacturer. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101882**	Obsolete Instrumentation-Replace 2025	**2025**	$	102,151	*Issue/Concern* Instrumentation assets with finite life expectancy include: (i) PLC's; (ii) Transmitters & switches; (iii) Actuators; (iv) Human Machine Interfaces (HMI's) & Video Displays. Many of these assets have a short life expectancy and experience planned obsolescence. Like-for-like replacements may not be available and replacement of failed components may require some re-engineering to provide the required functionality. Large instrumentation assets are replaced, through specific named projects, however small instrumentation asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete instrumentation assets, is the most practical way to address end of life issues and ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a member of the control & communication asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101873**	Obsolete Electrical-Replace 2025	**2025**	$	102,151	*Issue/Concern* Electrical assets with finite life expectancy include: (i) electrical distribution (panels, wiring); (ii) Motor Control Centres (MCC's); (iii) Auxiliary Power Units (APU's) & Transfer Switches; (iv) Variable Frequency Drives (VFD's); (v) Phase inverters and Transformers. Many of these assets at the edge of their useful life and like-for-like replacements may not available. Replacement of failed components may require some re-engineering to provide the required functionality. Large electerical assets are replaced, through specific named projects, however small electrical asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete electrical assets, is the most practical way to address end of life issues and to ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a memebr ot the electrical asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**17119**	SCOR:Obsolete Mech-Replace 2027	**2027**	$	102,133	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - 1964 to 1995 - the OEM supplied auxiliary system components were manufactired by others. Many of these auxiliary system components are no longer available. An example would auxiliary oil pumps used to circulate oil wen the unit is not running. These pumps are showing steadily declining performance. Once the pumps can no longer produce the required outlet pressure, the entire pump assembly must be reverse engineerd and replaced which also normally requires piping modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devicces. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742154**	Lobo Plant A Transfer Switch	**2030**	$	100,731	Issue/Concern/Opportunity; Lobo Plant A Transfer switch is 30+ years old and has reached end of life. Replacement parts will be difficult to find in the event of a failure. To prevent a failure of this switch from causing an extended outage on Plant A1/A2, the switch should be replaced. Justification: The product is no longer current and replacement parts will be difficult to find. A failure could result in an exteneded outage on Plant A1/A2. Assets: Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**17120**	SCOR:Obsolete Mech-Replace 2028	**2028**	$	100,280	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - 1964 to 1995 - the OEM supplied auxiliary system components were manufactired by others. Many of these auxiliary system components are no longer available. An example would auxiliary oil pumps used to circulate oil wen the unit is not running. These pumps are showing steadily declining performance. Once the pumps can no longer produce the required outlet pressure, the entire pump assembly must be reverse engineerd and replaced which also normally requires piping modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devicces. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**734237**	Parkway Ultrasonic Meter Upgrades 2024	**2026**	$	100,111	Issue/Concern/Opportunity: T-11 and T-12 type transducers are obsolete and no longer supported by manufacturer for Daniels Ultrasonic meters. New models of transducers are T-21, T-22 and T200. T200 models are inside of a pressure well, therefore the transducer section is not inserted into pipe. This means that when work is needed, the pipe does not need to be depressurized, and gas does not need to be evacuated into atmosphere. This would be the preferred model of transducer to go with. Any meter that was manufactured before 2003 cannot be upgraded to the T200 series transducers. In the case of older meters, we would upgrade to the T-21/T-22 series, which offer better reliability and would reduce the amount of repairs/replacement work on the transducers. In addition to the transducers being obsolete, the MKIII electronics are also obsolete. Getting replacement CPUs is not an option. We also need to upgrade CPUs for all of our ultrasonic meters from MKIII to the 3410 model. Justification: Need to upgrade transducers before they fail as we have no spares to replace. Currently have 26 ultrasonic meters with obsolete transducers. Assets: Parkway East TCPL, Parkway West Enbridge Cons 2, Parkway West Enbridge GTA, Parkway West TCPL Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**48223**	Siemens Valve Controllers Replacement - Parkway D	**2025**	$	97,460	Issue/Concern/Opportunity: Siemens has issued a service bulletin stating that as of July 2020 they will no longer support valve controllers required for permissive in the start sequence of their compressors. There are three controllers, servicing 3 valves on each engine skid. Each valve/controller combination is unique in operation with no redundancy. If one controller fails, it must be replaced and the unit will be unavailable until the replacement and set-up is complete Justification: Neither Siemens not the original equipment manufacturer will support spare parts or repairs of the old valve controllers. and each unit requires three to operate. We have had three failed controllers in the last operating year. Assets: Lobo C&D, Bright C, Parkway C&D, Dawn H, Dawn I (non-core) Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742195**	Dawn Aux 4 Fire and Gas Monitor Replacements	**2026**	$	97,440	The Gas and UV monitors currently in use in Dawn Aux 4 are at end of support from the manufacturer and replacements are difficult to obtain. Upgrade to current UV and Gas monitor standard equipment. Upgrade CO Detection in the boiler room and generator room to current models with remote alarming.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742916**	Enniskillen Lubrication System Upgrade	**2025**	$	96,579	Issue/Concern/Opportunity: Existing lubrication system is old and outdated. Upgrade system to ensure unit operates properly. Justification: Upgrading lubrication system will improve the integrity and reliability of the unit. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742917**	EDYS Lubrication System Upgrade	**2025**	$	96,579	Issue/Concern/Opportunity: Existing lubrication system is old and outdated. Upgrade system to ensure unit operates properly. Justification: Upgrading lubrication system will improve the integrity and reliability of the unit. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**101863**	SCOR:Obsolete Mech-Replace 2029	**2029**	$	96,122	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - 1964 to 1995 - the OEM supplied auxiliary system components were manufactired by others. Many of these auxiliary system components are no longer available. An example would auxiliary oil pumps used to circulate oil wen the unit is not running. These pumps are showing steadily declining performance. Once the pumps can no longer produce the required outlet pressure, the entire pump assembly must be reverse engineerd and replaced which also normally requires piping modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devicces. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734332**	SCOR:Obsolete Mech-Replace 2031	**2031**	$	96,119	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - 1964 to 1995 - the OEM supplied auxiliary system components were manufactired by others. Many of these auxiliary system components are no longer available. An example would auxiliary oil pumps used to circulate oil wen the unit is not running. These pumps are showing steadily declining performance. Once the pumps can no longer produce the required outlet pressure, the entire pump assembly must be reverse engineerd and replaced which also normally requires piping modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devicces. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**101864**	SCOR:Obsolete Mech-Replace 2030	**2030**	$	96,118	*Issue/Concern* OEM supplied compressor parts are still generally available. During installation of compressors - 1964 to 1995 - the OEM supplied auxiliary system components were manufactired by others. Many of these auxiliary system components are no longer available. An example would auxiliary oil pumps used to circulate oil wen the unit is not running. These pumps are showing steadily declining performance. Once the pumps can no longer produce the required outlet pressure, the entire pump assembly must be reverse engineerd and replaced which also normally requires piping modifications. If not proactively replaced, these obsolete components can limit the functionality and reliability of EGS systems including those pertaining to safety and operation. *Assets* Compressor auxiliary systems - glycol and oil pumps, fuel system components, intake air/turbo filters/coolers, exhaust components, temperature control valves, capacity control devicces. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**501398**	SCOR:641xx OPP-Upgrade	**2025**	$	93,706	*Issue/Concern* Outlet piping from 641xx-PSV-022 and 641yy-PSV-034 (where "xx" is 01/02/03 and "yy" is 04/05/06/07/08/09/10/11) is simply routed through the building wall and vented to atmosphere, without containment of a potential liquids release. Scenarios capable of producing a "liquids release" to atmosphere were evaluated. The only credible "liquids release" scenario occurs if the pressure control system, regulating glycol supply pressure into the associated compressor building (from the boilers), fails and increased glycol supply pressure to 64101-PCV-001 causes the set pressure of 64101-PSV-022 set pressure to be exceeded. Regulators that could fail in the "liquids release" scenario include: 553-PCV-117 (bldg1); 553-PCV-122 & 553-PCV-123 (bldg2); and 553-PCV-138 (bldg3). Assuming that "liquids release" scenarios are mitigated, the cushion tank reliefs are only needed in the event of a cooling system failure and steam is being generated by the engine. The flow capacity of the 64101-PSV-022 for steam flow is adequate to manage a cooling system failure. Technically, a containment tank is not required on the PSV outlet. *Asset* 641xx-PSV-022 and 641yy-PSV-034 (where "xx" is 01/02/03 and "yy" is 04/05/06/07/08/09/10/11) *Related Program* SCOR HAZOP Recommendations	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101576**	Siemens Valve Controllers Replacement - Lobo D	**2025**	$	91,269	Issue/Concern/Opportunity: Siemens has issued a service bulletin stating that as of July 2020 they will no longer support valve controllers required for permissive in the start sequence of their compressors. There are three controllers, servicing 3 valves on each engine skid. Each valve/controller combination is unique in operation with no redundancy. If one controller fails, it must be replaced and the unit will be unavailable until the replacement and set-up is complete Justification: Neither Siemens not the original equipment manufacturer will support spare parts or repairs of the old valve controllers. and each unit requires three to operate. We have had three failed controllers in the last operating year. Assets: Lobo C&D, Bright C, Parkway C&D, Dawn H Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743228**	Bright-AMP-Replace B 2 way filter housing	**2030**	$	90,563	Issue/Concern: Bright-B-AMP-asset life- Filters--life cycle replacement :40-year of install :1990-expected date of replacement:2030	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743042**	Tipperary GAC Box Replacement	**2032**	$	89,561	Issue/Concern/Opportunity: GAC box is corroded. GAC box to be replaced. Justification: Replacement will ensure structural integrity is maintained. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742840**	Dawn F Plant Air Dryer Replacement	**2025**	$	89,150	Issue/Concern/Opportunity: The current air compressor is old and obsolete. There have been components that have required repair/replacement but replacement parts are no longer available. The longer the old dryer runs, the more components that will fail, which in turn will make the dryer inoperable. The scope is to remove the existing compressor and dryer, transfer one of the air compressors from J Plant to F Plant, and put in a new air dryer at F plant. The current dryer is oversized and isn't suitable for the cycling that it does. The air compressor needs to match the capabilities of the dryer. Note that two air units are not required at J Plant, so one of the compressors will move to F Plant and the old corresponding dryer will be removed. Justification: Replacing one of the air dryers at J Plant will improve the integrity and reliability of the air system. This air system runs throughout all of Dawn. Assets: Related Investments: C55 #742838	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742451**	Parkway East Plant B PLC Processor & Firmware Upgrades	**2026**	$	87,980	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743041**	DOW A Timing Chain and Camshaft Overhaul	**2028**	$	87,151	Issue/Concern/Opportunity: Timing chain and camshaft from original engine and are at end of life. Those components will be refurbished/overhauled as necessary. Justification: Timing chain and camshaft refurbishment/overhaul will improve reliability of the engine. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**49904**	Payne Compressor Stn Transformer	**2029**	$	83,345	Issue/Concern/Opportunity: Hydro outages at the station frequently result in the one of the phases dropping. When power returns, all of the electrical devices will be re-energized except for the 600V items which include the compressor engine oil pump. Attempting to start the compressor in this scenario results in an start abort due to low lube oil pressure. Technician assistance is generally requested to troubleshoot the start abort which leads back to resetting of the breaker. Justification: Upgrading the service to 600V and replacing the transformer will alleviate this nuisance trip issue. Assets: Payne Compressor station electrical infrastructure Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742632**	Dawn Trafalgar Valve Nest PLC5 Upgrade	**2028**	$	82,831	Issue/Concern/Opportunity: Upgrade PLC5 to Controllogix, change communications to Fiber Optic Justification: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742301**	Sandwich OBV-002 Valve Replacement	**2025**	$	82,257	Issue/Concern/Opportunity: Sandwich valve OBV-002 is an old valve originally from 1980's. The Rockwell ball valve is in poor condition and these valves are prone to stem packing leaks (old Rockwell valve OBV-001 had stem packing leak in 2022). Valve is to be replaced with new Cameron ball valve, similar to that of OBV-001. Justification: Sandwich valve OBV-002 to be replaced with new Cameron ball valve. This will improve the integrity and reliability of the system. Reliability of system is crucial for Sandwich Compressor Station as it is in use for majority of the year. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742987**	Dawn I Gas Turbine Fan Replacements	**2026**	$	80,238	Issue/Concern/Opportunity: There are three fans that are part of the enclosure for the RB211 engine. These fans are starting to fail and have reached the end of its life cycle. The scope would be to have the manufacturer inspect these fans and overhaul/replace. Justification: These fans are required to ensure the gas turbine is cooled sufficiently. Replacement/overhaul would improve the reliability and integrity of the RB211 engines. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742989**	Dawn H Gas Turbine Fan Replacements	**2026**	$	80,238	Issue/Concern/Opportunity: There are three fans that are part of the enclosure for the RB211 engine. These fans are starting to fail and have reached the end of its life cycle. The scope would be to have the manufacturer inspect these fans and overhaul/replace. Justification: These fans are required to ensure the gas turbine is cooled sufficiently. Replacement/overhaul would improve the reliability and integrity of the RB211 engines. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742225**	Dawn North South Header Building PLC5 Replacement	**2027**	$	77,700	Currently, the Dawn North-South Header Building is being controlled by an Allen Bradley PLC 5. This series of PLCs has been obsolete for several years and replacement parts cannot be purchased any more. This PLC controls the entire plant and the plant cannot be operated with out it. Should a failure happen, the plant will remain unavailable until a usable spare part can be recovered from another plant and installed and configured, rendering the other plant unavailable for use	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742412**	Sandwich Compressor Skid HMI Replacement	**2028**	$	77,664	Issue/Concern/Opportunity: Replace obsolete compressor skid HMI. Still using Windows 7 display unit. Justification: Spare part availability is questionable as product is discontinued by manufacturer. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12999**	SCOR:530 FIT186-Upgrade	**2025**	$	77,100	*Issue/Concern* Transmitter head on coreolis meter FIT186 is becoming obsolete. This coreolis meter measures gas that is being recovered through the compressor cylinder gas recovery system. Ensuring an accurate measurement of recovered gas is needed to conduct current GHG reporting and also support upcoming methane reduction regulations. *Asset* FIT-186 *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12968**	SCOR:641xx Utility Valves-Replace	**2025**	$	77,100	*Issue/Concern* SMA's advise that glycol gas control valves are in poor condition and are obsolete. Parts are no longer available. An utility valve failure could shut down a single compressor unit - for an moderate time period. Replacement of obsolete valves and actuators usually means that piping changes are required to accommodate different component geometry. Over time, if multiple valves are allowed to fail, the Corunna Station would be unable to deliver any flow and replacement parts would be unavailable. *Asset* Glycol control valves. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12969**	SCOR:641xx Utility Valves-Replace	**2025**	$	77,100	*Issue/Concern* SMA's advise that glycol control valves are in poor condition and are obsolete. Parts are no longer available. An utility valve failure could shut down a single compressor unit - for an moderate time period. Replacement of obsolete valves and actuators usually means that piping changes are required to accommodate different component geometry. Over time, if multiple valves are allowed to fail, the Corunna Station would be unable to deliver any flow and replacement parts would be unavailable. *Asset* Glycol control valves. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**13002**	SCOR:520 MCC2 Starter-Upgrade	**2025**	$	77,100	*Issue/Concern* 600 VAC, 3 phase motor starters are normally located in a general purpose electrical area classification and control electric motors located in hazardous areas. MCC electric motor starters are becoming obsolete at the SCOR:520 MCC building. Replacement parts are becoming more expensive and lead times are increasing. These electrical parts are experiencing the effects of planned obsolescence, because latest generation motor starters are now the industry norm. Newer motor starters are now "smarter" and safer during maintenance. *Asset* Building 2 MCC - motor starters. *Related Program* Not applicable.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743034**	DOW A AFR Upgrade	**2030**	$	74,866	Issue/Concern/Opportunity: The air/fuel mixture controls are original from initial compressor station build. Controls are outdated and cannot adjust to precise ratio. The AFR controls are to be upgrades to more current standards. Justification: AFR upgrades will allow for better fine tuning of mixture controls as well as reduce emissions. Overall integrity and reliability of the engine will be improved. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742981**	Dawn I Ampliflow Upgrades	**2025**	$	74,292	Issue/Concern/Opportunity: The Ampliflow systems ensures that clean, dry gas is supplied to the dry gas seals and ensures that adequate pressure is available during pressured hold and start up/shutdown. Ampliflows are standard on all new units. We have seen mulitple failures of the pumps on our units and they need to be redesigned so that they last. When failures occur, there are periods where we do not have adequate seal gas flow. Justification: The Ampliflow systems ensures that clean, dry gas is supplied to the dry gas seals and ensures that adequate pressure is available during pressured hold and start up/shutdown Assets: Dawn I Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742982**	Dawn H Ampliflow Panel Upgrade	**2025**	$	74,292	Issue/Concern/Opportunity: The Ampliflow systems ensures that clean, dry gas is supplied to the dry gas seals and ensures that adequate pressure is available during pressured hold and start up/shutdown. Ampliflows are standard on all new units. We have seen mulitple failures of the pumps on our units and they need to be redesigned so that they last. When failures occur, there are periods where we do not have adequate seal gas flow. Justification: The Ampliflow systems ensures that clean, dry gas is supplied to the dry gas seals and ensures that adequate pressure is available during pressured hold and start up/shutdown Assets: Dawn H Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**736015**	STO Moisture Analyzer Upgrade 2025	**2025**	$	74,292	Issue/Concern/Opportunity: Moisture analyzers are required to be sent back to vendor for repairs and updates . Cleanup and firmware upgrades take place periodically when moisture analysis becomes no longer reliable. A single rebuild can cost nearly $20K. 2 to 3 moisture analyzers are sent out annually. Assets are becoming obsolete as replacements for our current model of analyzers are available. Justification: Measuring moisture content accurately is crucial as is required by interconnect agreements and moisture content tariffs with customers. Assets: Tunable Diode Laser Moisture Analysers. Spectra Sensor SS2000 and SS3000 Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742432**	Bright A1 PLC Processor & Firmware Upgrades	**2025**	$	74,292	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742433**	Bright A2 PLC Processor & Firmware Upgrades	**2025**	$	74,292	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**48284**	Bickford Pool Siemens MCC replacement	**2026**	$	73,551	The manufacturer has informed us that the equipment is obsolete in favour of a new style. Parts availability is affected. An MCC failure could result in a compressor plant outage for a couple of weeks to complete a temporary repair. Depending on the time of year and system demands, this has the potential for significant losses. These MCCs feed essential motors and equipment which are required to maintain operation.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742995**	Dawn TCPL Export Spool Fabrication	**2025**	$	73,363	Issue/Concern/Opportunity: A spool would be required for TCPL measurement system. This is to ensure that gas can still flow without having to be out of commission for meter calibration. Justification: Without new spool, the TCPL export system would be out of commission for meter calibration. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**13000**	SCOR:530 FIT126-Upgrade	**2026**	$	72,589	*Issue/Concern* Transmitter head on coreolis meter FIT126 is becoming obsolete. This coreolis meter measures main fuel gas supply to compression. Accurate measurement of recovered gas is needed to conduct current GHG reporting and also support upcoming methane reduction regulations. *Asset* FIT-126 *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**736016**	STO Moisture Analyzer Upgrade 2026	**2026**	$	70,384	Issue/Concern/Opportunity: Moisture analyzers are required to be sent back to vendor for repairs and updates . Cleanup and firmware upgrades take place periodically when moisture analysis becomes no longer reliable. A single rebuild can cost nearly $20K. 2 to 3 moisture analyzers are sent out annually. Assets are becoming obsolete as replacements for our current model of analyzers are available. Justification: Measuring moisture content accurately is crucial as is required by interconnect agreements and moisture content tariffs with customers. Assets: Tunable Diode Laser Moisture Analysers. Spectra Sensor SS2000 and SS3000 Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742381**	Dawn F1 Compressor Skid HMI Replacement	**2026**	$	70,115	Issue/Concern/Opportunity: Replace obsolete compressor skid HMI. Still using Windows XP display unit. Justification: Spare part availability is questionable as product is discontinued by manufacturer. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742382**	Dawn F2 Compressor Skid HMI Replacement	**2026**	$	70,115	Issue/Concern/Opportunity: Replace obsolete compressor skid HMI. Still using Windows XP display unit. Justification: Spare part availability is questionable as product is discontinued by manufacturer. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**8626**	SCHT:Controls-Upgrade	**2027**	$	69,880	*Issue/Concern* Flow control devices are experiencing decreasing reliability and are approaching end of life. Parts are becoming less available and more expensive - due to planned obsolescence. Flow control devices are critical for a Storage operation during free flow. *Asset* SCHT Metering system *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742838**	Dawn J Plant Air Dryer Replacement	**2025**	$	69,834	Issue/Concern/Opportunity: The current air compressor is old and obsolete. There have been components that have required repair/replacement but replacement parts are no longer available. The longer the old dryer runs, the more components that will fail, which in turn will make the dryer inoperable. The scope is to replace one of the dryers to a more modern one that meets current standards. Note that there are currently two dryers at J Plant but only one will be replaced. Current air compressor will remain. Justification: Replacing one of the air dryers at J Plant will improve the integrity and reliability of the air system. This air system runs throughout all of Dawn. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742346**	Dow A Fire & Gas Replacement	**2030**	$	69,569	Issue/Concern/Opportunity: The Gas and UV monitors currently in use are at end of support from the manufacturer and replacements are difficult to obtain. Upgrade to current UV and Gas monitor standard equipment. Justification: Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742379**	Dawn F1 Vibration Monitor Upgrade	**2027**	$	69,039	Issue/Concern/Opportunity: Replace obsolete Bently Nevada BN1701 vibration monitor with Rockwell Dynamix XM-1444 system. Justification: Spare part availability is questionable as product is discontinued by manufacturer. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742380**	Dawn F2 Vibration Monitor Upgrade	**2027**	$	69,039	Issue/Concern/Opportunity: Replace obsolete Bently Nevada BN1701 vibration monitor with Rockwell Dynamix XM-1444 system. Justification: Spare part availability is questionable as product is discontinued by manufacturer. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**8846**	SCOR:HMI PCs-Replace	**2028**	$	68,613	*Issue/Concern* HMI's at the new SCOR control room were installed in 2016. Life expectancy for these HMI's is 3 to 5 years. *Asset* Controls and communications *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742634**	Tipperary PLC Processor & Firmware Upgrades	**2025**	$	68,101	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742387**	Iroquois Falls UPS System Upgrade	**2029**	$	66,990	Issue/Concern/Opportunity: Upgrade 120V UPS system from stand alone SOLA. Justification: Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743028**	167 Compressor Discharge Valve Replacement	**2030**	$	66,413	Issue/Concern/Opportunity: The discharge valve has reached end of life. More efficient pressure cut is required. Justification: Valve replacement will improve reliability of the system. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**736017**	STO Moisture Analyzer Upgrade 2027	**2027**	$	66,348	Issue/Concern/Opportunity: Moisture analyzers are required to be sent back to vendor for repairs and updates . Cleanup and firmware upgrades take place periodically when moisture analysis becomes no longer reliable. A single rebuild can cost nearly $20K. 2 to 3 moisture analyzers are sent out annually. Assets are becoming obsolete as replacements for our current model of analyzers are available. Justification: Measuring moisture content accurately is crucial as is required by interconnect agreements and moisture content tariffs with customers. Assets: Tunable Diode Laser Moisture Analysers. Spectra Sensor SS2000 and SS3000 Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**8845**	SCOR:HMI PCs-Replace	**2029**	$	65,767	*Issue/Concern* HMI's at the new SCOR control room were installed in 2016. Life expectancy for these HMI's is 3 to 5 years. Replacements are expected in 2022, 2025 and 2028. *Asset* Controls and communications *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734331**	SCOR:HMI PCs-Replace	**2031**	$	65,766	*Issue/Concern* HMI's at the new SCOR control room were installed in 2016. Life expectancy for these HMI's is 3 to 5 years. *Asset* Controls and communications *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12871**	SM:Obsolete Elec-Replace 2025	**2025**	$	65,238	*Issue/Concern* Electrical assets with finite life expectancy include: (i) electrical distribution (panels, wiring); (ii) lighting; (iii) Motor Control Centres (MCC's); (iv) Auxiliary Power Units (APU's) & Transfer Switches; (v) Variable Frequency Drives (VFD's); (vi) Phase inverters and Transformers. Many of these assets at the edge of their useful life and like-for-like replacements may not available. Replacement of failed components may require some re-engineering to provide the required functionality. Large electrical assets are replaced, through specific named projects, however small electrical asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete electrical assets, is the most practical way to address end of life issues and to ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a member of the electrical asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12880**	SM:Obsolete Instr-Replace 2025	**2025**	$	65,238	*Issue/Concern* Instrumentation assets with finite life expectancy include: (i) PLC's; (ii) SCADA devices; (iii) Transmitters & switches; (iv) Actuators; (v) Industrial Data Centres (IDC's); (vi) Human Machine Interfaces (HMI's) & Video Displays. Many of these assets have a short life expectancy and experience planned obsolescence. Like-for-like replacements may not be available and replacement of failed components may require some re-engineering to provide the required functionality. Large instrumentation assets are replaced, through specific named projects, however small instrumentation asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete instrumentation assets, is the most practical way to address end of life issues and ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a memebr ot the control & communication asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742197**	Dawn CCR PLC5 Replacement	**2029**	$	64,736	Issue/Concern/Opportunity:Existing PLC 5 is obsolete and no longer supported by the manufacturer Justification: These units have been obsolete for some time and spare parts can no longer be purchased Assets: Dawn CCR Building Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742213**	Dawn F ControlNet to Ethernet	**2030**	$	64,457	Critical communication between remote IO and other devices currently is currently done over ControlNet. Some of the Controlnet hardware is near the end of the product lifecycle for Rockwell and production will be discontinued in the near future. Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**100946**	Dow A: Fire & Gas Detection Panel - Replace	**2025**	$	64,077	The fire/gas PLC currently installed is now obsolete, parts are limited. A failure of the Fire/Gas detection panel or its associated detection system will shut down the compressor and not allow it to operate. An Fire/Gas detection panel failure could result in a compressor plant outage for a couple of weeks to complete a temporary repair. Depending on the time of year and system demands, this has the potential for significant losses.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742807**	Lobo Oil Mist Detectors Installation	**2028**	$	63,335	Issue/Concern/Opportunity: Technology has recently been developed to detect oil mist inside compressor plants. There have been instances in the past where tubing lines have broken resulting in oil mist spraying on hot surfaces, increasing the risk of fire. This investment is to install detectors in all plants. Justification: Oil mist from broken or leaking tubing fittings can result in increased risk of fire, personnel exposure and low oil levels in operating plants. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742215**	Dawn G ControlNet to Ethernet	**2029**	$	63,301	Critical communication between remote IO and other devices currently is currently done over ControlNet. Some of the Controlnet hardware is near the end of the product lifecycle for Rockwell and production will be discontinued in the near future. Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743223**	Lobo-B-AMP-asset life- Motor - Heavy Duty	**2033**	$	62,579	Issue/Concern: Lobo-B-AMP-asset life- Motor - Heavy Duty-Yard-blowdown recovery motor, 150 hp-life cycle replacement :15-year of install :2018-expected date of replacement:2033	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743175**	Parkway-C-AMP-Asset life cycle- Glycol Motor - Heavy Duty	**2030**	$	62,388	Issue/Concern: Parkway-C-AMP-Asset life cycle- Motor - Heavy Duty--life cycle replacement :15-year of install :2015-expected date of replacement:2030	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**736018**	STO Moisture Analyzer Upgrade 2028	**2028**	$	62,251	Issue/Concern/Opportunity: Moisture analyzers are required to be sent back to vendor for repairs and updates . Cleanup and firmware upgrades take place periodically when moisture analysis becomes no longer reliable. A single rebuild can cost nearly $20K. 2 to 3 moisture analyzers are sent out annually. Assets are becoming obsolete as replacements for our current model of analyzers are available. Justification: Measuring moisture content accurately is crucial as is required by interconnect agreements and moisture content tariffs with customers. Assets: Tunable Diode Laser Moisture Analysers. Spectra Sensor SS2000 and SS3000 Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742413**	Bickford Vibration Monitor Upgrade	**2028**	$	62,121	Issue/Concern/Opportunity: Replace obsolete Bently Nevada BN1701 vibration monitor with Rockwell Dynamix XM-1444 system. Upgrade 7200 series probes to 3300. Justification: Spare part availability is questionable as product is discontinued by manufacturer. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101892**	Dawn Compressor Building Lighting 2024	**2025**	$	61,910	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742224**	Dawn Tecumseh 1 PLC5 Removal	**2027**	$	61,828	Issue/Concern/Opportunity: The PLC5 IO in the Dawn Tecumseh 1 control building is obsolete and should be replaced with Controllogix Hardware. Justification: PLC5 Hardware is no longer supported and spare parts are not available from the manufacturer. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**9066**	SM:SCADA-Annual Upgrade 2026	**2026**	$	61,421	*Issue/Concern* IT-related threats to Storage include: security breaches, data loss and SCADA system failures. Electronic control systems, which directly control of Gas Storage Assets, must be regularly upgraded with the most up-to-date standards and security for the SCADA system. In addition, this project will provide the tools needed to identify risks and avoid threats that otherwise could cause damage to SCADA infrastructure and disrupt business operations. SCADA upgrade requirements are informed by an annual preventative security assessment and periodic security audits. Results of these audits and preventative security assessments are difficult to forecast. *Asset* SCADA System *Related Programs* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12872**	SM:Obsolete Elec-Replace 2026	**2026**	$	61,421	*Issue/Concern* Electrical assets with finite life expectancy include: (i) electrical distribution (panels, wiring); (ii) lighting; (iii) Motor Control Centres (MCC's); (iv) Auxiliary Power Units (APU's) & Transfer Switches; (v) Variable Frequency Drives (VFD's); (vi) Phase inverters and Transformers. Many of these assets at the edge of their useful life and like-for-like replacements may not available. Replacement of failed components may require some re-engineering to provide the required functionality. Large electrical assets are replaced, through specific named projects, however small electrical asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete electrical assets, is the most practical way to address end of life issues and to ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a member of the electrical asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12881**	SM:Obsolete Instr-Replace 2026	**2026**	$	61,421	*Issue/Concern* Instrumentation assets with finite life expectancy include: (i) PLC's; (ii) SCADA devices; (iii) Transmitters & switches; (iv) Actuators; (v) Industrial Data Centres (IDC's); (vi) Human Machine Interfaces (HMI's) & Video Displays. Many of these assets have a short life expectancy and experience planned obsolescence. Like-for-like replacements may not be available and replacement of failed components may require some re-engineering to provide the required functionality. Large instrumentation assets are replaced, through specific named projects, however small instrumentation asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete instrumentation assets, is the most practical way to address end of life issues and ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a memebr ot the control & communication asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**736023**	STO Moisture Analyzer Upgrade 2032	**2032**	$	60,514	Issue/Concern/Opportunity: Moisture analyzers are required to be sent back to vendor for repairs and updates . Cleanup and firmware upgrades take place periodically when moisture analysis becomes no longer reliable. A single rebuild can cost nearly $20K. 2 to 3 moisture analyzers are sent out annually. Assets are becoming obsolete as replacements for our current model of analyzers are available. Justification: Measuring moisture content accurately is crucial as is required by interconnect agreements and moisture content tariffs with customers. Assets: Tunable Diode Laser Moisture Analysers. Spectra Sensor SS2000 and SS3000 Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**736019**	STO Moisture Analyzer Upgrade 2029	**2029**	$	60,459	Issue/Concern/Opportunity: Moisture analyzers are required to be sent back to vendor for repairs and updates . Cleanup and firmware upgrades take place periodically when moisture analysis becomes no longer reliable. A single rebuild can cost nearly $20K. 2 to 3 moisture analyzers are sent out annually. Assets are becoming obsolete as replacements for our current model of analyzers are available. Justification: Measuring moisture content accurately is crucial as is required by interconnect agreements and moisture content tariffs with customers. Assets: Tunable Diode Laser Moisture Analysers. Spectra Sensor SS2000 and SS3000 Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**736022**	STO Moisture Analyzer Upgrade 2031	**2031**	$	60,451	Issue/Concern/Opportunity: Moisture analyzers are required to be sent back to vendor for repairs and updates . Cleanup and firmware upgrades take place periodically when moisture analysis becomes no longer reliable. A single rebuild can cost nearly $20K. 2 to 3 moisture analyzers are sent out annually. Assets are becoming obsolete as replacements for our current model of analyzers are available. Justification: Measuring moisture content accurately is crucial as is required by interconnect agreements and moisture content tariffs with customers. Assets: Tunable Diode Laser Moisture Analysers. Spectra Sensor SS2000 and SS3000 Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742212**	Dawn E ControlNet to Ethernet	**2030**	$	60,445	Critical communication between remote IO and other devices currently is currently done over ControlNet. Some of the Controlnet hardware is near the end of the product lifecycle for Rockwell and production will be discontinued in the near future. Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**736021**	STO Moisture Analyzer Upgrade 2030	**2030**	$	60,375	Issue/Concern/Opportunity: Moisture analyzers are required to be sent back to vendor for repairs and updates . Cleanup and firmware upgrades take place periodically when moisture analysis becomes no longer reliable. A single rebuild can cost nearly $20K. 2 to 3 moisture analyzers are sent out annually. Assets are becoming obsolete as replacements for our current model of analyzers are available. Justification: Measuring moisture content accurately is crucial as is required by interconnect agreements and moisture content tariffs with customers. Assets: Tunable Diode Laser Moisture Analysers. Spectra Sensor SS2000 and SS3000 Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**9081**	SM:SCADA-Annual Upgrade 2027	**2027**	$	59,130	*Issue/Concern* IT-related threats to Storage include: security breaches, data loss and SCADA system failures. Electronic control systems, which directly control of Gas Storage Assets, must be regularly upgraded with the most up-to-date standards and security for the SCADA system. In addition, this project will provide the tools needed to identify risks and avoid threats that otherwise could cause damage to SCADA infrastructure and disrupt business operations. SCADA upgrade requirements are informed by an annual preventative security assessment and periodic security audits. Results of these audits and preventative security assessments are difficult to forecast. *Asset* SCADA System *Related Programs* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12873**	SM:Obsolete Elec-Replace 2027	**2027**	$	59,130	*Issue/Concern* Electrical assets with finite life expectancy include: (i) electrical distribution (panels, wiring); (ii) lighting; (iii) Motor Control Centres (MCC's); (iv) Auxiliary Power Units (APU's) & Transfer Switches; (v) Variable Frequency Drives (VFD's); (vi) Phase inverters and Transformers. Many of these assets at the edge of their useful life and like-for-like replacements may not available. Replacement of failed components may require some re-engineering to provide the required functionality. Large electrical assets are replaced, through specific named projects, however small electrical asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete electrical assets, is the most practical way to address end of life issues and to ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a member of the electrical asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12882**	SM:Obsolete Instr-Replace 2027	**2027**	$	59,130	*Issue/Concern* Instrumentation assets with finite life expectancy include: (i) PLC's; (ii) SCADA devices; (iii) Transmitters & switches; (iv) Actuators; (v) Industrial Data Centres (IDC's); (vi) Human Machine Interfaces (HMI's) & Video Displays. Many of these assets have a short life expectancy and experience planned obsolescence. Like-for-like replacements may not be available and replacement of failed components may require some re-engineering to provide the required functionality. Large instrumentation assets are replaced, through specific named projects, however small instrumentation asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete instrumentation assets, is the most practical way to address end of life issues and ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a memebr ot the control & communication asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**102356**	Edys Mills Compressor Crankcase Rebuild	**2026**	$	58,653	Issue/Concern/Opportunity: Compressors are rotating equipment that is designed with inexpensive components intended to wear preferentially. This preferential wear then preserves the condition of large and expensive components. Overhauls are performed at regular intervals - in accordance with the OEM recommended preventative maintenance schedules - to replace wear items. Typically, an inspection is performed prior to performing an overhaul. Without regular replacement of wear items, reliability will diminish drastically. If wear items are not replaced to be within OEM tolerances, then subsequent damage to main compressor components will result - which is a much costlier outcome. Justification: OEM recommended hour based compressor crankcase rebuild Assets: Edys Mills Compressor Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**9082**	SM:SCADA-Annual Upgrade 2028	**2028**	$	58,057	*Issue/Concern* IT-related threats to Storage include: security breaches, data loss and SCADA system failures. Electronic control systems, which directly control of Gas Storage Assets, must be regularly upgraded with the most up-to-date standards and security for the SCADA system. In addition, this project will provide the tools needed to identify risks and avoid threats that otherwise could cause damage to SCADA infrastructure and disrupt business operations. SCADA upgrade requirements are informed by an annual preventative security assessment and periodic security audits. Results of these audits and preventative security assessments are difficult to forecast. *Asset* SCADA System *Related Programs* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**17206**	SM:Obsolete Instr-Replace 2028	**2028**	$	58,057	*Issue/Concern* Instrumentation assets with finite life expectancy include: (i) PLC's; (ii) SCADA devices; (iii) Transmitters & switches; (iv) Actuators; (v) Industrial Data Centres (IDC's); (vi) Human Machine Interfaces (HMI's) & Video Displays. Many of these assets have a short life expectancy and experience planned obsolescence. Like-for-like replacements may not be available and replacement of failed components may require some re-engineering to provide the required functionality. Large instrumentation assets are replaced, through specific named projects, however small instrumentation asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete instrumentation assets, is the most practical way to address end of life issues and ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a memebr ot the control & communication asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**17208**	SM:Obsolete Elec-Replace 2028	**2028**	$	58,057	*Issue/Concern* Electrical assets with finite life expectancy include: (i) electrical distribution (panels, wiring); (ii) lighting; (iii) Motor Control Centres (MCC's); (iv) Auxiliary Power Units (APU's) & Transfer Switches; (v) Variable Frequency Drives (VFD's); (vi) Phase inverters and Transformers. Many of these assets at the edge of their useful life and like-for-like replacements may not available. Replacement of failed components may require some re-engineering to provide the required functionality. Large electrical assets are replaced, through specific named projects, however small electrical asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete electrical assets, is the most practical way to address end of life issues and to ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a member of the electrical asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**9026**	SM:FIMP Recommend'ns-Implement 2026	**2026**	$	55,838	*Issue/Concern* Facilities integrity is a new program that is being developed to mirror the pipeline integrity program at facilities such as compressor stations and gate stations. The facilities Integrity Management Program is intended to mitigate and manage threats acting on facilities, in order to reduce the probability of a loss of pressure containment acting at these facilities. This will reduce the risk of these facilities. The probability of a loss of pressure containment event is assessed by looking at the threat mechanisms that affect the piping and equipment at facilities. The threat mechanisms are still being established as part of facility integrity program development, but it is expected that they will be similar to the threat mechanisms that affect EGS pipelines. *Assets* Gas containing process and auxiliary pipe within a compressor or meter station. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734341**	SM:SCADA-Annual Upgrade 2032	**2032**	$	55,744	*Issue/Concern* IT-related threats to Storage include: security breaches, data loss and SCADA system failures. Electronic control systems, which directly control of Gas Storage Assets, must be regularly upgraded with the most up-to-date standards and security for the SCADA system. In addition, this project will provide the tools needed to identify risks and avoid threats that otherwise could cause damage to SCADA infrastructure and disrupt business operations. SCADA upgrade requirements are informed by an annual preventative security assessment and periodic security audits. Results of these audits and preventative security assessments are difficult to forecast. *Asset* SCADA System *Related Programs* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734338**	SM:SCADA-Annual Upgrade 2029	**2029**	$	55,649	*Issue/Concern* IT-related threats to Storage include: security breaches, data loss and SCADA system failures. Electronic control systems, which directly control of Gas Storage Assets, must be regularly upgraded with the most up-to-date standards and security for the SCADA system. In addition, this project will provide the tools needed to identify risks and avoid threats that otherwise could cause damage to SCADA infrastructure and disrupt business operations. SCADA upgrade requirements are informed by an annual preventative security assessment and periodic security audits. Results of these audits and preventative security assessments are difficult to forecast. *Asset* SCADA System *Related Programs* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**101867**	SM:Obsolete Instr-Replace 2029	**2029**	$	55,649	*Issue/Concern* Instrumentation assets with finite life expectancy include: (i) PLC's; (ii) SCADA devices; (iii) Transmitters & switches; (iv) Actuators; (v) Industrial Data Centres (IDC's); (vi) Human Machine Interfaces (HMI's) & Video Displays. Many of these assets have a short life expectancy and experience planned obsolescence. Like-for-like replacements may not be available and replacement of failed components may require some re-engineering to provide the required functionality. Large instrumentation assets are replaced, through specific named projects, however small instrumentation asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete instrumentation assets, is the most practical way to address end of life issues and ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a memebr ot the control & communication asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**101865**	SM:Obsolete Elec-Replace 2029	**2029**	$	55,649	*Issue/Concern* Electrical assets with finite life expectancy include: (i) electrical distribution (panels, wiring); (ii) lighting; (iii) Motor Control Centres (MCC's); (iv) Auxiliary Power Units (APU's) & Transfer Switches; (v) Variable Frequency Drives (VFD's); (vi) Phase inverters and Transformers. Many of these assets at the edge of their useful life and like-for-like replacements may not available. Replacement of failed components may require some re-engineering to provide the required functionality. Large electrical assets are replaced, through specific named projects, however small electrical asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete electrical assets, is the most practical way to address end of life issues and to ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a member of the electrical asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734340**	SM:SCADA-Annual Upgrade 2031	**2031**	$	55,648	*Issue/Concern* IT-related threats to Storage include: security breaches, data loss and SCADA system failures. Electronic control systems, which directly control of Gas Storage Assets, must be regularly upgraded with the most up-to-date standards and security for the SCADA system. In addition, this project will provide the tools needed to identify risks and avoid threats that otherwise could cause damage to SCADA infrastructure and disrupt business operations. SCADA upgrade requirements are informed by an annual preventative security assessment and periodic security audits. Results of these audits and preventative security assessments are difficult to forecast. *Asset* SCADA System *Related Programs* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734334**	SM:Obsolete Elec-Replace 2031	**2031**	$	55,648	*Issue/Concern* Electrical assets with finite life expectancy include: (i) electrical distribution (panels, wiring); (ii) lighting; (iii) Motor Control Centres (MCC's); (iv) Auxiliary Power Units (APU's) & Transfer Switches; (v) Variable Frequency Drives (VFD's); (vi) Phase inverters and Transformers. Many of these assets at the edge of their useful life and like-for-like replacements may not available. Replacement of failed components may require some re-engineering to provide the required functionality. Large electrical assets are replaced, through specific named projects, however small electrical asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete electrical assets, is the most practical way to address end of life issues and to ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a member of the electrical asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734336**	SM:Obsolete Instr-Replace 2031	**2031**	$	55,648	*Issue/Concern* Instrumentation assets with finite life expectancy include: (i) PLC's; (ii) SCADA devices; (iii) Transmitters & switches; (iv) Actuators; (v) Industrial Data Centres (IDC's); (vi) Human Machine Interfaces (HMI's) & Video Displays. Many of these assets have a short life expectancy and experience planned obsolescence. Like-for-like replacements may not be available and replacement of failed components may require some re-engineering to provide the required functionality. Large instrumentation assets are replaced, through specific named projects, however small instrumentation asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete instrumentation assets, is the most practical way to address end of life issues and ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a memebr ot the control & communication asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734339**	SM:SCADA-Annual Upgrade 2030	**2030**	$	55,647	*Issue/Concern* IT-related threats to Storage include: security breaches, data loss and SCADA system failures. Electronic control systems, which directly control of Gas Storage Assets, must be regularly upgraded with the most up-to-date standards and security for the SCADA system. In addition, this project will provide the tools needed to identify risks and avoid threats that otherwise could cause damage to SCADA infrastructure and disrupt business operations. SCADA upgrade requirements are informed by an annual preventative security assessment and periodic security audits. Results of these audits and preventative security assessments are difficult to forecast. *Asset* SCADA System *Related Programs* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**101868**	SM:Obsolete Instr-Replace 2030	**2030**	$	55,647	*Issue/Concern* Instrumentation assets with finite life expectancy include: (i) PLC's; (ii) SCADA devices; (iii) Transmitters & switches; (iv) Actuators; (v) Industrial Data Centres (IDC's); (vi) Human Machine Interfaces (HMI's) & Video Displays. Many of these assets have a short life expectancy and experience planned obsolescence. Like-for-like replacements may not be available and replacement of failed components may require some re-engineering to provide the required functionality. Large instrumentation assets are replaced, through specific named projects, however small instrumentation asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete instrumentation assets, is the most practical way to address end of life issues and ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a memebr ot the control & communication asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**101866**	SM:Obsolete Elec-Replace 2030	**2030**	$	55,647	*Issue/Concern* Electrical assets with finite life expectancy include: (i) electrical distribution (panels, wiring); (ii) lighting; (iii) Motor Control Centres (MCC's); (iv) Auxiliary Power Units (APU's) & Transfer Switches; (v) Variable Frequency Drives (VFD's); (vi) Phase inverters and Transformers. Many of these assets at the edge of their useful life and like-for-like replacements may not available. Replacement of failed components may require some re-engineering to provide the required functionality. Large electrical assets are replaced, through specific named projects, however small electrical asset condition is often not assessed - instead assets are replaced at failure. A proactive replacement Blanket, for these small obsolete electrical assets, is the most practical way to address end of life issues and to ensure the functionality and reliability of EGS systems (including those pertaining to safety and operation). *Asset* All assets identified as a member of the electrical asset sub-class. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**9027**	SM:FIMP Recommend'ns-Implement 2027	**2027**	$	53,754	*Issue/Concern* Facilities integrity is a new program that is being developed to mirror the pipeline integrity program at facilities such as compressor stations and gate stations. The facilities Integrity Management Program is intended to mitigate and manage threats acting on facilities, in order to reduce the probability of a loss of pressure containment acting at these facilities. This will reduce the risk of these facilities. The probability of a loss of pressure containment event is assessed by looking at the threat mechanisms that affect the piping and equipment at facilities. The threat mechanisms are still being established as part of facility integrity program development, but it is expected that they will be similar to the threat mechanisms that affect EGS pipelines. *Assets* Gas containing process and auxiliary pipe within a compressor or meter station. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**9028**	SM:FIMP Recommend'ns-Implement 2028	**2028**	$	52,779	*Issue/Concern* Facilities integrity is a new program that is being developed to mirror the pipeline integrity program at facilities such as compressor stations and gate stations. The facilities Integrity Management Program is intended to mitigate and manage threats acting on facilities, in order to reduce the probability of a loss of pressure containment acting at these facilities. This will reduce the risk of these facilities. The probability of a loss of pressure containment event is assessed by looking at the threat mechanisms that affect the piping and equipment at facilities. The threat mechanisms are still being established as part of facility integrity program development, but it is expected that they will be similar to the threat mechanisms that affect EGS pipelines. *Assets* Gas containing process and auxiliary pipe within a compressor or meter station. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101980**	OSE #1 Compressor Crankcase Rebuild	**2028**	$	51,875	Issue/Concern/Opportunity: Compressors are rotating equipment that is designed with inexpensive components intended to wear preferentially. This preferential wear then preserves the condition of large and expensive components. Overhauls are performed at regular intervals - in accordance with the OEM recommended preventative maintenance schedules - to replace wear items. Typically, an inspection is performed prior to performing an overhaul. Without regular replacement of wear items, reliability will diminish drastically. If wear items are not replaced to be within OEM tolerances, then subsequent damage to main compressor components will result - which is a much costlier outcome. Justification: OEM recommended hour based compressor crankcase rebuild Assets: OSE #1 Compressor Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742205**	Dawn Dehy Fire and Gas Monitor Replacement	**2030**	$	51,611	The Gas and UV monitors currently in use in the Dawn Dehy are at end of support from the manufacturer and replacements are difficult to obtain. Upgrade to current Fire and Gas monitor standard equipment.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742438**	Lobo A1 PLC Processor & Firmware Upgrades	**2025**	$	50,766	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742439**	Lobo A2 PLC Processor & Firmware Upgrades	**2025**	$	50,766	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734345**	SM:FIMP Recommend'ns-Implement 2032	**2032**	$	50,677	*Issue/Concern* Facilities integrity is a new program that is being developed to mirror the pipeline integrity program at facilities such as compressor stations and gate stations. The facilities Integrity Management Program is intended to mitigate and manage threats acting on facilities, in order to reduce the probability of a loss of pressure containment acting at these facilities. This will reduce the risk of these facilities. The probability of a loss of pressure containment event is assessed by looking at the threat mechanisms that affect the piping and equipment at facilities. The threat mechanisms are still being established as part of facility integrity program development, but it is expected that they will be similar to the threat mechanisms that affect EGS pipelines. *Assets* Gas containing process and auxiliary pipe within a compressor or meter station. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734343**	SM:FIMP Recommend'ns-Implement 2029	**2029**	$	50,590	*Issue/Concern* Facilities integrity is a new program that is being developed to mirror the pipeline integrity program at facilities such as compressor stations and gate stations. The facilities Integrity Management Program is intended to mitigate and manage threats acting on facilities, in order to reduce the probability of a loss of pressure containment acting at these facilities. This will reduce the risk of these facilities. The probability of a loss of pressure containment event is assessed by looking at the threat mechanisms that affect the piping and equipment at facilities. The threat mechanisms are still being established as part of facility integrity program development, but it is expected that they will be similar to the threat mechanisms that affect EGS pipelines. *Assets* Gas containing process and auxiliary pipe within a compressor or meter station. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734342**	SM:FIMP Recommend'ns-Implement 2031	**2031**	$	50,589	*Issue/Concern* Facilities integrity is a new program that is being developed to mirror the pipeline integrity program at facilities such as compressor stations and gate stations. The facilities Integrity Management Program is intended to mitigate and manage threats acting on facilities, in order to reduce the probability of a loss of pressure containment acting at these facilities. This will reduce the risk of these facilities. The probability of a loss of pressure containment event is assessed by looking at the threat mechanisms that affect the piping and equipment at facilities. The threat mechanisms are still being established as part of facility integrity program development, but it is expected that they will be similar to the threat mechanisms that affect EGS pipelines. *Assets* Gas containing process and auxiliary pipe within a compressor or meter station. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**734344**	SM:FIMP Recommend'ns-Implement 2030	**2030**	$	50,588	*Issue/Concern* Facilities integrity is a new program that is being developed to mirror the pipeline integrity program at facilities such as compressor stations and gate stations. The facilities Integrity Management Program is intended to mitigate and manage threats acting on facilities, in order to reduce the probability of a loss of pressure containment acting at these facilities. This will reduce the risk of these facilities. The probability of a loss of pressure containment event is assessed by looking at the threat mechanisms that affect the piping and equipment at facilities. The threat mechanisms are still being established as part of facility integrity program development, but it is expected that they will be similar to the threat mechanisms that affect EGS pipelines. *Assets* Gas containing process and auxiliary pipe within a compressor or meter station. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101313**	Parkway/Hagar Compressor Building Lighting 2025	**2025**	$	49,528	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101244**	Lobo/Bright Compressor Station Lighting 2025	**2025**	$	49,528	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742808**	Bright Oil Mist Detector Installataion	**2029**	$	48,567	Issue/Concern/Opportunity: Technology has recently been developed to detect oil mist inside compressor plants. There have been instances in the past where tubing lines have broken resulting in oil mist spraying on hot surfaces, increasing the risk of fire. This investment is to install detectors in all plants. Justification: Oil mist from broken or leaking tubing fittings can result in increased risk of fire, personnel exposure and low oil levels in operating plants. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_92 - Union North Storage**	Compression Stations	**Pass**	**742810**	Hagar Oil Mist Detector Installation	**2031**	$	48,565	Issue/Concern/Opportunity: Technology has recently been developed to detect oil mist inside compressor plants. There have been instances in the past where tubing lines have broken resulting in oil mist spraying on hot surfaces, increasing the risk of fire. This investment is to install detectors in all plants. Justification: Oil mist from broken or leaking tubing fittings can result in increased risk of fire, personnel exposure and low oil levels in operating plants. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742809**	Parkway Oil Mist Detector Installation	**2030**	$	48,565	Issue/Concern/Opportunity: Technology has recently been developed to detect oil mist inside compressor plants. There have been instances in the past where tubing lines have broken resulting in oil mist spraying on hot surfaces, increasing the risk of fire. This investment is to install detectors in all plants. Justification: Oil mist from broken or leaking tubing fittings can result in increased risk of fire, personnel exposure and low oil levels in operating plants. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742377**	Airport ControlNet to Ethernet	**2029**	$	47,455	Critical communication between remote IO and other devices currently is currently done over ControlNet. Some of the Controlnet hardware is near the end of the product lifecycle for Rockwell and production will be discontinued in the near future. Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**501141**	Lobo C GGLO Scheduling Valve & Controller replacement	**2025**	$	47,110	When the compressor plant was installed, the oil scheduling valve and controller we being made obsolete but the OEM. Siemens had no approved alternative, so the old valve and controller were installed. There have been several failures in recent years. The replacement valve and controller is not a direct replacement	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742969**	Dawn I IP7 BOV Duct Replacement	**2026**	$	46,923	Issue/Concern/Opportunity: The IP7 BOV ducts on the RB211s are obsolete. A new design has been issued and legacy parts are available while supplies last. We saw two failures of these ducts in 2023. Justification: The manufacturer has recommended upgrading the IP7 ducts to ensure replacements are available when necessary. Assets: Dawn I Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742970**	Dawn H IP7 BOV Duct Replacement	**2026**	$	46,923	Issue/Concern/Opportunity: The IP7 BOV ducts on the RB211s are obsolete. A new design has been issued and legacy parts are available while supplies last. We saw two failures of these ducts in 2023. Justification: The manufacturer has recommended upgrading the IP7 ducts to ensure replacements are available when necessary. Assets: Dawn H Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
Northern & Eastern	**Div_46 - North Bay & Orillia**	Compression Stations	**Pass**	**742971**	Lobo C IP7 BOV Duct Replacement	**2026**	$	46,923	Issue/Concern/Opportunity: The IP7 BOV ducts on the RB211s are obsolete. A new design has been issued and legacy parts are available while supplies last. We saw two failures of these ducts in 2023. Justification: The manufacturer has recommended upgrading the IP7 ducts to ensure replacements are available when necessary. Assets: Lobo C Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742972**	Lobo D IP7 BOV Duct Replacement	**2026**	$	46,923	Issue/Concern/Opportunity: The IP7 BOV ducts on the RB211s are obsolete. A new design has been issued and legacy parts are available while supplies last. We saw two failures of these ducts in 2023. Justification: The manufacturer has recommended upgrading the IP7 ducts to ensure replacements are available when necessary. Assets: Lobo D Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742973**	Bright C IP7 BOV Duct Replacement	**2026**	$	46,923	Issue/Concern/Opportunity: The IP7 BOV ducts on the RB211s are obsolete. A new design has been issued and legacy parts are available while supplies last. We saw two failures of these ducts in 2023. Justification: The manufacturer has recommended upgrading the IP7 ducts to ensure replacements are available when necessary. Assets: Bright C Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742974**	Parkway B IP7 BOV Duct Replacement	**2026**	$	46,923	Issue/Concern/Opportunity: The IP7 BOV ducts on the RB211s are obsolete. A new design has been issued and legacy parts are available while supplies last. We saw two failures of these ducts in 2023. Justification: The manufacturer has recommended upgrading the IP7 ducts to ensure replacements are available when necessary. Assets: Parkway B Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742975**	Parkway C IP7 BOV Duct Replacement	**2026**	$	46,923	Issue/Concern/Opportunity: The IP7 BOV ducts on the RB211s are obsolete. A new design has been issued and legacy parts are available while supplies last. We saw two failures of these ducts in 2023. Justification: The manufacturer has recommended upgrading the IP7 ducts to ensure replacements are available when necessary. Assets: Parkway C Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742976**	Parkway D IP7 BOV Duct Replacement	**2026**	$	46,923	Issue/Concern/Opportunity: The IP7 BOV ducts on the RB211s are obsolete. A new design has been issued and legacy parts are available while supplies last. We saw two failures of these ducts in 2023. Justification: The manufacturer has recommended upgrading the IP7 ducts to ensure replacements are available when necessary. Assets: Parkway D Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101245**	Lobo/Bright Compressor Station Lighting 2026	**2026**	$	46,923	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101314**	Parkway/Hagar Compressor Building Lighting 2026	**2026**	$	46,923	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742206**	Dawn D ControlNet to Ethernet	**2030**	$	46,543	Critical communication between remote IO and other devices currently is currently done over ControlNet. Some of the Controlnet hardware is near the end of the product lifecycle for Rockwell and production will be discontinued in the near future. Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742409**	Payne Compressor Skid HMI Replacement	**2026**	$	46,513	Issue/Concern/Opportunity: Replace obsolete compressor skid HMI. Still using Windows 7 display unit. Display is starting to fail already. Justification: Spare part availability is questionable as product is discontinued by manufacturer. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742406**	Dawn J Compressor Skid HMI Replacement	**2028**	$	45,105	Issue/Concern/Opportunity: Replace obsolete compressor skid HMI. Still using Windows XP display unit. Justification: Spare part availability is questionable as product is discontinued by manufacturer. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742405**	Dawn J Vibration Monitor Upgrade	**2029**	$	44,759	Issue/Concern/Opportunity: Replace obsolete Bently Nevada BN1701 vibration monitor with Rockwell Dynamix XM-1444 system. Justification: Spare part availability is questionable as product is discontinued by manufacturer. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101246**	Lobo/Bright Compressor Station Lighting 2027	**2027**	$	44,232	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101315**	Parkway/Hagar Compressor Building Lighting 2027	**2027**	$	44,232	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742133**	Bright B Glycol Relief Tank Level Transmitters	**2025**	$	43,337	Issue/Concern/Opportunity: Some atmospheric storage/holding tanks do not have level indicators and alarms. An incident occured at Bright where a glycol containment tank overflowed. Justification: Without adequate indication and alarming on the tank levels an overfill condition and environmental spill could occur. Indication and alarming would significantly reduce the likelihood of incident Assets: Glycol Atmospheric liquids storage/holding tanks Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742226**	Dawn E Hydraulic Fuel Valve Control Board Replacement	**2028**	$	42,866	Issue/Concern/Opportunity: The OEM has indicated that the control board for the Fuel valve is obsolete and no longer supported. Upgrade the Hydraulics Fuel Valve controller LVDT board with a Moog and Sentek board or other alternative suggested by Siemens. Justification: Siemens has been indicating that the LVDT boards should be replaced to ensure support and spare part availability. Assets: Dawn E Compressor Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101247**	Lobo/Bright Compressor Station Lighting 2028	**2028**	$	41,500	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101316**	Parkway/Hagar Compressor Building Lighting 2028	**2028**	$	41,500	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742623**	Sandwich PLC Processor & Firmware Upgrades	**2026**	$	41,057	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101248**	Lobo/Bright Compressor Station Lighting 2029	**2029**	$	40,306	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101317**	Parkway/Hagar Compressor Building Lighting 2029	**2029**	$	40,306	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742339**	Bright B Foam System Level Switch Replacements	**2031**	$	40,301	Issue/Concern/Opportunity: The water and foam level switches on the foam system are unreliable and difficult to setup. On other units these switches have been replaced with level transmitters with good success. Justification: Replacing the level switches with level transmitters would rectify the issues with setting up and testing the existing level switches. Assets: Dawn D Foam Skid Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742408**	Payne Vibration Monitor Upgrade	**2030**	$	40,089	Issue/Concern/Opportunity: Replace obsolete Bently Nevada BN1701 vibration monitor with Rockwell Dynamix XM-1444 system. Justification: Spare part availability is questionable as product is discontinued by manufacturer. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742612**	Airport PLC Processor & Firmware Upgrades	**2026**	$	38,704	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742462**	Dawn D PLC Processor & Firmware Upgrade	**2025**	$	38,137	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742833**	Enniskillen Fuel Gas Heat Trace	**2027**	$	37,155	Issue/Concern/Opportunity: Ice developing on the fuel gas line at Enniskillen. This could be either due to the pressure cut or excess moisture. Add heat trace to reduce icing on fuel gas piping. Justification: Adding heat trace will improve the integrity and reliability of the fuel gas system at the station. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742902**	Parkway PT Oil Varnish Skid	**2029**	$	36,276	Issue/Concern/Opportunity: The power turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for power turbines and compressors. Assets: Parkway Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742904**	Bright PT Oil Varnish Skid	**2029**	$	36,276	Issue/Concern/Opportunity: The power turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for power turbines and compressors. Assets: Bright Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742905**	Lobo PT Oil Varnish Skid	**2029**	$	36,276	Issue/Concern/Opportunity: The power turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for power turbines and compressors. Assets: Lobo Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742906**	Dawn PT Oil Varnish Skid	**2029**	$	36,276	Issue/Concern/Opportunity: The power turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for power turbines and compressors. Assets: Dawn Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742461**	Dawn C PLC Processor & Firmware Upgrade	**2025**	$	34,670	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742358**	Edys Mills Panelview Replacement	**2028**	$	34,197	*Issue/Concern* The PanelView's are the on skid operator interface for the unit. The panel views provide operations./ mechanics and technicians the on skid control required to be able to interface with the units in Realtime and provide unique tools to assist in maintenance and trouble shooting of the units. The existing PanelView's at these stations have failed and have not been reliable over the course of their lifetime. We have had the OEM at site in attempts to repair but this has always been short lived. The PanelView's inevitably lockup or fail within a short period of time. The new equipment operates on a new windows 10 platform and is considered to be much more stable than the existing equipment. *Asset* Dow A Compressor *Related Program*	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742465**	Dawn G PLC Processor & Firmware Upgrade	**2025**	$	33,369	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742227**	Dawn G Hydraulic Fuel Valve Control Board Replacement	**2028**	$	33,092	Issue/Concern/Opportunity: The OEM has indicated that the control board for the Fuel valve is obsolete and no longer supported. Upgrade the Hydraulics Fuel Valve controller LVDT board with a Moog and Sentek board or other alternative suggested by Siemens. Justification: Siemens has been indicating that the LVDT boards should be replaced to ensure support and spare part availability. Assets: Dawn G Compressor Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742208**	Dawm E Lube Oil Control Valve Board	**2028**	$	32,150	Issue/Concern/Opportunity: The Entronics control board which interfaces the PLC to the GG Lube Oil control valve is obsolete and no longer supported by Siemens. Justification: Upgrading to the current Siemens standard (MOOG) control board would ensure availability of spare parts and support from the OEM. Assets: Dawn E Lube Oil Skid Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742209**	Dawn D Foam System Level Switch Replacements	**2028**	$	31,955	Issue/Concern/Opportunity: The water and foam level switches on the foam system are unreliable and difficult to setup. On other units these switches have been replaced with level transmitters with good success. Justification: Replacing the level switches with level transmitters would rectify the issues with setting up and testing the existing level switches. Assets: Dawn D Foam Skid Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742341**	Dow A Panelview Replacement	**2029**	$	31,771	*Issue/Concern* The PanelView's are the on skid operator interface for the unit. The panel views provide operations./ mechanics and technicians the on skid control required to be able to interface with the units in Realtime and provide unique tools to assist in maintenance and trouble shooting of the units. The existing PanelView's at these stations have failed and have not been reliable over the course of their lifetime. We have had the OEM at site in attempts to repair but this has always been short lived. The PanelView's inevitably lockup or fail within a short period of time. The new equipment operates on a new windows 10 platform and is considered to be much more stable than the existing equipment. *Asset* Dow A Compressor *Related Program*	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743163**	Parkway-B-AMP-Asset life cycle- Pump - Glycol	**2026**	$	31,673	Issue/Concern: Parkway-B-AMP-Asset life cycle- Pump - Glycol--life cycle replacement :20-year of install :2003-expected date of replacement:2023	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743164**	Parkway-B-AMP-Asset life cycle- Pump - Glycol#2	**2026**	$	31,673	Issue/Concern: Parkway-B-AMP-Asset life cycle- Pump - Glycol--life cycle replacement :20-year of install :2003-expected date of replacement:2023	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743207**	Lobo-B-AMP-asset life- Pump - Glycol-10 hp	**2026**	$	31,673	Issue/Concern: Lobo-B-AMP-asset life- Pump - Glycol-10 hp, 21ST-life cycle replacement :20-year of install :1990-expected date of replacement:2010	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743208**	Lobo-B-AMP-asset life- Pump - Glycol-10 hp,#2	**2026**	$	31,673	Issue/Concern: Lobo-B-AMP-asset life- Pump - Glycol-10 hp, 21ST-life cycle replacement :20-year of install :1990-expected date of replacement:2010	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743209**	Lobo-B-AMP-asset life- Pump - Glycol-3/4 hp (2)	**2026**	$	31,673	Issue/Concern: Lobo-B-AMP-asset life- Pump - Glycol-3/4 hp -life cycle replacement :20-year of install :1990-expected date of replacement:2010	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742218**	Dawn G Vibration Probe Upgrade	**2030**	$	31,070	Issue/Concern/Opportunity: The Bently Nevada 7200 vibration probes and proximitors on the compressor and power turbine are obsolete and no longer available. Spares are limited to existing inventory. Replace the probes and proximitors with Bently Nevada 3300 series. Replacement should be aligned with compressor/power turbine work as this offers access to replace the components. Justification: Existing vibration probes are obsolete and no longer available. Spares are limited to existing inventory. Assets: Dawn G Compressors and Power Turbine Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742228**	Dawn G Foam System Level Switch Replacements	**2030**	$	31,070	Issue/Concern/Opportunity: The water and foam level switches on the foam system are unreliable and difficult to setup. On other units these switches have been replaced with level transmitters with good success. Justification: Replacing the level switches with level transmitters would rectify the issues with setting up and testing the existing level switches. Assets: Dawn D Foam Skid Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742993**	Dawn Aux 3 Air Intake Replacement	**2025**	$	30,460	Issue/Concern/Opportunity: Air intake at Aux 3 is old and reached end of life. Justification: Replacement of air intake would ensure sufficient air is entering unit. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742151**	Lobo B Compressor Bearing RTDs	**2026**	$	29,327	Issue/Concern/Opportunity: Lobo B Compressor has bearing Pad RTD's installed, but not wired to the PLC. Justification: Bearing pad RTD's will give a quicker more accurate indication of bearing failure than the current return line temperature sensor. This could result in less damage on bearing failure as the unit would be shutdown faster. Assets: Compressor Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**10030**	SCHT:UPS-replace	**2026**	$	29,036	*Issue/Concern* Un-interruptible Power Supplies (UPS) are a critical component in plant and meter station facilities. This unit must be operational in the event of a power failure to allow smooth transition to generator power. Power failures and lightning strikes are common in the Storage area. Consequence of a power failure, without a UPS, is uncontrolled shutdown of compression equipment; possible damage to compressor equipment and yard piping; and control system performance issues once power is restored. UPS equipment has a finite life expectancy of about 3 to 5 years. Failure of the UPS would make a compressor or meter station incapable of being controlled remotely and could shutdown an entire station until repairs are made. PLC's and RTU's are primary means of controlling Storage equipment and these devices need a UPS to maintain system SCADA and control during a power failure. *Asset* Compressor stations and meter station. *Related Program* Not applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742865**	Dawn D GG Oil Varnish Skid	**2025**	$	27,240	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Dawn D Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743216**	Lobo-A1-AMP-asset life- Pump - Glycol-1A	**2032**	$	27,231	Issue/Concern: Lobo-A1-AMP-asset life- Pump - Glycol-801C-BF, Bell&Gossett,140gp, 5hp, 1800 rpm-life cycle replacement :20-year of install :2012-expected date of replacement:2032	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743217**	Lobo-A1-AMP-asset life- Pump - Glycol-1B	**2032**	$	27,231	Issue/Concern: Lobo-A1-AMP-asset life- Pump - Glycol-801C-BF, Bell&Gossett,140gp, 5hp, 1800 rpm-life cycle replacement :20-year of install :2012-expected date of replacement:2032	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743218**	Lobo-A1-AMP-asset life- Pump - Glycol#3	**2032**	$	27,231	Issue/Concern: Lobo-A1-AMP-asset life- Pump - Glycol-801C-BF, Bell&Gossett,140gp, 5hp, 1800 rpm-life cycle replacement :20-year of install :2012-expected date of replacement:2032	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743219**	Lobo-A1-AMP-asset life- Pump - Glycol 2A	**2032**	$	27,231	Issue/Concern: Lobo-A1-AMP-asset life- Pump - Glycol-801C-BF, Bell&Gossett,140gp, 5hp, 1800 rpm-life cycle replacement :20-year of install :2012-expected date of replacement:2032	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743220**	Lobo-A1-AMP-asset life- Pump - Glycol-2B	**2032**	$	27,231	Issue/Concern: Lobo-A1-AMP-asset life- Pump - Glycol-801C-BF, Bell&Gossett,140gp, 5hp, 1800 rpm-life cycle replacement :20-year of install :2012-expected date of replacement:2032	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742460**	Dawn Aux Buildings PLC Processor & Firmware Upgrade	**2025**	$	26,002	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742435**	Bright C PLC Processor & Firmware Upgrades	**2025**	$	26,002	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742441**	Lobo C PLC Processor & Firmware Upgrades	**2025**	$	26,002	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742442**	Lobo D PLC Processor & Firmware Upgrades	**2025**	$	26,002	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742466**	Dawn H PLC Processor & Firmware Upgrades	**2025**	$	26,002	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742129**	Bright MCR Gas and UV Monitor Replacement	**2028**	$	25,938	The Gas and UV monitors currently in use in the Bright MCR are near end of support from the manufacturer and replacements will soon not be available. Upgrade to current UV and Gas monitor standard equipment. CO detection is a plug in type (120 VAC) residential CO Monitor. The plug in type gas monitor is not consistent with other boiler rooms and does not provide a signal to the local DCS. Replace the plug in type CO detector with current standard connected to the PLC for remote alarming.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742883**	Dawn I Oil Varnish Filter	**2026**	$	25,807	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Dawn I Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742881**	Dawn H Oil Varnish Filter	**2026**	$	25,807	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Dawn H Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742880**	Dawn G Oil Varnish Filter	**2026**	$	25,807	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Dawn G Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742879**	Dawn E Oil Varnish Filtration Skid	**2026**	$	25,807	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Dawn E Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742611**	Dawn J PLC Processor & Firmware Upgrades	**2025**	$	25,207	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742150**	Lobo B Glycol Relief Tank Level Transmitter	**2025**	$	24,764	Issue/Concern/Opportunity: Some atmospheric storage/holding tanks do not have level indicators and alarms. An incident occured at Bright where a glycol containment tank overflowed. Justification: Without adequate indication and alarming on the tank levels an overfill condition and environmental spill could occur. Indication and alarming would significantly reduce the likelihood of incident Assets: Glycol Atmospheric liquids storage/holding tanks Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742143**	Lobo Plant A Glycol Relief Tank Level Transmitters	**2025**	$	24,764	Issue/Concern/Opportunity: Some atmospheric storage/holding tanks do not have level indicators and alarms. An incident occured at Bright where a glycol containment tank overflowed. Justification: Without adequate indication and alarming on the tank levels an overfill condition and environmental spill could occur. Indication and alarming would significantly reduce the likelihood of incident Assets: Glycol Atmospheric liquids storage/holding tanks Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**48281**	Bright MCR PLC Upgrade	**2025**	$	24,764	The Bright MCR is currently controlled by an Allen Bradley PLC 5. This controller has been obsolete for several years and parts can no longer be purchased. If a component failed, it would have to be replaced with used part form another installation. The replacement part would be used and have similar hours on it as the one that failed.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101312**	Parkway/Hagar Compressor Building Lighting 2024	**2025**	$	24,764	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**101243**	Lobo/Bright Compressor Station Lighting 2024	**2025**	$	24,764	Current lighting inside compressor plants is OLD and extremely inefficient. Annual costs allocated to replacing bulbs, ballasts and fixtures.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742207**	Dawn D Lube Oil Control Valve Board	**2028**	$	24,755	Issue/Concern/Opportunity: The Entronics control board which interfaces the PLC to the GG Lube Oil control valve is obsolete and no longer supported by Siemens. Justification: Upgrading to the current Siemens standard (MOOG) control board would ensure availability of spare parts and support from the OEM. Assets: Dawn D Lube Oil Skid Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742453**	Parkway West Plant C PLC Processor & Firmware Upgrade	**2026**	$	24,634	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742454**	Parkway West Plant D PLC Processor & Firmware Upgrades	**2026**	$	24,634	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742887**	Lobo A1 Oil Varnish Filter	**2027**	$	24,328	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Lobo A1 Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742888**	Lobo A2 Oil Varnish Filter	**2027**	$	24,328	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Lobo A2 Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742886**	Dawn J Oil Varnish Filter	**2027**	$	24,328	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Dawn J Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742885**	Dawn F2 Oil Varnish Filter	**2027**	$	24,328	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Dawn F2 Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742884**	Dawn F1 Oil Varnish Filter	**2027**	$	24,328	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Dawn F1 Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742179**	Parkway A Glycol Relief Tank Level Transmitter	**2026**	$	23,461	Issue/Concern/Opportunity: Some atmospheric storage/holding tanks do not have level indicators and alarms. An incident occured at Bright where a glycol containment tank overflowed. Justification: Without adequate indication and alarming on the tank levels an overfill condition and environmental spill could occur. Indication and alarming would significantly reduce the likelihood of incident Assets: Glycol Atmospheric liquids storage/holding tanks Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**48283**	Bluewater, Mandaumin, Airport Station PLC Upgrade	**2025**	$	23,278	Currently Bluewater, Mandaumin, Airport stations is being controlled by an Allen Bradley PLC5. These units have been obsolete, for some time and spare parts can no longer be purchased. Therefore the PLC should be replaced with an Allen Bradley ControLogix PLC, which is the standard on all of our new stations. Spare parts are available and easily accessible	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742210**	Dawn D Vibration Probe Upgrade	**2030**	$	23,245	Issue/Concern/Opportunity: The Bently Nevada 7200 vibration probes and proximitors on the compressor and power turbine are obsolete and no longer available. Spares are limited to existing inventory. Replace the probes and proximitors with Bently Nevada 3300 series. Replacement should be aligned with compressor/power turbine work as this offers access to replace the components. Justification: Existing vibration probes are obsolete and no longer available. Spares are limited to existing inventory. Assets: Dawn D Compressor and Power Turbine Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742896**	Bright C Oil Varnish Filter	**2028**	$	22,825	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Bright C Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742889**	Lobo B Oil Varnish Filter	**2028**	$	22,825	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Lobo B Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742890**	Lobo C Oil Varnish Filter	**2028**	$	22,825	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Lobo C Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742891**	Lobo D Oil Varnish Filter	**2028**	$	22,825	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Lobo D Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742893**	Bright A1 Oil Varnish Filter	**2028**	$	22,825	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Bright A1 Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742894**	Bright A2 Oil Varnish Filter	**2028**	$	22,825	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Bright A2 Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742895**	Bright B Oil Varnish Filter	**2028**	$	22,825	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Bright B Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742897**	Parkway A Oil Varnish Filter	**2029**	$	22,168	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Parkway A Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742899**	Parkway B Oil Varnish Filter	**2029**	$	22,168	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Parkway B Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742900**	Parkway C Oil Varnish Filter	**2029**	$	22,168	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Parkway C Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742901**	Parkway D Oil Varnish Filter	**2029**	$	22,168	Issue/Concern/Opportunity: The gas turbines generate oil varnish due to our operation and is seen in oil samples. This oil varnish can cause sticking in fine hydraulic components such as fuel valves and VIGV rams which can lead to engine failures. Also bearings and internal surfaces can become covered, reducing their effectiveness and causing premature failures. Justification: High varnish levels in oil can cause premature failures and operating issues for gas turbines. Assets: Parkway D Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742991**	Dawn Aux 3 Fuel Gas Regulator Replacements	**2028**	$	21,269	Issue/Concern/Opportunity: Two fuel gas regulators are deteriorating and approaching end of life. Scope would be to replace with two new regs that meet current standards. Justification: Replacement of the two regs would improve the reliability and integrity of the fuel gas system. Regs controls the pressure of fuel gas going to the different units. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742992**	Dawn Aux 4 Fuel Gas Regulator Replacements	**2028**	$	21,269	Issue/Concern/Opportunity: Two fuel gas regulators are deteriorating and approaching end of life. Scope would be to replace with two new regs that meet current standards. Justification: Replacement of the two regs would improve the reliability and integrity of the fuel gas system. Regs controls the pressure of fuel gas going to the different units. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**48217**	Tecumseh 2 PLC Upgrade	**2025**	$	20,802	The Dawn Tecumseh 2 transfer site is currently being controlled by an Allen Bradley PLC 5. This series of PLCs has been obsolete for several years and replacement parts cannot be purchased any more. This PLC controls the entire plant and the plant cannot be operated with out it. Should a failure happen, the plant will remain unavailable until a usable spare part can be recovered from another plant and installed and configured, rendering the other plant unavailable for use	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**102344**	Dawn Aux 4-1 Gen Turbo Rebuild	**2025**	$	20,802	Issue/Concern/Opportunity: OEM recommended hour based turbo rebuild Justification: Preventing catastrophic failure of Turbocharger unit due to bearing failure. Turbo runs at extremely high speed in a dirty and hot environment therefore is susceptible to catastrophic failure resulting in a unit outage and possibly further engine damage. Assets: Aux 4-1 Generator Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742620**	Payne PLC Processor & Firmware Upgrades	**2027**	$	20,571	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742109**	Bright MCR 75 kVA Transformer Replacement	**2030**	$	20,125	Issue/Concern/Opportunity; The existing step down transformer in the Bright MCR is orginal to when the plant was built ~1990. Justification: A transformer failure could result in a compressor plant outage for a few days to source and complete a replacement. Depending on the time of year and system demands, this has the potential for losses due to being unable to run plant B. The cable termination of this transformer is unique and an off the shelf replacement would most likely not be available. Assets: Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742138**	Bright B 75 kVA Transformer Replacement	**2030**	$	20,125	Issue/Concern/Opportunity; The existing step down transformer in the Bright B is orginal to when the plant was built ~1990. Justification: A transformer failure could result in a compressor plant outage for a few days to source and complete a replacement. Depending on the time of year and system demands, this has the potential for losses due to being unable to run plant B. The cable termination of this transformer is unique and an off the shelf replacement would most likely not be available. Assets: Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742938**	Dawn Dehy Filter and PH Adjustment	**2025**	$	19,811	Issue/Concern/Opportunity: The Dawn Dehy Glycol is deteriorating due to particulate and the pH being out of spec. This has been observed through 3rd party testing. To remedy the situation a charcoal filter needs to be installed and a pH skid to balance the system. This will clean up the glycol and fix the current foaming issues and clean the glycol which is collecting on components. Justification: Assets: Dawn Dehy Glycol System Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742440**	Lobo B PLC Processor & Firmware Upgrades	**2025**	$	19,811	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742868**	Dawn D Level Indicator Install	**2026**	$	19,708	Issue/Concern/Opportunity: There is no way of determining the level of a tank in the basement of Dawn D unless Ops goes to the tank itself. A wireless transmitter is to be installed so that level indication can be determined without having to go to the plant. Justification: Adding wireless level transmitter will improve efficiency within Operations. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742198**	Dawn Dehy ControlNet to Ethernet Upgrade	**2032**	$	18,593	Critical communication between remote IO and other devices currently is currently done over ControlNet. Some of the Controlnet hardware is near the end of the product lifecycle for Rockwell and production will be discontinued in the near future. Therefore the ControlNet communication should all be replaced with Ethernet I/P. In some cases this will also involve upgrading the communication medium from Copper to Fiber. Conversion will ensure that spare parts are availible for purchase from Rockwell.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742418**	Bright MCR PLC Processor & Firmware Upgrades	**2025**	$	18,573	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742436**	Bright Aux Buildings PLC Processor & Firmware Upgrades	**2025**	$	18,573	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742443**	Lobo Aux Buildings PLC Processor & Firmware Upgrades	**2025**	$	18,573	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742644**	Hagar Solar Surge PLC Processor & Firmware Upgrades	**2025**	$	18,573	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742216**	Dawn G Glycol Relief Tank Level Transmitter	**2026**	$	18,156	Issue/Concern/Opportunity: Some atmospheric storage/holding tanks do not have level indicators and alarms. An incident occured at Bright where a glycol containment tank overflowed. Justification: Without adequate indication and alarming on the tank levels an overfill condition and environmental spill could occur. Indication and alarming would significantly reduce the likelihood of incident Assets: Glycol Atmospheric liquids storage/holding tanks Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742211**	Dawn Plant D Glycol Relief Tank Level Transmitter	**2026**	$	18,065	Issue/Concern/Opportunity: Some atmospheric storage/holding tanks do not have level indicators and alarms. An incident occured at Bright where a glycol containment tank overflowed. Justification: Without adequate indication and alarming on the tank levels an overfill condition and environmental spill could occur. Indication and alarming would significantly reduce the likelihood of incident Assets: Glycol Atmospheric liquids storage/holding tanks Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742214**	Dawn F Glycol Relief Tank Level Transmitter	**2026**	$	17,868	Issue/Concern/Opportunity: Some atmospheric storage/holding tanks do not have level indicators and alarms. An incident occured at Bright where a glycol containment tank overflowed. Justification: Without adequate indication and alarming on the tank levels an overfill condition and environmental spill could occur. Indication and alarming would significantly reduce the likelihood of incident Assets: Glycol Atmospheric liquids storage/holding tanks Related Investments: N/A	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742630**	Dawn North Admin PLC Processor & Firmware Upgades	**2026**	$	17,596	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742448**	Parkway East MCR PLC Processor & Firmware Upgrade	**2026**	$	17,596	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742449**	Parkway East Measurement PLC Processor & Firmware Upgrades	**2026**	$	17,596	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742638**	Dawn Tecumseh 1 PLC Processor & Firmware Upgrades	**2026**	$	17,596	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742964**	Dawn D L1 Oil Pressure Transmitter	**2025**	$	17,335	Issue/Concern/Opportunity: The RB211s have trouble starting in cold weather due to cold oil in the tubing lines between the oil skid and the engine. This results in numerous failed starts when units are needed due to a high L6-L7 pressure reading. The addition of a pressure transmitter on the engine skid gives a more accurate L6-L7 reading, eliminating the failed starts. Justification: Adding this pressure transmitter will reduce failed starts during critical operating times. Assets: Dawn D Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742965**	Dawn E L1 Oil Pressure Transmitter	**2025**	$	17,335	Issue/Concern/Opportunity: The RB211s have trouble starting in cold weather due to cold oil in the tubing lines between the oil skid and the engine. This results in numerous failed starts when units are needed due to a high L6-L7 pressure reading. The addition of a pressure transmitter on the engine skid gives a more accurate L6-L7 reading, eliminating the failed starts. Justification: Adding this pressure transmitter will reduce failed starts during critical operating times. Assets: Dawn E Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742966**	Dawn G L1 Oil Pressure Transmitter	**2025**	$	17,335	Issue/Concern/Opportunity: The RB211s have trouble starting in cold weather due to cold oil in the tubing lines between the oil skid and the engine. This results in numerous failed starts when units are needed due to a high L6-L7 pressure reading. The addition of a pressure transmitter on the engine skid gives a more accurate L6-L7 reading, eliminating the failed starts. Justification: Adding this pressure transmitter will reduce failed starts during critical operating times. Assets: Dawn G Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742108**	Bright Plant A Boiler Room Gas Monitor	**2027**	$	16,587	Gas Detection in the Bright Plant A Boiler Room consists of a plug in type (120 VAC) residential combustible gas/CO Monitor. The Fuel gas for the Boiler is un-odourized and requires gas detection per Z662. The plug in type gas monitor is not consistent with other boiler rooms and does not provide a signal to the local DCS.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742625**	Wabano PLC Processor & Firmware Upgrades	**2027**	$	16,587	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742967**	Lobo B L1 Oil Pressure Transmitter	**2026**	$	16,423	Issue/Concern/Opportunity: The RB211s have trouble starting in cold weather due to cold oil in the tubing lines between the oil skid and the engine. This results in numerous failed starts when units are needed due to a high L6-L7 pressure reading. The addition of a pressure transmitter on the engine skid gives a more accurate L6-L7 reading, eliminating the failed starts. Justification: Adding this pressure transmitter will reduce failed starts during critical operating times. Assets: Lobo B Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742968**	Bright B L1 Oil Pressure Transmitter	**2026**	$	16,423	Issue/Concern/Opportunity: The RB211s have trouble starting in cold weather due to cold oil in the tubing lines between the oil skid and the engine. This results in numerous failed starts when units are needed due to a high L6-L7 pressure reading. The addition of a pressure transmitter on the engine skid gives a more accurate L6-L7 reading, eliminating the failed starts. Justification: Adding this pressure transmitter will reduce failed starts during critical operating times. Assets: Bright B Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**48271**	Enniskillen Pool PLC Upgrade	**2025**	$	16,406	Currently Eniskillen station is being controlled by an Allen Bradley PLC5. These units have been obsolete, for some time and spare parts can no longer be purchased. Therefore the PLC should be replaced with an Allen Bradley ControLogix PLC, which is the standard on all of our new stations. Spare parts are available and easily accessible	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12986**	SCOR:622xx Unit VIv-Heat Trace	**2025**	$	15,657	*Issue/Concern* Unit valves periodically freeze-off. Freeze-offs are normally caused by water/moisture freezing in the valve body, increasing the break away torque of the valve beyond the capacity of the valve actuator. Freeze-offs normally occur on the suction side of a compressor unit. Unit suction valves are fail-closed valves that provide critical process safety functionality during an ESD. If a valve fails to close during an ESD, personnel and assets are put in a situation of additional potential harm or damage. *Asset* Assets directly affected are uit valves. Assets indirectly affected are compressor units and associated piping/structures. *Related Programs* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12994**	SCOR:352 Gas Detectrs-Replace 2025	**2025**	$	15,657	*Issue/Concern* Gas Detection is a primary defense against gas ignition in the event of a leak or loss of containment. Gas detection is required by CSA Z662 (Clause 4.14.1.3) to control ventilation in a compressor building, upon detection of high gas levels. Gas detectors are placed above every compressor unit. Existing Gas Detectors are becoming obsolete. Parts for existing gas detectors are scarce and becoming more expensive. *Asset* Buildings requiring Class 1, Zone 2, Group D electrical classification. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**48221**	Sombra/St. Clair Station PLC Upgrade	**2025**	$	15,354	Currently Sombra St Clair is being controlled by an Allen Bradley PLC5. These units have been obsolete, for some time and spare parts can no longer be purchased. Therefore the PLC should be replaced with an Allen Bradley ControLogix PLC, which is the standard on all of our new stations. Spare parts are available and easily accessible	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742178**	Parkway A MCC Flex IO Replacement	**2033**	$	15,140	Issue/Concern/Opportunity; Flex IO is also mature in the product lifecycle and is expected to be discontinued at the end of 2029. Flex IO should be replaced with Flex 5000 or an alternative current product. Justification: A Flex IO failure could result in a compressor plant outage for a few days to source and complete a replacement. Depending on the time of year and system demands, this has the potential for losses due to being unable to run plant B. Conversion will ensure that spare parts are availible for purchase from Rockwell. Assets:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742140**	Bright B MCC Flex IO Replacement	**2031**	$	15,113	Issue/Concern/Opportunity; Flex IO is also mature in the product lifecycle and is expected to be discontinued at the end of 2025. Flex IO should be replaced with Flex 5000 or an alternative current product. Justification: A Flex IO failure could result in a compressor plant outage for a few days to source and complete a replacement. Depending on the time of year and system demands, this has the potential for losses due to being unable to run plant B. Conversion will ensure that spare parts are availible for purchase from Rockwell. Assets:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742779**	Dawn G Oil Mist Detector Installation	**2025**	$	14,858	Issue/Concern/Opportunity: Technology has recently been developed to detect oil mist inside compressor plants. There have been instances in the past where tubing lines have broken resulting in oil mist spraying on hot surfaces, increasing the risk of fire. Justification: Oil mist from broken or leaking tubing fittings can result in increased risk of fire, personnel exposure and low oil levels in operating plants. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12995**	SCOR:352 Gas Detectrs-Replace 2026	**2026**	$	14,741	*Issue/Concern* Gas Detection is a primary defense against gas ignition in the event of a leak or loss of containment. Gas detection is required by CSA Z662 (Clause 4.14.1.3) to control ventilation in a compressor building, upon detection of high gas levels. Gas detectors are placed above every compressor unit. Existing Gas Detectors are becoming obsolete. Parts for existing gas detectors are scarce and becoming more expensive. *Asset* Buildings requiring Class 1, Zone 2, Group D electrical classification. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743015**	Tipperary Boiler Replacement	**2029**	$	14,510	Issue/Concern/Opportunity: Current boiler is old and reached end of life. Boiler to be replaced to current standards. Justification: Proper boiler operation is required to ensure gas is heated to specific temperature range. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742776**	Dawn E Oil Mist Detector	**2025**	$	14,234	Issue/Concern/Opportunity: Technology has recently been developed to detect oil mist inside compressor plants. There have been instances in the past where tubing lines have broken resulting in oil mist spraying on hot surfaces, increasing the risk of fire. Justification: Oil mist from broken or leaking tubing fittings can result in increased risk of fire, personnel exposure and low oil levels in operating plants. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**12996**	SCOR:352 Gas Detectrs-Replace 2027	**2027**	$	14,191	*Issue/Concern* Gas Detection is a primary defense against gas ignition in the event of a leak or loss of containment. Gas detection is required by CSA Z662 (Clause 4.14.1.3) to control ventilation in a compressor building, upon detection of high gas levels. Gas detectors are placed above every compressor unit. Existing Gas Detectors are becoming obsolete. Parts for existing gas detectors are scarce and becoming more expensive. *Asset* Buildings requiring Class 1, Zone 2, Group D electrical classification. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743257**	Sandwich Oil Mist Detector Installation	**2026**	$	14,077	Issue/Concern/Opportunity: Technology has recently been developed to detect oil mist inside compressor plants. There have been instances in the past where tubing lines have broken resulting in oil mist spraying on hot surfaces, increasing the risk of fire. Justification: Oil mist from broken or leaking tubing fittings can result in increased risk of fire, personnel exposure and low oil levels in operating plants. Assets: Sandwich Compressor Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743256**	Bickford Oil Mist Detector Installation	**2026**	$	14,077	Issue/Concern/Opportunity: Technology has recently been developed to detect oil mist inside compressor plants. There have been instances in the past where tubing lines have broken resulting in oil mist spraying on hot surfaces, increasing the risk of fire. Justification: Oil mist from broken or leaking tubing fittings can result in increased risk of fire, personnel exposure and low oil levels in operating plants. Assets: Bickford Compressor Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742624**	Dawn South Yard PLC Processor & Firmware Upgrades	**2027**	$	14,026	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**17205**	SCOR:352 Gas Detectrs-Replace 2028	**2028**	$	13,934	*Issue/Concern* Gas Detection is a primary defense against gas ignition in the event of a leak or loss of containment. Gas detection is required by CSA Z662 (Clause 4.14.1.3) to control ventilation in a compressor building, upon detection of high gas levels. Gas detectors are placed above every compressor unit. Existing Gas Detectors are becoming obsolete. Parts for existing gas detectors are scarce and becoming more expensive. *Asset* Buildings requiring Class 1, Zone 2, Group D electrical classification. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742781**	Dawn I Oil Mist Detector Installation	**2026**	$	13,401	Issue/Concern/Opportunity: Technology has recently been developed to detect oil mist inside compressor plants. There have been instances in the past where tubing lines have broken resulting in oil mist spraying on hot surfaces, increasing the risk of fire. Justification: Oil mist from broken or leaking tubing fittings can result in increased risk of fire, personnel exposure and low oil levels in operating plants. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742802**	Dawn H Oil Mist Detector	**2026**	$	13,401	Issue/Concern/Opportunity: Technology has recently been developed to detect oil mist inside compressor plants. There have been instances in the past where tubing lines have broken resulting in oil mist spraying on hot surfaces, increasing the risk of fire. Justification: Oil mist from broken or leaking tubing fittings can result in increased risk of fire, personnel exposure and low oil levels in operating plants. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**101606**	SCOR:352 Gas Detectrs-Replace 2029	**2029**	$	13,356	*Issue/Concern* Gas Detection is a primary defense against gas ignition in the event of a leak or loss of containment. Gas detection is required by CSA Z662 (Clause 4.14.1.3) to control ventilation in a compressor building, upon detection of high gas levels. Gas detectors are placed above every compressor unit. Existing Gas Detectors are becoming obsolete. Parts for existing gas detectors are scarce and becoming more expensive. *Asset* Buildings requiring Class 1, Zone 2, Group D electrical classification. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - EGD	**70 - Storage**	Compression Stations	**Pass**	**101607**	SCOR:352 Gas Detectrs-Replace 2030	**2030**	$	13,355	*Issue/Concern* Gas Detection is a primary defense against gas ignition in the event of a leak or loss of containment. Gas detection is required by CSA Z662 (Clause 4.14.1.3) to control ventilation in a compressor building, upon detection of high gas levels. Gas detectors are placed above every compressor unit. Existing Gas Detectors are becoming obsolete. Parts for existing gas detectors are scarce and becoming more expensive. *Asset* Buildings requiring Class 1, Zone 2, Group D electrical classification. *Related Program* Not Applicable	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742464**	Dawn F PLC Processor & Firmware Upgrade	**2027**	$	13,270	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742804**	Dawn F Oil Mist Detector Installation	**2027**	$	12,901	Issue/Concern/Opportunity: Technology has recently been developed to detect oil mist inside compressor plants. There have been instances in the past where tubing lines have broken resulting in oil mist spraying on hot surfaces, increasing the risk of fire. Justification: Oil mist from broken or leaking tubing fittings can result in increased risk of fire, personnel exposure and low oil levels in operating plants. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742806**	Dawn J Oil Mist Detector Installation	**2027**	$	12,901	Issue/Concern/Opportunity: Technology has recently been developed to detect oil mist inside compressor plants. There have been instances in the past where tubing lines have broken resulting in oil mist spraying on hot surfaces, increasing the risk of fire. Justification: Oil mist from broken or leaking tubing fittings can result in increased risk of fire, personnel exposure and low oil levels in operating plants. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742636**	Bickford PLC Processor & Firmware Upgrades	**2027**	$	12,669	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**743225**	Bright-AMP-Reconfigure Unit B Dawson GG LO skid	**2025**	$	12,382	Issue/Concern/Opportunity: The Bright B Lube Oil Skid underwent and upgrade to remove legacy equipment. After the upgrade the system was found to run at elevated tank temperatures to the point of running in an alarm condition or shutting down on hot weather days. The Bright B Plant has an operational window in the summer months that has not been utilized since the over-temperature issues arose. Justification: The Bright B Plant engine, if available in the summer months, contributes to the effectiveness, reliability and maintenance outages at other plants in the station. Assets: Bright B Lube Oil Skid Console Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**48279**	Dawn Aux 3 Siemens MCC replacement	**2025**	$	9,534	In 2001, the manufacturer informed us that they would be making this line of equipment obsolete in the next 1 ½ years in favour of a new style. Parts availability will be affected.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742434**	Bright B PLC Processor & Firmware Upgrades	**2025**	$	7,429	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742627**	Dawn Dehy PLC Processor & Firmware Upgrades	**2027**	$	6,801	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742458**	Parkway West Aux Building PLC Processor & Firmware Upgrade	**2026**	$	5,865	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742223**	Dawn TCPL Surge Protector	**2025**	$	3,715	We have had several lightning strikes which has damaged sensitive electronic equipment. Installation of a surge protector at various sites will reduce the damage, downtime and repairs.	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742457**	Parkway West Measurement PLC Processor & Firmware Upgrades	**2026**	$	3,519	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**	**742628**	Edys Mills PLC Processor & Firmware Upgrades	**2026**	$	2,075	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.

STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**		**742617**	Dow A Pool PLC Processor & Firmware Upgrades	**2026**	$	1,700	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**		**742437**	Lobo MCR PLC Processor & Firmware Upgrades	**2025**	$	1,238	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**		**742450**	Parkway East Plant A PLC Processor & Firmware Upgrades	**2026**	$	1,173	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**		**742452**	Parkway West MCR PLC Processor & Firmware Upgrade	**2026**	$	1,173	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**		**742629**	Dawn NO Header PLC Processor & Firmware Upgrades	**2027**	$	929	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**		**742631**	Oil Springs East PLC Processor & Firmware Upgrades	**2027**	$	815	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
STO - UG	**Div_53 - Union South Storage**	Compression Stations	**Pass**		**742626**	167 PLC Processor & Firmware Upgrades	**2027**	$	766	Issue/Concern/Opportunity: PLC Processor firmware is currently outdated and requires updating to current manufacturer recommended version to enable latest security features and patches. Some processors are too old to accept the new firmware and will need to be upgraded at the same time. Other processors can support the firmware and do not require hardware updates, just a firmware download. In the case of OEM supplied equipment, the OEM will need to approve and provide the updated version. Justification: Audit by TIS suggested that upgrades be made to firmware. As Microsoft windows is upgraded to newer versions, support for older firmware revisions is lost. We have run into issues where we could not run the required software on our computers to communicate with controllers with out of date firmware. Assets: Related Investments:	Fail	Compression Station related projects are required to maintain existing deliverability and throughput. This is necessary to maintain security of supply and stable natural gas pricing during supply disruptions.
Northern & Eastern	**60 - Ottawa**	Customer Connections	**Fail**	Customer Connections	**3764**	Area 60 - Residential - New Construction	**2025**	$	170,079,758			
GTA East & Toronto	**40 - Whitby**	Customer Connections	**Fail**	Customer Connections	**3747**	Area 40 - Residential - New Construction	**2025**	$	120,537,856			
GTA West	**30 - Richmond Hill**	Customer Connections	**Fail**	Customer Connections	**3738**	Area 30 - Residential - New Construction	**2025**	$	119,495,966			
GTA West	**50 - Barrie**	Customer Connections	**Fail**	Customer Connections	**3756**	Area 50 - Residential - New Construction	**2025**	$	112,934,256			
Southeast	**Div_07 - Waterloo**	Customer Connections	**Fail**	Customer Connections	**500420**	WATE: Company Program - Customer Connections	**2025**	$	110,029,768			
GTA West	**20 - Mississauga**	Customer Connections	**Fail**	Customer Connections	**3729**	Area 20 - Residential - New Construction	**2025**	$	91,020,494			
Southeast	**80 - Niagara**	Customer Connections	**Fail**	Customer Connections	**3772**	Area 80 - Residential - New Construction	**2025**	$	84,919,932			
GTA East & Toronto	**10 - Toronto**	Customer Connections	**Fail**	Customer Connections	**3700**	Area 10 - Residential - New Construction	**2025**	$	83,624,208			
Southwest	**Div_04 - London**	Customer Connections	**Fail**	Customer Connections	**500418**	LOND: Company Program - Customer Connections	**2025**	$	73,081,589			
GTA East & Toronto	**Div_22 - Kingston**	Customer Connections	**Fail**	Customer Connections	**500423**	KING: Company Program - Customer Connections	**2025**	$	69,174,131			
GTA West	**Div_17 - Halton**	Customer Connections	**Fail**	Customer Connections	**48452**	HALT: Company Program - New Business - Scattered Mains - Contractor	**2025**	$	66,954,451			
Southeast	**Div_16 - Hamilton**	Customer Connections	**Fail**	Customer Connections	**500421**	HAMI: Company Program - Customer Connections	**2025**	$	60,543,498			
GTA West	**Div_17 - Halton**	Customer Connections	**Fail**	Customer Connections	**500422**	HALT: Company Program - Customer Connections	**2025**	$	54,226,312			
Northern & Eastern	**60 - Ottawa**	Customer Connections	**Fail**	Customer Connections	**740147**	Area 60 - Non-Residential/MUB	**2025**	$	48,453,644			
Southeast	**Div_07 - Waterloo**	Customer Connections	**Fail**	Customer Connections	**48396**	WATE: Company Program - New Business - Scattered Mains - Contractor	**2025**	$	47,121,892			
GTA West	**20 - Mississauga**	Customer Connections	**Fail**	Customer Connections	**740143**	Area 20 - Non-Residential/MUB	**2025**	$	46,810,401			
GTA East & Toronto	**10 - Toronto**	Customer Connections	**Fail**	Customer Connections	**740142**	Area 10 - Non-Residential/MUB	**2025**	$	46,402,702			
Southwest	**Div_01 - Windsor**	Customer Connections	**Fail**	Customer Connections	**500415**	WIND: Company Program - Customer Connections	**2025**	$	45,878,880			
Northern & Eastern	**Div_46 - North Bay & Orillia**	Customer Connections	**Fail**	Customer Connections	**500427**	NBAY: Company Program - Customer Connections	**2025**	$	40,845,795			
GTA West	**30 - Richmond Hill**	Customer Connections	**Fail**	Customer Connections	**740144**	Area 30 - Non-Residential/MUB	**2025**	$	34,191,923			
Northern & Eastern	**60 - Ottawa**	Customer Connections	**Fail**	Customer Connections	**3765**	Area 60 - Residential - Conversion	**2025**	$	29,336,185			
GTA East & Toronto	**40 - Whitby**	Customer Connections	**Fail**	Customer Connections	**740145**	Area 40 - Non-Residential/MUB	**2025**	$	26,919,613			
Southeast	**Div_16 - Hamilton**	Customer Connections	**Fail**	Customer Connections	**48427**	HAMI: Company Program - New Business - Scattered Mains - Contractor	**2025**	$	25,910,533			
Southeast	**Div_06 - Brantford**	Customer Connections	**Fail**	Customer Connections	**500419**	BRAN: Company Program - Customer Connections	**2025**	$	20,948,985			
Southeast	**80 - Niagara**	Customer Connections	**Fail**	Customer Connections	**740148**	Area 80 - Non-Residential/MUB	**2025**	$	20,065,713			

Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Customer Connections	**Fail**	Customer Connections	**500425**	SUDB: Company Program - Customer Connections	**2025**	$	19,180,649
GTA East & Toronto	**10 - Toronto**	Customer Connections	**Fail**	Customer Connections	**3408**	Area 10 - Residential - Replacement	**2025**	$	18,773,506
GTA East & Toronto	**Div_22 - Kingston**	Customer Connections	**Fail**	Customer Connections	**48471**	KING: Company Program - New Business - Scattered Mains - Contractor	**2025**	$	18,283,161
GTA East & Toronto	**40 - Whitby**	Customer Connections	**Fail**	Customer Connections	**3748**	Area 40 - Residential - Conversion	**2025**	$	16,772,126
Southwest	**Div_01 - Windsor**	Customer Connections	**Fail**	Customer Connections	**48287**	WIND: Company Program - New Business - Scattered Mains - Contractor	**2025**	$	15,849,304
Southwest	**Div_01 - Windsor**	Customer Connections	**Fail**	Customer Connections	**48306**	WIND: Generic Greenhouse Windsor	**2025**	$	15,190,837
GTA West	**50 - Barrie**	Customer Connections	**Fail**	Customer Connections	**3757**	Area 50 - Residential - Conversion	**2025**	$	14,649,860
Southeast	**80 - Niagara**	Customer Connections	**Fail**	Customer Connections	**3769**	Area 80 - Commercial - New Construction	**2025**	$	14,255,222
Southeast	**Div_06 - Brantford**	Customer Connections	**Fail**	Customer Connections	**48379**	BRAN: Company Program - New Business - Scattered Mains - Contractor	**2025**	$	13,798,460
Southwest	**Div_04 - London**	Customer Connections	**Fail**	Customer Connections	**48347**	LOND: Company Program - New Business - Scattered Mains - Contractor	**2025**	$	13,276,113
Northern & Eastern	**Div_33 - Thunder Bay**	Customer Connections	**Fail**	Customer Connections	**500424**	TBAY: Company Program - Customer Connections	**2025**	$	12,890,956
GTA West	**50 - Barrie**	Customer Connections	**Fail**	Customer Connections	**740146**	Area 50 - Non-Residential/MUB	**2025**	$	10,428,386
Southwest	**Div_02 - Chatham**	Customer Connections	**Fail**	Customer Connections	**500416**	CHAT: Company Program - Customer Connections	**2025**	$	7,916,999
Northern & Eastern	**Div_46 - North Bay & Orillia**	Customer Connections	**Fail**	Customer Connections	**48574**	NBAY: Company Program - New Business - Scattered Mains - Contractor	**2025**	$	5,881,889
Southeast	**Div_07 - Waterloo**	Customer Connections	**Fail**	Customer Connections	**503298**	WATE: Company Program - Customer Connections - TCS/SES	**2025**	$	5,378,483
GTA West	**20 - Mississauga**	Customer Connections	**Fail**	Customer Connections	**3730**	Area 20 - Residential – Conversion	**2025**	$	5,053,203
GTA East & Toronto	**Div_22 - Kingston**	Customer Connections	**Fail**	Customer Connections	**503306**	KING: Company Program - New Business - Scattered Mains TCS/SES - Contractor	**2025**	$	4,727,023
GTA West	**30 - Richmond Hill**	Customer Connections	**Fail**	Customer Connections	**3739**	Area 30 - Residential - Conversion	**2025**	$	4,029,732
Northern & Eastern	**Div_43 - Sudbury & S.S. Marie**	Customer Connections	**Fail**	Customer Connections	**48532**	SUDB: Company Program - New Business - Scattered Mains - Contractor	**2025**	$	3,078,130
Southwest	**Div_03 - Sarnia**	Customer Connections	**Fail**	Customer Connections	**500417**	SARN: Company Program - Customer Connections	**2025**	$	3,057,806
Southwest	**Div_02 - Chatham**	Customer Connections	**Fail**	Customer Connections	**48320**	CHAT: Company Program - New Business - Scattered Mains - Contractor	**2025**	$	3,000,694
GTA West	**Div_17 - Halton**	Customer Connections	**Fail**	Customer Connections	**503303**	HALT: Company Program - Customer Connections – TCS/SES	**2025**	$	2,664,226
Southeast	**80 - Niagara**	Customer Connections	**Fail**	Customer Connections	**3773**	Area 80 - Residential - Conversion	**2025**	$	1,992,998
GTA West	**50 - Barrie**	Customer Connections	**Fail**	Customer Connections	**503320**	Area 50 - Residential – Conversion TCS/SES	**2025**	$	1,985,210
GTA West	**20 - Mississauga**	Customer Connections	**Fail**	Customer Connections	**503322**	Area 20 - Residential – Conversion TCS/SES	**2025**	$	1,985,210
Northern & Eastern	**Div_33 - Thunder Bay**	Customer Connections	**Fail**	Customer Connections	**48506**	TBAY: Company Program - New Business - Scattered Mains - Company	**2025**	$	1,983,135
Northern & Eastern	**Div_45 - Timmins**	Customer Connections	**Fail**	Customer Connections	**500426**	TIMM: Company Program - Customer Connections	**2025**	$	1,191,871
Southwest	**Div_03 - Sarnia**	Customer Connections	**Fail**	Customer Connections	**48335**	SARN: Company Program - New Business - Scattered Mains - Contractor	**2025**	$	993,654
Southeast	**80 - Niagara**	Customer Connections	**Fail**	Customer Connections	**503323**	Area 80 - Residential - Conversion TCS/SES	**2025**	$	691,165
Southeast	**Div_06 - Brantford**	Customer Connections	**Fail**	Customer Connections	**503296**	BRAN: Company Program - Customer Connections - TCS/SES	**2025**	$	685,381
Northern & Eastern	**60 - Ottawa**	Customer Connections	**Fail**	Customer Connections	**503317**	Area 60 - Residential - Conversion TCS/SES	**2025**	$	525,647
GTA East & Toronto	**10 - Toronto**	Customer Connections	**Fail**	Customer Connections	**503318**	Area 10 - Residential - Replacement TCS	**2025**	$	6
GTA East & Toronto	**40 - Whitby**	Customer Connections	**Fail**	Customer Connections	**503319**	Area 40 - Residential - Conversion TCS/SES	**2025**	$	6
GTA West	**30 - Richmond Hill**	Customer Connections	**Fail**	Customer Connections	**503321**	Area 30 - Residential - Conversion TCS/SES	**2025**	$	6

Enbridge Gas 2025–34 Asset Management Plan (AMP) Customer Engagement

March 2024

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2025–34 Asset Management Plan (AMP) Customer Engagement Report

March 2024

Confidentiality

This report and all of the information and data contained within may not be released, shared, or otherwise disclosed to any other party, without the prior, written consent of Enbridge Gas Inc.

Acknowledgement

This report has been prepared by Innovative Research Group Inc. (INNOVATIVE) for Enbridge Gas. The conclusions drawn and opinions expressed are those of the authors.

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Introduction

In alignment with the Ontario Energy Board's (OEB) guidelines, Enbridge Gas Inc. (Enbridge) embarked on a strategic initiative to involve its customers in shaping the utility's future plans. To this end, in the Fall of 2023, Enbridge Gas commissioned Innovative Research Group Inc. (INNOVATIVE) to help design, execute, and document the results of Enbridge Gas Inc.'s Asset Management Plan (AMP) Customer Engagement, to supplement their 2025 – 2034 business plan.

Early in 2017, the OEB's *Handbook for Utility Rate Applications (Handbook)*[1] was supplemented with amended filing requirements for natural gas rate applications, which make the following stipulations regarding customer engagement:

- *"Utilities are expected to develop a genuine understanding of their customers' interests and preferences and integrate those interests and preferences into their plans. Utilities are expected to demonstrate value for money by delivering genuine benefits to customers and providing services in a manner which is responsive to customer preferences. Customer engagement is expected to inform the development of utility plans, and utilities are expected to demonstrate in their proposals how customer expectations have been integrated into their plans, including the trade-offs between outcomes and costs."*[1]
- *"The OEB expects natural gas utilities to provide an overview of customer engagement activities undertaken and how their customer's* ***needs, preferences*** *and expectations have been reflected in the elements of the application."*[2]

Needs questions center on understanding the gap between the desired services and experiences of customers, and their perceptions of the actual services and experiences they receive.

Preferences questions revolve around customers' perspectives regarding the outcomes that utilities should focus on, ranking these outcomes, trade-offs between outcomes on specific programs, or the pacing of investments.

In its Handbook for Utility Rate Applications, the OEB has also indicated that "Planning is an ongoing utility activity, not just something that is done in preparation for a rate application."

Consistent with that direction, in the development of Enbridge Gas's Asset Management Plan (AMP) for 2025 – 2034, a customer engagement strategy was employed to ensure that the plan not only reflects the company's operational objectives but also aligns with the needs and preferences of its customer base. Enbridge Gas regularly interacts with customers through activities such as gathering feedback on overall satisfaction levels, call experiences, and other service-related matters. While these ongoing discussions cover a wide range of needs, they may not include investment choices. Recognizing this gap, Enbridge Gas initiated a dedicated customer engagement initiative to specifically explore investment preferences alongside customer satisfaction. Data collection was carried out in November through December of 2023 for residential and business customers, and from December 2023 to January 2024 for contract customers.

[1] Handbook for Utility Rate Applications (October 13, 2016)

[2] OEB Filing Requirements for Natural Gas Rate Applications, Section 2.1.6.

Recognizing the importance of customer feedback in shaping business decisions, Enbridge Gas sought to understand its customers' views on how assets are managed. The online customer engagement survey was carefully designed to explain complex concepts to customers using images and straightforward language, with a focus on identifying needs and preferences rather than technical issues. It presented customers with clear choices, enabling them to make informed decisions about asset management topics. Finally, an open-ended question allowed respondents to provide any additional comments they felt Enbridge Gas should consider when developing their business plan.

This document provides an overview of the Enbridge Gas' 2025 – 2034 Asset Management Plan (AMP) customer engagement process and a summary of the generalizable results from the representative surveys.

- A detailed description of the methodology can be found in the section ("Designing This Engagement")
- Detailed results can be found in the attached customer engagement Appendices.

Executive Summary

The **2025–2034 Asset Management Plan Customer Engagement** used an online customer engagement survey approach to identify customer needs and preferences, as well as to explore key planning trade-offs in their assets.

The engagement found the following key findings:

Enbridge Gas customers are generally satisfied and identify few unmet needs.

Survey results indicated a high level of customer satisfaction across residential, business, and contract segments with Enbridge Gas's services. Specifically, 73% of residential customers, 71% of business customers, and 81% of contract customers said they were at least somewhat satisfied. Despite the overall positive feedback, areas for improvement were identified, notably in cost reduction and the accuracy of meter readings.

Affordable Pricing, Reliability and Safe Delivery are the Top Outcomes

Customers were asked to rate and rank nine key outcomes derived from an earlier customer engagement, to gauge their importance for Enbridge Gas's planning. In the rating portion, affordable pricing and safely and reliably delivering natural gas emerged as the top three priorities. A second tier of priorities includes providing dependable customer service, making good use of the money customers pay, and predictable pricing.

Subsequently, customers ranked their top three outcomes to give some sense of how to resolve conflicts between outcomes of similar importance in the rating section. In this approach, providing affordable pricing took precedence, with reliable and safe gas delivery forming a second tier. Larger business customers that gave much more priority to reliability than lower volume customers.

Asset Management

The online customer engagement survey sought customer preferences on various aspects of asset management. Highlights include:

- *Investing in Service Quality:* Customers generally prefer maintaining current service levels, with some interest in enhancing customer service from business customers.
- *Budget Allocation:* A consensus prefers a long-term budget allocation approach, evenly spread costs over time despite potential short-term rate increases.
- *Distribution Pipe:* A large majority of customers support proactive pipeline management to ensure safety and reliability.
- *AMP Fittings:* A large majority of customers also prefer increased short-term spending to replace AMP fittings.
- *Fleet and Equipment:* By a two-to-one margin, customers support for the current plan to bring the fleet into line with the optimal replacement age.
- *Dashcams:* Customers have mixed opinions on dashcam implementation, with a plurality favoring at least a slow roll-out.
- *Technology and Information Systems:* A majority of customers support investing in technology to improve efficiency in the long-term.

Energy Transition, IRP, and GHG Reductions

This section of the online customer engagement survey focused on understanding customer perspectives on energy transition, integrated resource planning (IRP), and greenhouse gas (GHG) emission reductions. Insights include:

- *Familiarity with Energy Transition:* Just over half of residential and business customers are not very or not at all familiar with the energy transition, with higher awareness among contract customers.
- *Natural Gas Consumption 10 vs 30 Years:* Most customers expect to use the same amount of natural gas in 10 years, but a significant number expect to use less in 30 years, especially among residential customers.
- *Reducing Impact on the Environment and Access to Energy:* There was strong agreement on the importance of reliable energy delivery and having energy options. Over 60% in all rate classes expressed support for Enbridge Gas supporting low-carbon solutions.
- *Pipeline Replacement and IRP:* At least a plurality of customers in every rate class favour prioritizing pipeline replacement when appropriate to reduce the risk of failures.
- *New Pipelines and IRP:* A plurality of customers prefer new pipeline construction over non-pipeline alternatives. This rises to a majority among larger business customers.
- *Non-Pipeline Alternative Implementation Costs:* While customers generally preferred building new pipelines over non-pipeline alternatives, residential customers are open to paying more for non-pipeline alternatives. Business customers tend to be unwilling to pay anything more.
- *GHG Emission Reductions:* Cost effectiveness is the highest customer criteria for selecting GHG reduction projects, with timing being the least important consideration.
- *Compressor Stations (Fuel Costs Only):* A plurality support replacing at least 25% of the natural gas used in compressor stations with renewable natural gas, even if it costs more.
- *Real Estate Workplace Services (Net Zero Buildings):* Customer prefer exceeding current standards and aiming for Net-Zero buildings.
- *GHG Emission Reductions (Other):* A majority of residential customers are willing to pay more to reduce other GHG emissions while business customers tend to be opposed.

Survey Diagnostics

Seven-in-ten (70%) business customers and 72% of residential customers had a favourable impression of the survey. Two thirds felt the survey had just the amount of information. More than seven-in-ten had no final comments, but those who did were most likely mentioned keeping costs low (5%).

Key Findings

2025–2034 Asset Management Plan Customer Engagement

Methodology: Online customer engagement surveys among residential customers, small to medium-large business customers, and contract customers.

NOTE: Due to the small sample of Contract customers, results for that class in this section are shown as frequencies to remind the readers that the sample is limited as well as percentages to facilitate a directional comparison to the residential and business customer segments.

Satisfaction with Enbridge Gas

When it comes to the overall experience with Enbridge Gas, a majority of customers across all segments are satisfied with the service they receive from the utility. Satisfaction among residential customers is slightly higher than among business customers. Within the business customers, medium-large business customers are marginally less satisfied than small business customers.

Satisfaction with Enbridge Gas' Performance	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=36)
Satisfied	73%	71%	72%	68%	81% (29)
Dissatisfied	8%	11%	11%	12%	6% (2)
Neutral/Don't know	20%	17%	17%	21%	14% (5)

Customer Needs

Respondents are asked the following open-ended question to identify unmet needs:

Is there anything in particular Enbridge Gas can do to improve their service to you?

The verbatims from the residential and small business surveys were coded, and the following table summarizes the most common themes that are captured across the low-volume customer base.

Most respondents said that they prefer not to respond or don't know or have nothing to say when it comes to Enbridge Gas improving its services. For those who had an opinion, the top mention is that Enbridge Gas should lower costs, followed by being content with the service and wanting more accurate meter readings.

Final Thoughts	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)
Prefer not to respond/Don't know/None	51%	54%	54%	53%
Lower cost/rates/delivery charge	22%	15%	16%	6%
Everything is good/no concerns/positive comment	12%	10%	10%	7%
Clearer/more accurate meter readings	4%	6%	5%	9%

Customer Outcomes

Using the list built in the 2024 Rate Rebasing Customer Engagement, INNOVATIVE explored customer outcome priorities in a few ways:

1. Customers were asked to rate outcomes to identify how much importance they place on each outcome.
2. Customers were then asked to rank outcomes to give some sense of how to resolve conflicts between outcomes of similar importance in the rating section prior.

The list and results regarding the importance of the outcomes are presented in the table below:

% Important [6-10 on a 0-10 scale]	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=36)
Providing affordable pricing	97%	96%	96%	93%	97% (35)
Reliably delivering natural gas	97%	96%	96%	95%	100% (36)
Safely delivering natural gas	96%	94%	94%	93%	94% (34)
Providing dependable customer service	96%	95%	95%	93%	100% (36)
Making good use of the money customers pay	95%	92%	92%	92%	97% (35)
Providing predictable pricing	94%	93%	93%	91%	92% (33)
Minimizing any impacts on the environment	84%	79%	79%	77%	89% (32)
Being socially responsible	78%	74%	74%	73%	78% (28)
Supporting the growth of Ontario's economy	76%	78%	78%	83%	83% (30)

***NOTE**: Outcomes are shown in ranked order according to the residential online survey results.*

Across all the customer segments, when we look just at responses of 9 or 10, providing affordable pricing and safely and reliably delivering natural gas are the three most important outcomes for Enbridge Gas to consider. Providing dependable customer service, making good use of the money customers pay, and providing predictable pricing close the gap when we include all responses between 6 and 10. Minimizing any impacts on the environment is a somewhat more important outcome from the perspective of residential respondents than it is to business respondents. There is a consensus that being socially responsible and supporting the growth of Ontario's economy are the least important outcomes for Enbridge Gas to consider.

Afterwards, respondents are asked to indicate which of the outcomes is the MOST important to them as a customer. When asked to choose, all customer segments put providing affordable pricing at the top of the outcomes. Reliably and safely delivering natural gas drops to a second tier among both residential and business respondents. As in the table prior, being socially responsible and supporting the growth of Ontario's economy remain at the bottom of the list.

% Saying Outcome is the	Residential	Business	Small	Med-Large	Contract

MOST Important	(n=3,600)	(n=1,200)	(n=1,094)	(n=106)	(n=36)
Providing affordable pricing	48%	51%	52%	45%	28% (10)
Reliably delivering natural gas	14%	14%	13%	24%	36% (13)
Safely delivering natural gas	14%	10%	10%	7%	11% (4)
Minimizing any impacts on the environment	9%	7%	8%	3%	8% (3)
Providing predictable pricing	5%	6%	5%	8%	6% (2)
Making good use of the money customers pay	4%	4%	4%	5%	3% (1)
Providing dependable customer service	4%	4%	4%	6%	6% (2)
Being socially responsible	1%	1%	1%	2%	0% (0)
Supporting the growth of Ontario's economy	1%	1%	1%	<1%	3% (1)
Don't know	1%	1%	1%	1%	0% (0)

***NOTE**: Outcomes are shown in ranked order according to the residential online survey results.*

Asset Management

Investing in Service Quality

When it comes to the level of safety, reliability, and customer service customers receive from Enbridge Gas, most would like the utility to invest in maintaining rather than improving the current level. Of the three metrics, business customers are most likely to want Enbridge Gas to invest in improving the current level of customer service.

Customer Service	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=36)
Increase	15%	25%	24%	37%	31% (11)
Maintain	70%	62%	63%	53%	67% (24)
Decrease	5%	5%	5%	2%	0% (0)
Safety	**Residential (n=3,600)**	**Business (n=1,200)**	**Small (n=1,094)**	**Med-Large (n=106)**	**Contract (n=36)**
Increase	20%	19%	19%	20%	11% (4)
Maintain	68%	69%	69%	64%	81% (29)
Decrease	2%	3%	3%	4%	3% (2)
Reliability	**Residential (n=3,600)**	**Business (n=1,200)**	**Small (n=1,094)**	**Med-Large (n=106)**	**Contract (n=36)**
Increase	18%	18%	18%	20%	36% (13)
Maintain	71%	71%	71%	71%	58% (21)
Decrease	2%	3%	3%	1%	0% (0)

Budget Allocation

Given a choice between focusing on the long-term health of the system or the immediate impact on rates, customers across all segments are more likely in favour of taking the long-term approach, spreading its costs out evenly over time, even if it means higher rates now. Residential customers are slightly higher than small business customers when it comes to spreading the cost out evenly over time. Larger business customers are the most likely to favour this approach.

Budget Allocation	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=36)
Spread costs out evenly over time	57%	52%	52%	60%	64% (23)
Spend what it takes to keep the system in good order now	24%	27%	28%	22%	22% (8)
Don't have an opinion	12%	14%	14%	16%	11% (4)
Don't know	7%	7%	7%	2%	3% (1)

Distribution Pipe

Enbridge Gas presented its customers with a choice regarding its most at risk pipeline infrastructure. Customers were asked if Enbridge Gas should address pipelines at risk before they break to prevent leaks, or if they should wait for replacement until leaks are detected to keep costs down. Majorities in all rate classes favour addressing the pipelines that are at risk before they break to prevent possible leaks as much as possible, with higher support among residential respondents than business respondents.

Distribution Pipe	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=36)
Address pipelines that are at risk before they break to prevent leaks as much as possible	88%	82%	82%	86%	78% (28)
Should wait to address breaks until leaks are detected to keep costs down	6%	9%	9%	8%	14% (5)
Don't have an opinion	4%	7%	7%	4%	8% (3)
Don't know	2%	2%	2%	3%	0% (0)

AMP Fittings

AMP fittings were used as a second example of whether to spend more now or spend more later. After reviewing some background on the AMP fittings issues, more than two-thirds of the customers preferred Enbridge Gas to increase spending in the short run to reduce the long-term cost. Less than one-in six feel Enbridge Gas should only replace the AMP fittings when leaks occur to keep current costs low, even if it costs more over time.

AMP Fittings	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=36)
Should increase spending in the short run to replace the AMP fittings	76%	69%	68%	73%	n/a
Should only replace the AMP fittings when leaks occur	11%	17%	17%	15%	
Don't have an opinion	8%	11%	11%	10%	
Don't know	4%	4%	4%	2%	

Fleet and Equipment

Enbridge Gas shared some background information about maintaining its fleet and equipment. The survey asked whether customers prefer Enbridge Gas' current plan to increase the pace of investments to bring the fleet back to the optimal balance of maintenance cost and vehicle value or to slow the pace down to save money in the short run at the risk of increased maintenance and productivity costs. Customers are more likely to favour continuing to look at the optimal life of the vehicle, higher among residential customers than business customers.

Fleet and Equipment	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=36)
Should continue to look at the optimal life of the vehicle	60%	54%	54%	55%	56% (20)
Should slow down its replacement strategy and only replace vehicles when they reach the end of their useful life	24%	26%	26%	28%	25% (9)
Don't have an opinion	11%	14%	14%	13%	17% (6)
Don't know	4%	5%	5%	4%	3% (1)

Dashcams

The survey continued with a question on dashcams. More customers feel Enbridge Gas should at least slowly roll out dashcams than feel they should not install any at all. While half (51%) of residential customers supported at least a slow roll-out, business customers were less supportive with 43% preferring at least a slow roll-out.

Dashcams	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=36)
Should add dashcams to all its vehicles as soon as feasible	22%	17%	17%	19%	14% (5)
Should slowly roll out dashcams for vehicles	28%	26%	26%	28%	31% (11)
Should not install any dashcams at all	34%	37%	38%	33%	33% (12)
Don't have an opinion	13%	16%	16%	19%	19% (7)
Don't know	3%	3%	3%	2%	3% (1)

Technology and Information Systems (TIS)

The survey explored customer views on the use of technology to improve the efficiency of its business. All customer segments favour Enbridge Gas pursuing technology opportunities to help save money in the long run, with more support among residential customers than business customers.

Technology and Information Systems (TIS)	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=36)
Should pursue technology opportunities that help it to become more efficient	62%	55%	54%	68%	69% (25)
Should focus on the immediate impact on rates	28%	34%	35%	23%	22% (8)
Don't have an opinion	6%	8%	8%	6%	8% (3)
Don't know	3%	3%	3%	3%	0% (0)

Energy Transition, IRP and GHG Emission Reductions

Familiarity with Energy Transition

All survey respondents are shown the following preamble:

> *Energy transition in the broadest sense is a global shift away from using carbon-intense fossil fuels (like oil, gasoline, and coal) to a more sustainable, renewable energy future that includes more innovation and customer choice. When Enbridge Gas considers this, it focuses on reducing energy demand and reducing greenhouse gas (GHG) emissions to contribute to net zero goals.*

Across the rate classes, a slight majority of customers say they are not very or not at all familiar with the energy transition discussion in Ontario. Contract customers are the exception with nine out of ten at least somewhat familiar.

Familiarity with Energy Transition	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=35)
Very familiar	9%	9%	9%	13%	26% (9)
Somewhat familiar	38%	37%	37%	35%	63% (22)
Not very familiar	28%	30%	30%	33%	9% (3)
Not at all familiar	22%	21%	21%	18%	3% (1)
Don't know	3%	3%	4%	2%	0% (0)
Familiar	46%	46%	46%	48%	89% (31)

Natural Gas Consumption – 10 vs 30 Years

The survey asked customers to look ahead 10 and 30 years and indicate how much natural gas someone like you will be using. A majority of customers are expecting to use the same amount of gas in 10 years. Looking ahead 30 years, 40% of business customers expect to use less and 48% of residential customers expect customers like them will be using less.

10 Years	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=35)
More	9%	14%	14%	19%	40% (14)
About the same	57%	57%	57%	59%	23% (8)
Less	28%	22%	22%	21%	37% (13)
30 Years	**Residential (n=3,600)**	**Business (n=1,200)**	**Small (n=1,094)**	**Med-Large (n=106)**	**Contract (n=35)**
More	8%	14%	14%	20%	29% (10)
About the same	27%	32%	32%	33%	14% (5)
Less	47%	40%	41%	36%	54% (19)

Reducing Impact on the Environment and Access to Energy

Customers are then asked about their perspective on several statements concerning options and solutions to reduce impacts on the environment and access to energy.

The highest level of agreement was that being able to depend on reliable delivery of energy is important. All 35 contract customers agreed and roughly nine out of ten of the other customers agreed.

Almost as many (approximately eight out of ten) agreed it is important to have energy options.

Across all rate classes, two-thirds or more agree they look to Enbridge Gas to develop offerings and solutions to reduce their natural gas use.

More than six in ten in every rate class expect Enbridge Gas to be investing in low-carbon solutions and solutions to reduce environmental impacts.

There is more uncertainty on whether Enbridge Gas is well-positioned to support the development of low-carbon solutions. Almost half across most customer segments say that they neither agree nor disagree or don't know if Enbridge Gas is well positioned to support the development of low-carbon options and solutions. Contract customers are less uncertain and more likely to agree.

% who agree to the following statements	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=35)
Being able to depend on the reliable delivery of energy, even in periods of peak demand or unusual weather, is important to me	91%	87%	87%	89%	100% (35)
It is important to me to have options to choose the type of energy I use	83%	79%	79%	81%	97% (34)
I look to Enbridge Gas to help develop offerings and new solutions that will help me reduce my natural gas usage	71%	67%	66%	71%	77% (27)
Enbridge Gas should actively be investing in low-carbon options and solutions	69%	62%	62%	60%	80% (28)
Enbridge Gas is well positioned to support the development of low-carbon options and solutions*	47%	46%	46%	49%	57% (20)

***NOTE**: * Among those who said neither/don't know; Residential: 45%, Business: 45%, Small: 45%, Med-Large: 44% and Contract: 29% (10)*

Pipeline Replacement and IRP

All survey respondents are provided with the following information, and then asked for their input on how Enbridge Gas should manage its pipelines:

> *When considering its pipeline projects, Enbridge Gas is required by the Ontario Energy Board to evaluate whether alternatives are available that would delay, reduce, or eliminate the need for the project. These alternatives are beneficial in working towards a clean energy future, by reducing overall energy use and potential greenhouse gas (GHG) emissions.*
>
> *For each pipeline project, alternatives are evaluated from a technical and economic perspective, and as a result some alternatives to the pipeline project may be considered inappropriate according to criteria agreed upon with the Ontario Energy Board.*

Across all customer segments, a plurality selected prioritizing pipeline replacement when appropriate to reduce the risk of failures. This rises to a clear majority among larger business customers.

Pipeline Replacement and IRP	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=34)
Should spend more to inspect, repair and maintain	21%	23%	23%	19%	12% (4)
Should prioritize pipeline replacement	46%	46%	45%	53%	56% (19)
Should avoid replacing pipelines whenever alternatives to replacement	18%	16%	16%	17%	21% (7)
Don't have an opinion	9%	10%	10%	6%	12% (4)
Don't know	5%	5%	5%	5%	0% (0)

New Pipelines and IRP

When it comes to new pipeline expansion or capacity building, more customers agree that Enbridge Gas should prioritize new pipeline construction rather than give priority to alternatives. Medium-large business customers are even more likely to feel this way than lower-volume customers.

New Pipelines and IRP	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=33)
Should prioritize new pipeline construction	45%	46%	45%	56%	55% (18)
Should give priority to alternatives	35%	33%	33%	28%	33% (11)
I don't have an opinion on this	13%	15%	15%	12%	9% (3)
Don't know	7%	6%	7%	3%	3% (1)

Non-Pipeline Alternative Implementation Costs

Customers are provided the following information, and then asked if they would be willing to pay a certain amount per year in order for Enbridge Gas to implement the alternative solutions instead of the pipeline solutions:

> *When Enbridge Gas has a choice between pipeline or non-pipeline alternatives, if the cost is the same it will implement the non-pipeline alternative. When the cost for the non-pipeline alternative is higher, it will have a choice of which solution to implement. In this case, the alternative would cost more.*

Residential and business customers differ on this question. Without a clear benefit, a strong plurality of business customers are not willing to pay anything additional. However, a majority of residential customers are willing to pay at least $1 more a month to implement non-pipeline alternatives.

Alternative Solutions	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=33)
RES: $1.00/month or $12.00 extra per year BUS: 2% added to the delivery portion of your bill	18%	24%	24%	21%	21% (7)
RES: $2.00/month or $24.00 extra per year BUS: 4% added to the delivery portion of your bill	16%	10%	11%	9%	18% (6)
RES: $4.00/month or $48.00 extra per year BUS: 8% added to the delivery portion of your bill	14%	2%	3%	2%	3% (1)
RES: $10.00/month or $120.00 extra per year BUS: 10% added to the delivery portion of your bill	8%	3%	3%	2%	3% (1)
Some other amount per month	1%	1%	1%	<1%	3% (1)
I would not be willing to pay anything extra	31%	46%	46%	51%	45% (15)
Don’t know	12%	13%	13%	14%	6% (2)

GHG Emission Reductions

The survey asked customers to rank criteria for deciding which GHG emissions reduction initiatives should receive priority.

For all the customer segments, the priority selects the cost effectiveness of the project as the most important criterion. Residential and business customers share this priority. The size of the reduction is a clear second with readiness a distant third.

% Saying GHG Emission Reduction Project is the MOST Important	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=32)
The cost effectiveness of the project – projects with the lowest relative cost of the project compared to the GHG emission reductions it achieves	42%	43%	43%	47%	56% (18)
The total GHG emissions of the project – projects that reduce the most amount of GHG emissions	22%	18%	18%	17%	16% (5)
The timing of the project – projects that can be implemented the soonest	6%	7%	6%	14%	9% (3)
Enbridge Gas should not pursue any GHG emission reduction projects	11%	13%	13%	12%	16% (5)
Don't know	20%	19%	20%	10%	3% (1)

***NOTE**: Importance is shown in ranked order according to the residential online survey results.*

Compressor Stations | Fuel Costs Only

Enbridge Gas presented the following background about an opportunity to reduce GHG emissions from its compressors:

> *Compressors need energy to operate. Enbridge Gas has the opportunity to reduce its greenhouse gas (GHG) emissions by using renewable natural gas (RNG) to operate its compressors in the place of conventional natural gas. This is currently the largest opportunity for Enbridge Gas to reduce its own GHG emissions.*
>
> *RNG is derived from organic waste from farms, landfills, and water treatment plants and is considered to be carbon neutral. Using it instead of conventional natural gas would reduce GHG emissions and help meet climate change targets, however, it will also increase Enbridge Gas' operational costs because RNG is more expensive than conventional natural gas.*

Across all customer segments, a plurality prefers replacing at least 25% of the conventional natural gas used in compressors. Residential customers are more supportive of replacing at least some of the conventional natural gas than business customers.

Compressor Stations | Fuel Costs Only	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=31)
Should replace 100% of the conventional natural gas	22%	15%	16%	11%	13% (4)
Should replace 50% of the conventional natural gas	16%	16%	17%	13%	10% (3)
Should replace 25% of the conventional natural gas	14%	16%	15%	22%	16% (5)
Should keep using conventional natural gas	28%	31%	31%	34%	39% (12)
Should consider another % of renewable natural gas	1%	1%	1%	1%	0% (0)
I don't have an opinion on this	11%	14%	14%	15%	13% (4)
Don't know	8%	7%	8%	4%	10% (3)

Real Estate and Workplace Services – Net Zero Buildings

Another approach Enbridge Gas is considering as an opportunity to help reduce GHG emissions is from its buildings. Customers prefer Enbridge Gas to exceed current standards and build to Net-Zero standards.

Real Estate and Workplace Services – Net Zero Buildings	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=30)
Should build only to current standards and requirement	22%	30%	30%	32%	20% (6)
Should seek to exceed current standards and build to Net-Zero standards	64%	51%	51%	55%	57% (17)
I don't have an opinion on this	9%	13%	13%	9%	23% (7)
Don't know	5%	6%	6%	4%	0% (0)

GHG Emissions Reductions | Other

In addition to the different projects and opportunities for GHG emissions reduction listed earlier, customers were asked how much they would be willing to pay to reduce GHG emissions across Enbridge Gas operations. Without a clear benefit being identified, customers are divided on this question. While a majority of residential customers are willing to at least pay a $1.00 a month more, business customers are almost even split on whether they are willing to pay anything more or not.

GHG Emissions Reductions | Other	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=30)
RES: $1.00/month or $12.00 extra per year BUS: 2% added to the delivery portion of your bill	22%	22%	22%	23%	30% (9)
RES: $2.00/month or $24.00 extra per year BUS: 4% added to the delivery portion of your bill	13%	9%	9%	10%	13% (4)
RES: $4.00/month or $48.00 extra per year BUS: 8% added to the delivery portion of your bill	11%	3%	3%	1%	0% (0)
RES: $10.00/month or $120.00 extra per year BUS: 10% added to the delivery portion of your bill	6%	3%	3%	2%	3% (1)
Some other amount per month	1%	3%	3%	5%	3% (1)
I would not be willing to pay anything extra	36%	50%	49%	53%	47% (14)
Don’t know	10%	11%	11%	7%	3% (1)

Final Thoughts

Nearing the end of the survey, respondents are asked the following open-ended question:

Is there anything that you would like to share with Enbridge Gas as it works on building its business plan?

The verbatim from the residential and small business surveys are coded, the following table summarizes the most common themes.

More than seven in ten customers did not have any additional comments about the business plan. Among those who had comments, the top mention is that Enbridge Gas should keep costs low, followed by prioritizing the environment and that Enbridge Gas should fund the improvements rather than the customers.

Final Thoughts	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)
Prefer not to respond/Don't know/None	73%	76%	76%	78%
Keep cost low/reasonable pricing	5%	4%	4%	3%
Prioritize the environment/reduce carbon footprint	3%	3%	3%	2%
Improvements should be paid by Enbridge Gas	2%	2%	2%	1%

Customer Engagement Diagnostics

Survey Impression

Across all the customer segments, most had a favourable impression of the survey they just completed.

Survey Impression	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=29)
Favourable	72%	70%	69%	80%	79% (23)
Unfavourable	17%	19%	20%	15%	17% (5)
Don't know	10%	11%	11%	5%	3% (1)

Amount of Information

Most customers felt that Enbridge Gas provided the right amount of information.

Survey Impression	Residential (n=3,600)	Business (n=1,200)	Small (n=1,094)	Med-Large (n=106)	Contract (n=29)
Too little information	7%	6%	6%	5%	7% (2)
Just the right amount	66%	67%	66%	72%	83% (24)
Too much information	14%	14%	14%	16%	7% (2)
Don't know	13%	12%	13%	7%	3% (1)

Designing This Engagement

Introduction

The OEB requires Enbridge Gas to consider the views of customers while developing its business plan. This poses a significant challenge, given that many customers start with limited knowledge of the natural gas distribution system.

This engagement was designed with two key considerations in mind:

- Providing customers with the opportunity to express informed opinions.
- Ensuring a comprehensive representation of views from all customer types across all rate zones.

Informed Opinions: Customers typically possess minimal knowledge about natural gas delivery to their homes. However, the OEB expects utilities to solicit their input on technical subjects. Our approach is rooted in established opinion research literature, including the concepts of "deliberative democracy" pioneered by researchers like Fishkin and Luskin, and "public judgement" by Yankelovich. These frameworks suggest that while individuals may lack initial knowledge, they can learn, and form informed opinions. The goal of this customer engagement is to provide customers with sufficient background knowledge so that they can make a well-informed decision on the choices presented to them.

INNOVATIVE's approach is to develop surveys and workbooks that provide the essential information needed to inquire about the more specific project or program options. This specific survey was tested with customers to ensure they had the information they needed to provide informed responses to the questions. The diagnostic questions at the end of the survey confirmed most customers had a favourable impression of the survey and felt it had just enough information.

Representativeness: In any engagement, a fundamental question arises: Have all types of customers had the opportunity to express their opinions? With the implementation of an online customer engagement survey, obtaining email addresses for invitations is necessary. However, not all Enbridge Gas customers have provided their email addresses, posing a coverage challenge. In a previous study, Enbridge Gas commissioned INNOVATIVE to conduct both a short-form online survey and a telephone survey among residential customers. While minor differences were observed in the report, the results were largely similar, indicating no coverage issues.

In this customer engagement study, quotas were established by operations regions and consumption volume to ensure all types of customers had an equal chance of participation. Final data were weighted to reflect the actual distribution of customers across the seven operational regions and by consumption volume.

The following section provides a detailed overview of the 2025–2034 Asset Management Plan Customer Engagement.

AMP Customer Engagement: Online Survey

INNOVATIVE recommended an online survey approach for this customer engagement initiative to gain insights into Enbridge Gas' customer needs and key outcomes. Employing an online survey method is a more effective mode for providing the background information needed in this study compared to telephone methodologies. To ensure comprehensibility for customers with limited knowledge of Enbridge Gas, as well as to gauge the effectiveness of the engagement in providing balanced information, the survey underwent thorough testing before the official launch.

The online engagement survey was developed by Enbridge Gas and refined with input from INNOVATIVE. While the residential and business versions featured certain wording adjustments tailored to the specific needs of each customer group, the contract version mirrored the business edition with one exception, the AMP Fitting question was omitted.

One of the primary goals of this engagement is to gather insights from customers on their needs and key outcomes. In addition to overall satisfaction with the services provided, this online customer engagement covered topics such as asset management, customer outcomes, and energy transition. Throughout the survey, customers were provided with key information on Enbridge Gas as well as relevant information pertaining to asset management, customer outcomes, and energy transition. Participants were asked to provide feedback on the survey itself before a concluding open-ended question allowed participants to offer any additional comments they deemed relevant for Enbridge Gas to consider when shaping its investment strategy.

All survey participants were sent an invitation from Enbridge Gas containing a unique survey URL in order to complete the survey. Sample quotas were determined based on operational regions and consumption volume. The data was weighted to ensure proportionality across the seven operational regions and consumption volume categories. Residential customers were categorized into consumption quartiles, while business customers were designated as either "Low" or "High" volume due to the smaller target sample size.

2025–2034 Asset Management Plan Customer Engagement

Residential Survey Results

December 2023

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INNOVATIVE RESEARCH GROUP

Project Overview & Methodology

Enbridge Gas 2023 AMP Customer Engagement Survey

Innovative Research Group Inc. (INNOVATIVE) was engaged by Enbridge Gas to assist on their customer engagement program aimed at supporting its *2025-34 Asset Management Plan Customer Engagement* initiative. The project aligns with the principles outlined in the Ontario Energy Board's "consumer-centric" Renewed Regulatory Framework for Electricity Distributors (RRFE), which emphasizes the shift from utility cost-centric operations to delivering value to customers. A separate report summarises the findings of the survey with small and medium-large business customers.

Research Objectives & Survey Development

- The project focused on updating the Asset Management Plan without seeking additional rates. This aligns with the OEB's expectations that both planning and customer engagement are ongoing processes.
- The survey covered topics on asset management, customer outcomes, and energy transition. A final open-ended question allowed respondents to provide any additional comments they felt Enbridge Gas should take into account when developing their investment plan.
- The online survey was completed by a random sample of residential customers that were given the opportunity to provide their input into the Asset Management Plan.
- The surveys were developed by Enbridge Gas and finalized with input from INNOVATIVE. The residential and business versions were different only where wording adjustments were needed to tailor the question or response options for a residential vs business customer.
- Online survey was pre-tested through one-on-one interviews with 10 residential customers to ensure customer understanding and a positive survey experience.

Methodological Notes

- All data was collected between November 14th and December 15th, 2023. Details on sample design, weighting and validation can be found on the following pages.

Sample Design

Sample Design
Weighting the Data

Weighting the Data

The final data for the residential survey were then weighted to be proportionate based on the actual distribution of residential customers in each of the seven operations regions, as well as by the four consumption quartiles for a sample target of 3,600.

The table below summarizes the unweighted and weighted (in brackets) sample breakdown by quartile and operations regions.

Operations Regions	Consumption Quartiles				Total
	Low	Medium-Low	Medium-High	High	
Eastern	264 (177)	179 (125)	150 (101)	107 (84)	700 (487)
GTA East	229 (124)	255 (134)	260 (164)	230 (194)	974 (616)
GTA Toronto	140 (101)	129 (97)	151 (130)	190 (185)	610 (513)
GTA West	272 (150)	196 (155)	359 (178)	316 (205)	1143 (688)
Northern	74 (42)	77 (53)	100 (60)	99 (67)	350 (222)
Southeast	279 (187)	202 (167)	207 (143)	158 (129)	846 (626)
Southwest	237 (132)	221 (122)	149 (102)	109 (93)	716 (449)
Total	**1,495 (912)**	**1,259 (853)**	**1,376 (877)**	**1,209 (958)**	**5,339 (3,600)**

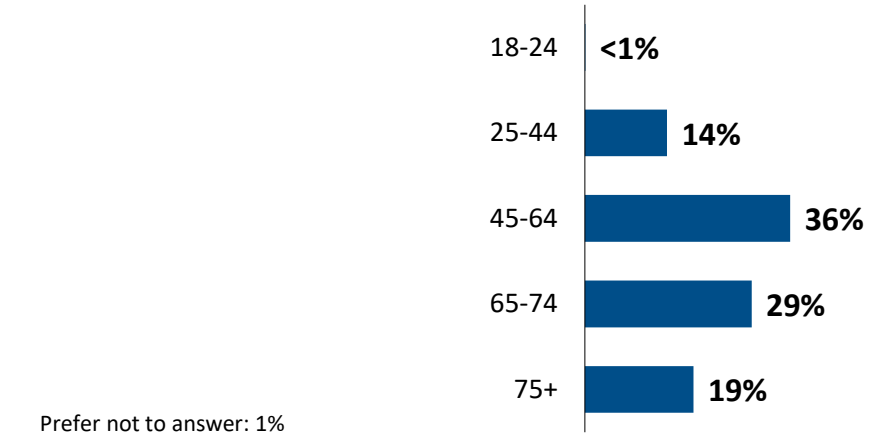
Note: *Graphs and tables may not always total 100% due to rounding values rather than any error in data. Sums are added before rounding numbers.*

Respondent Profile

Respondent Profile

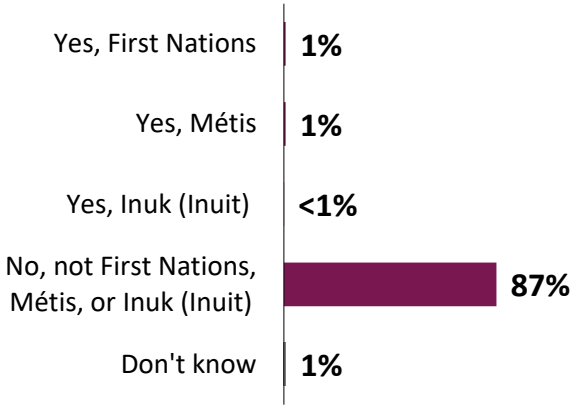
Demographic breakdown

Age



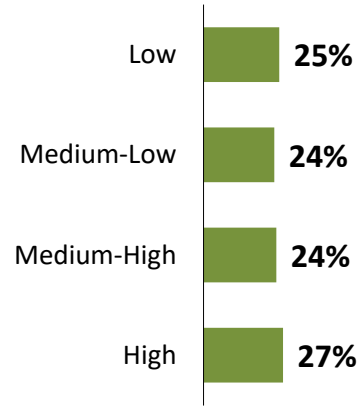
Prefer not to answer: 1%

Indigenous Identity

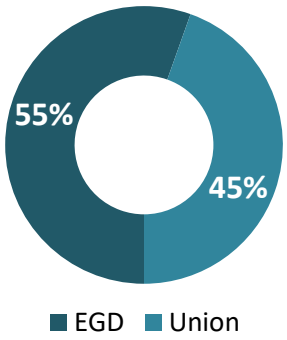


Prefer not to answer: 11%

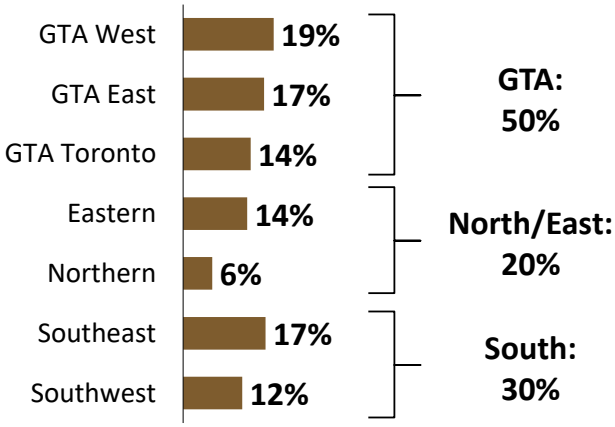
Consumption Quartiles



Rate Zone



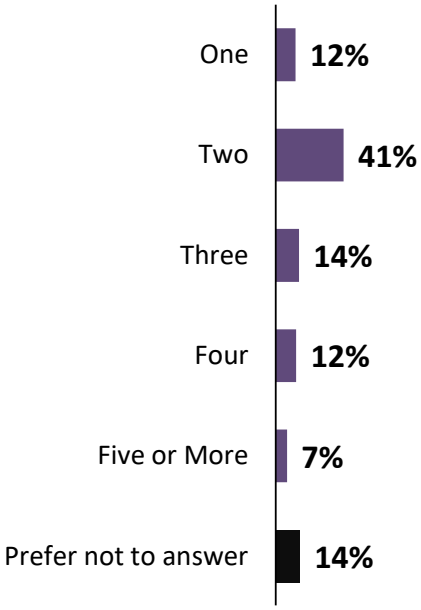
Operations Regions



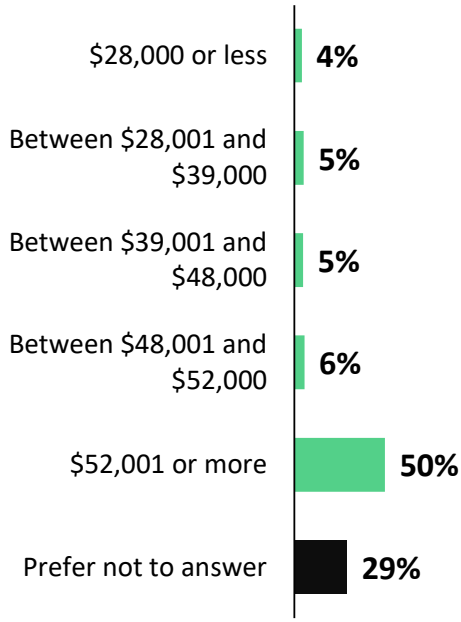
Respondent Profile

Demographic breakdown

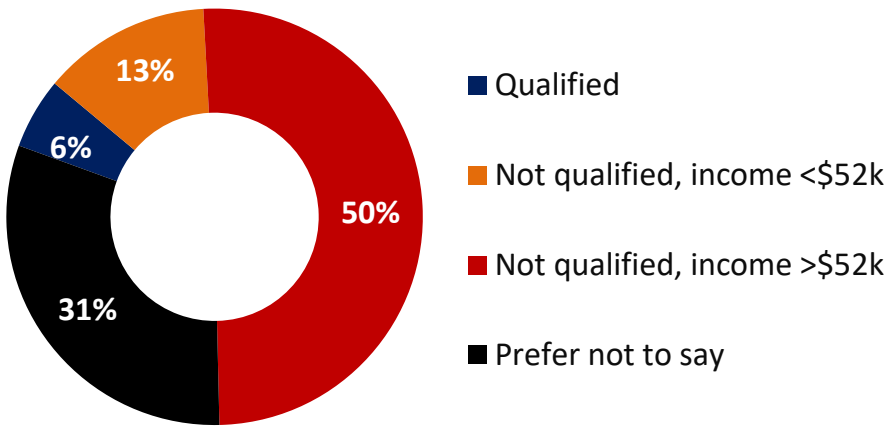
Household Size



After Tax Household Income



LEAP Qualification*



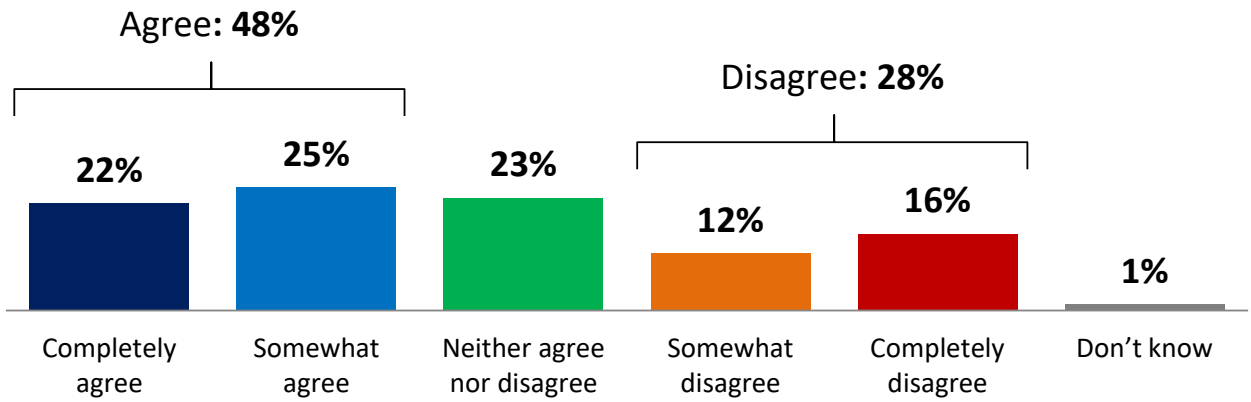
***Note:** Calculated based on household size and household income

INNOVATIVE RESEARCH GROUP

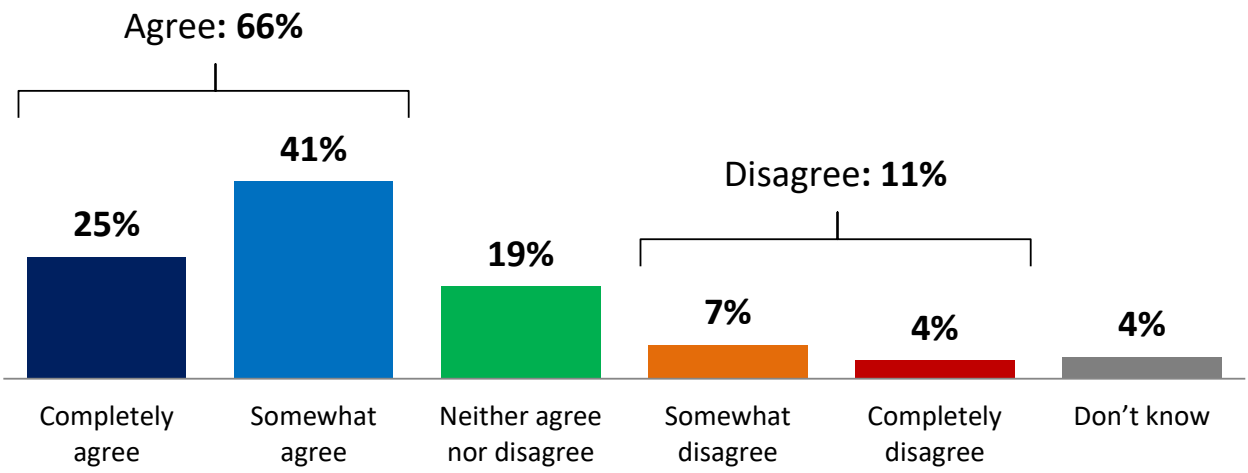
Respondent Profile

Environmental Controls

Q To what extent do you agree or disagree with the following statements?
The cost of my Enbridge Gas bill has a major impact on my finances and requires I do without some other important priorities.
[asked of all respondents; n=3,600]



Q To what extent do you agree or disagree with the following statements?
Customers are well served by the energy system in Ontario.
[asked of all respondents; n=3,600]



Overall Satisfaction

Preamble:

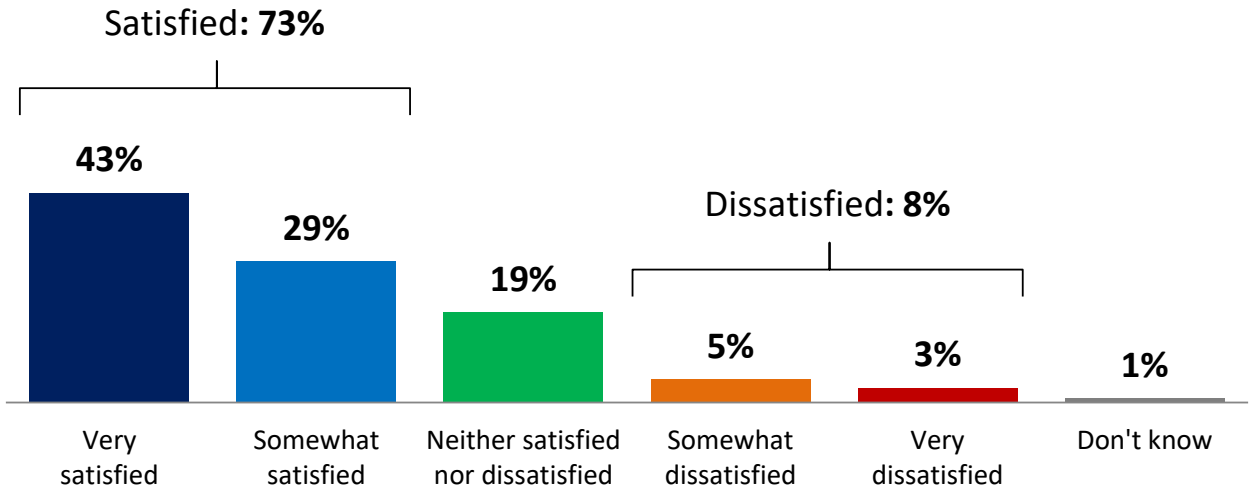
Let's first talk about your overall experience with Enbridge Gas.

Customer Experience

Satisfaction with Enbridge Gas Service

Q Taking into consideration all aspects of your utility service experience, how satisfied are you with your Enbridge Gas service?

[asked of all respondents; n=3,600]



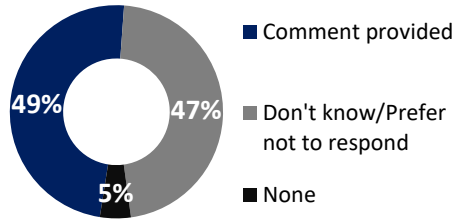
	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
Very satisfied	43%	43%	41%	49%	43%	44%	45%	44%	40%	43%	49%	44%
Somewhat satisfied	30%	29%	30%	28%	29%	31%	29%	29%	28%	28%	29%	30%
Neither	18%	19%	20%	16%	18%	18%	18%	18%	20%	15%	16%	18%
Somewhat dissatisfied	5%	5%	5%	4%	4%	4%	4%	5%	6%	8%	3%	4%
Very dissatisfied	3%	3%	3%	2%	4%	2%	2%	3%	5%	5%	2%	3%
Don't know	1%	1%	1%	<1%	1%	<1%	1%	1%	1%	1%	1%	<1%
Satisfied (Very + Somewhat)	**73%**	**72%**	**71%**	**77%**	**72%**	**75%**	**74%**	**73%**	**68%**	**71%**	**77%**	**75%**
Dissatisfied (Very + Somewhat)	**8%**	**8%**	**8%**	**7%**	**8%**	**6%**	**6%**	**8%**	**11%**	**13%**	**6%**	**7%**

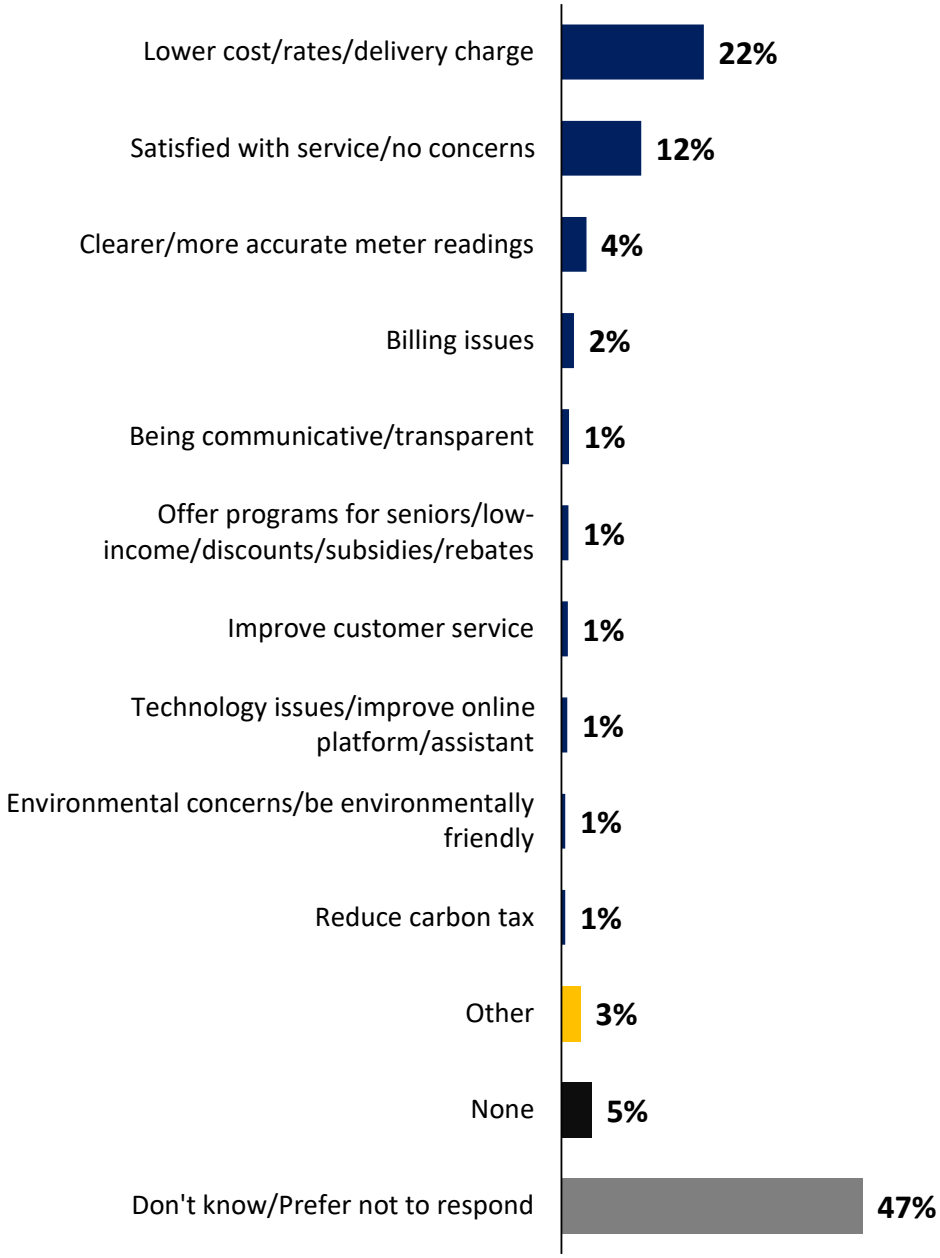
Customer Experience

Improving Enbridge Gas Service

Q Is there anything in particular Enbridge Gas can do to improve their service to you?

[asked of all respondents; n=3,600]





Customer Outcomes

Preamble:

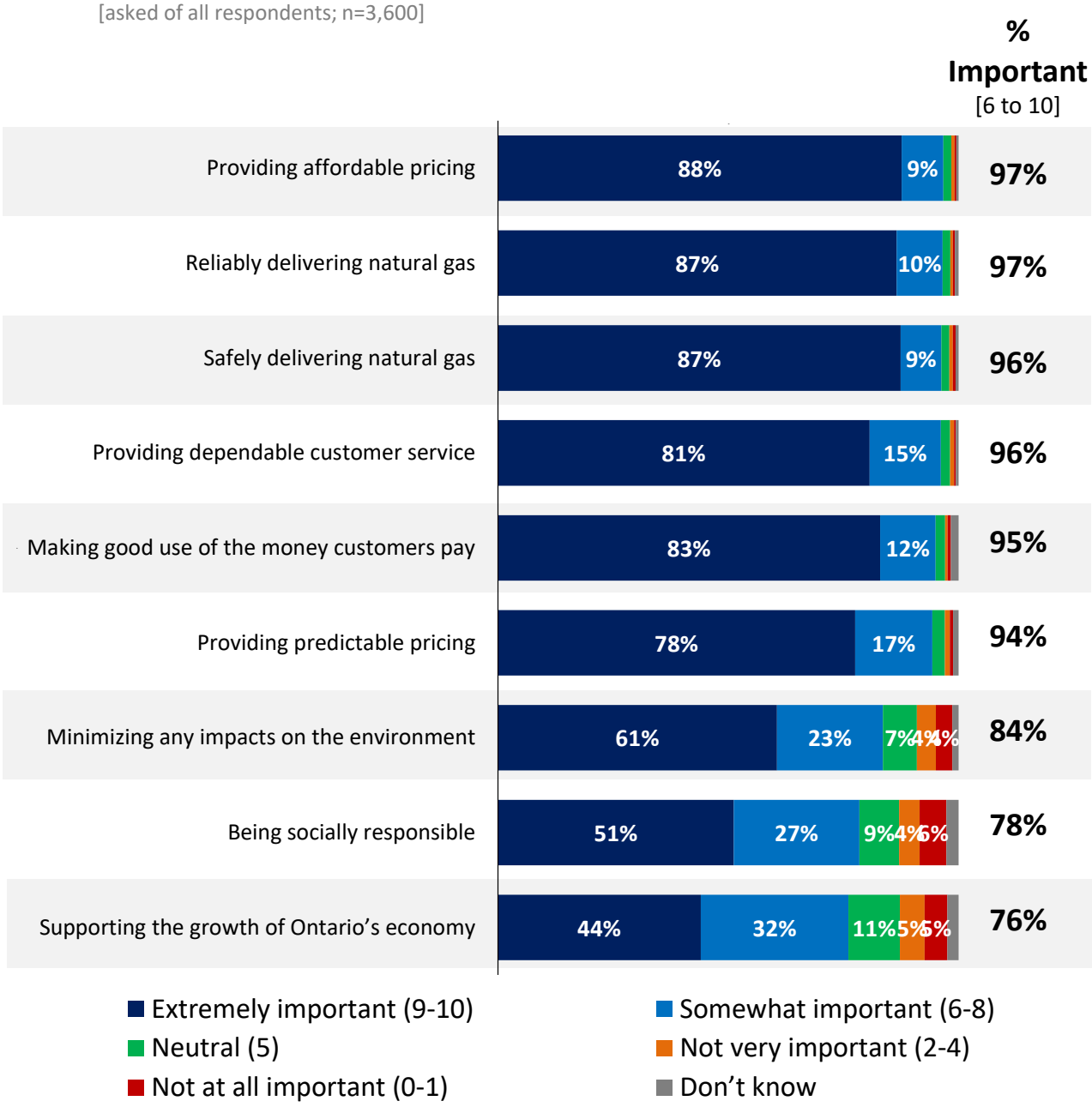
In considering its business plans, including its plan to manage its assets from 2025–2034, Enbridge Gas must make many decisions. We would like your feedback on the outcomes you would like Enbridge Gas to focus on in its plan. Outcomes are the goals and priorities that matter to you.

Customer Outcomes

Importance of Outcomes

Q There is a list of broad outcomes that Enbridge Gas will need to consider. Please indicate how important the following outcomes are to you. Please rate each outcome using the scales below, from 0 to 10 in terms of **how important it is to you** – where **0 means "not important at all"** and **10 means "extremely important".**

[asked of all respondents; n=3,600]



Note: Data labels are removed where 3% or less.

Customer Outcomes

Importance of Outcomes

Q There is a list of broad outcomes that Enbridge Gas will need to consider. Please indicate how important the following outcomes are to you. Please rate each outcome using the scales below, from 0 to 10 in terms of **how important it is to you** – where **0 means "not important at all"** and **10 means "extremely important".**

[asked of all respondents; n=3,600]

% Important [6 to 10]	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
Providing affordable pricing	96%	97%	96%	97%	98%	97%	97%	97%	96%	95%	97%	97%
Reliably delivering natural gas	96%	97%	96%	97%	97%	97%	96%	96%	97%	91%	97%	98%
Safely delivering natural gas	96%	96%	96%	97%	96%	96%	96%	96%	97%	92%	96%	97%
Providing dependable customer service	96%	96%	96%	96%	96%	96%	96%	96%	96%	94%	96%	96%
Making good use of the money customers pay	94%	96%	94%	95%	96%	96%	95%	94%	94%	94%	95%	96%
Providing predictable pricing	94%	95%	94%	95%	95%	94%	95%	94%	94%	93%	95%	95%
Minimizing any impacts on the environment	84%	83%	83%	85%	84%	84%	86%	84%	82%	82%	87%	84%
Being socially responsible	79%	77%	78%	78%	79%	81%	80%	78%	76%	79%	83%	78%
Supporting the growth of Ontario's economy	77%	75%	77%	76%	75%	77%	75%	78%	74%	73%	83%	75%

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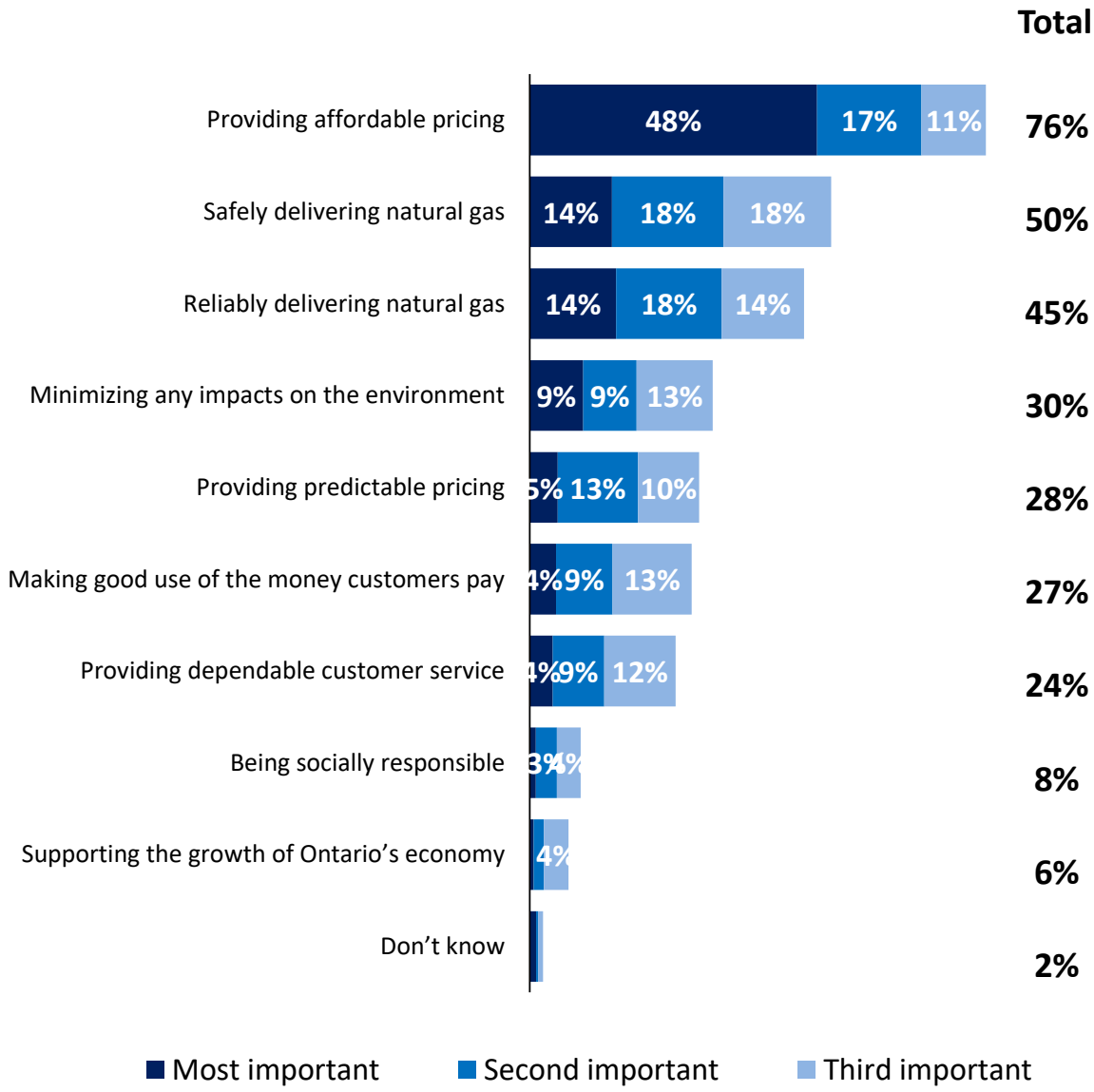
Customer Outcomes

Ranking of Importance

Q Sometimes Enbridge Gas needs to choose between priorities that are all considered important. Thinking about these outcomes, which one would you say is most important to you as a customer? And which one is second most important to you? And, finally, which one is third most important to you?

[asked of all respondents; n=3,600]



Note: 'No response' not shown. Respondents who say 'Don't know' do not get asked for further priorities.

INNOVATIVE RESEARCH GROUP

Customer Outcomes

Ranking of Importance

Q Sometimes Enbridge Gas needs to choose between priorities that are all considered important. Thinking about these outcomes, which one would you say is most important to you as a customer? And which one is second most important to you? And, finally, which one is third most important to you?

[asked of all respondents; n=3,600]

% Total Important	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
Providing affordable pricing	75%	77%	75%	76%	77%	77%	73%	76%	76%	84%	79%	72%
Safely delivering natural gas	51%	48%	51%	51%	48%	49%	51%	50%	49%	42%	49%	51%
Reliably delivering natural gas	46%	45%	44%	49%	45%	41%	45%	49%	47%	38%	42%	49%
Minimizing any impacts on the environment	31%	30%	31%	29%	30%	33%	30%	30%	28%	27%	29%	33%
Providing predictable pricing	27%	30%	28%	29%	29%	29%	29%	28%	27%	29%	28%	29%
Making good use of the money customers pay	26%	28%	26%	24%	29%	27%	28%	25%	27%	28%	31%	26%
Providing dependable customer service	24%	24%	24%	24%	24%	24%	24%	25%	24%	25%	27%	22%
Being socially responsible	9%	8%	9%	8%	8%	9%	9%	7%	9%	10%	7%	9%
Supporting the growth of Ontario's economy	7%	6%	7%	6%	6%	6%	6%	6%	8%	8%	7%	6%

Note: 'No response' not shown. Respondents who say 'Don't know' do not get asked for further priorities.

INNOVATIVE RESEARCH GROUP

Asset Management

Asset Management

Investing in Service Quality – Preamble

Now we will ask you about some of the choices that Enbridge Gas planners must make in developing their business plans. **These choices see trade-offs between competing outcomes**, such as doing more to meet customer needs or reduce greenhouse gas (GHG) emissions, versus keeping bills down.

Enbridge Gas planners seek to ensure:

- ✓ that the natural gas system continues to **operate safely and reliably**; and
- ✓ to demonstrate continuous improvement in **productivity and cost performance** (which is also required by the OEB); and
- ✓ to prepare for the **future**.

All costs provided in this survey are preliminary estimates and are expressed as an additional cost each year to the average customer. However, as noted earlier, the actual rates you pay for your natural gas service are determined by a Cost-of-Service application to the Ontario Energy Board (OEB). This happens every five years and has already been submitted for the 2024–2028 period.

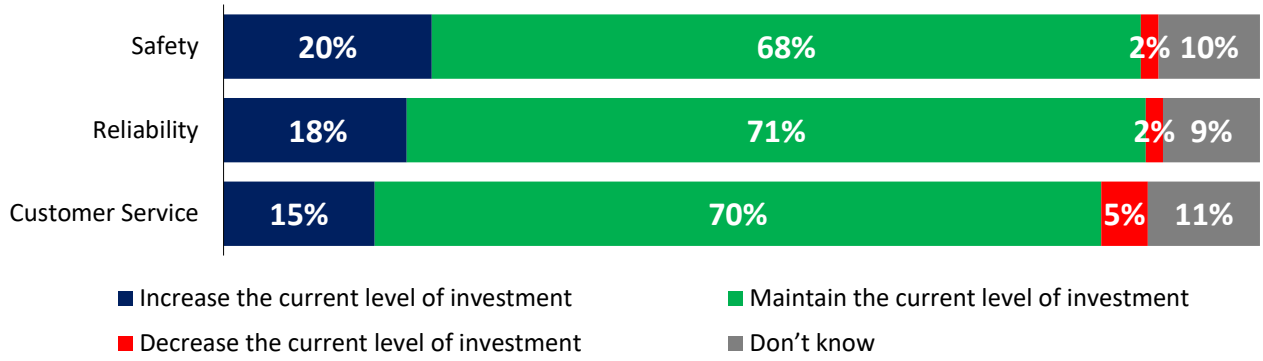
Even though your choices in this survey may not directly affect the rates for your natural gas service over this period, it will help Enbridge Gas business managers update its plans.

Asset Management

Investing in Service Quality

Q Thinking about the level of **safety**, **reliability**, and **customer service** you receive from Enbridge Gas, would you like to see the company invest in maintaining, invest in improving upon the current level, or invest less altogether? Please consider the items below. Should Enbridge Gas...

[asked of all respondents; n=3,600]



Safety	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
Increase	22%	18%	22%	19%	18%	20%	21%	21%	19%	20%	19%	20%
Maintain	67%	71%	66%	70%	71%	68%	69%	66%	70%	62%	70%	70%
Decrease	1%	2%	2%	1%	2%	2%	1%	2%	2%	2%	1%	2%

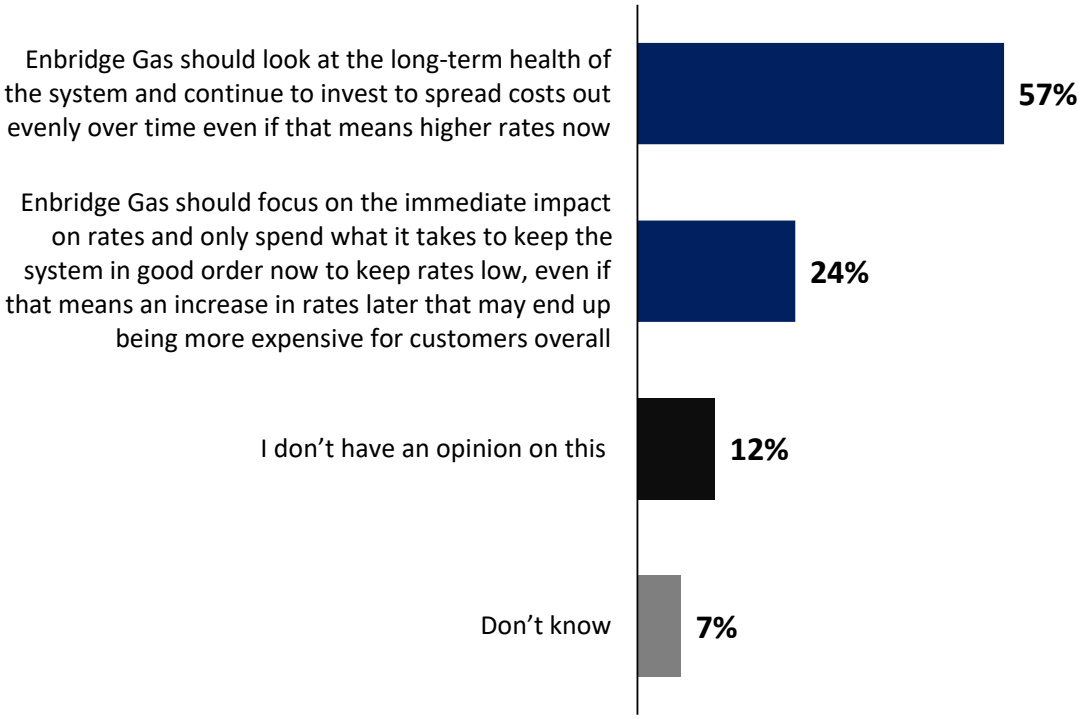
Reliability	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
Increase	19%	16%	18%	18%	16%	18%	18%	18%	18%	17%	16%	18%
Maintain	70%	73%	71%	72%	72%	71%	73%	69%	72%	62%	72%	73%
Decrease	2%	2%	2%	1%	2%	2%	1%	2%	2%	3%	2%	1%

Customer Service	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
Increase	16%	13%	16%	14%	13%	13%	15%	15%	15%	18%	14%	14%
Maintain	68%	72%	67%	73%	73%	71%	71%	68%	70%	61%	74%	73%
Decrease	4%	5%	5%	3%	5%	4%	4%	5%	5%	5%	3%	4%

Asset Management
Budget Allocation

Q Thinking generally about Enbridge Gas' budget for replacing pipelines and equipment that deliver gas to your home, which of the following statements best represents your point of view?

[asked of all respondents; n=3,600]



	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
Spread costs out evenly over time	57%	56%	56%	59%	57%	57%	59%	57%	55%	39%	55%	64%
Spend what it takes to keep the system in good order now	24%	24%	25%	23%	24%	24%	24%	25%	26%	35%	25%	22%

Asset Management

Distribution Pipe – Preamble

As suggested in the previous question, in some cases, where alternative options may not exist, Enbridge Gas will have to make a choice to **spend more now**, or to **spend more later**.

One example is related to its steel pipelines.

- Enbridge Gas operates approximately 32,000 km of main distribution pipelines that are made of steel.
- Another 50,000 km of main distribution pipelines are made of plastic.
- **17,000 km of steel pipelines are 3 times more leak-prone** than newer pipes due to the materials and practices from the 1950s and 1960s when they were built.

Failure of distribution pipelines can lead to serious concerns including:

- ✓ increased greenhouse gas emissions (GHGs)
- ✓ property damage, and
- ✓ in the worst-case scenario, although the risk is low, injury to people.

Typical steel pipeline with protective coating

Steel pipeline with corrosion failure

Enbridge Gas uses a data driven approach to prioritize the replacement of pipe which is most likely to fail first or have the greatest consequence if it does fail. It also checks for leaks every one to four years (depending on the pipe categorization) to maintain the safety of the system. However, to fully understand the condition of the pipeline, visual inspection is required which can be of comparable cost to replacement.

Of the 17,000 km, Enbridge Gas has identified approximately **5,100 km as <u>most</u> important for replacement** due to its predicted risk. The majority of these are smaller in diameter and would be replaced with plastic pipelines, which will be cheaper to maintain.

Asset Management

Distribution Pipe – Preamble

Not addressing the aging pipeline infrastructure is expected to result in a gradual increase in leaks over time as shown in the table below:

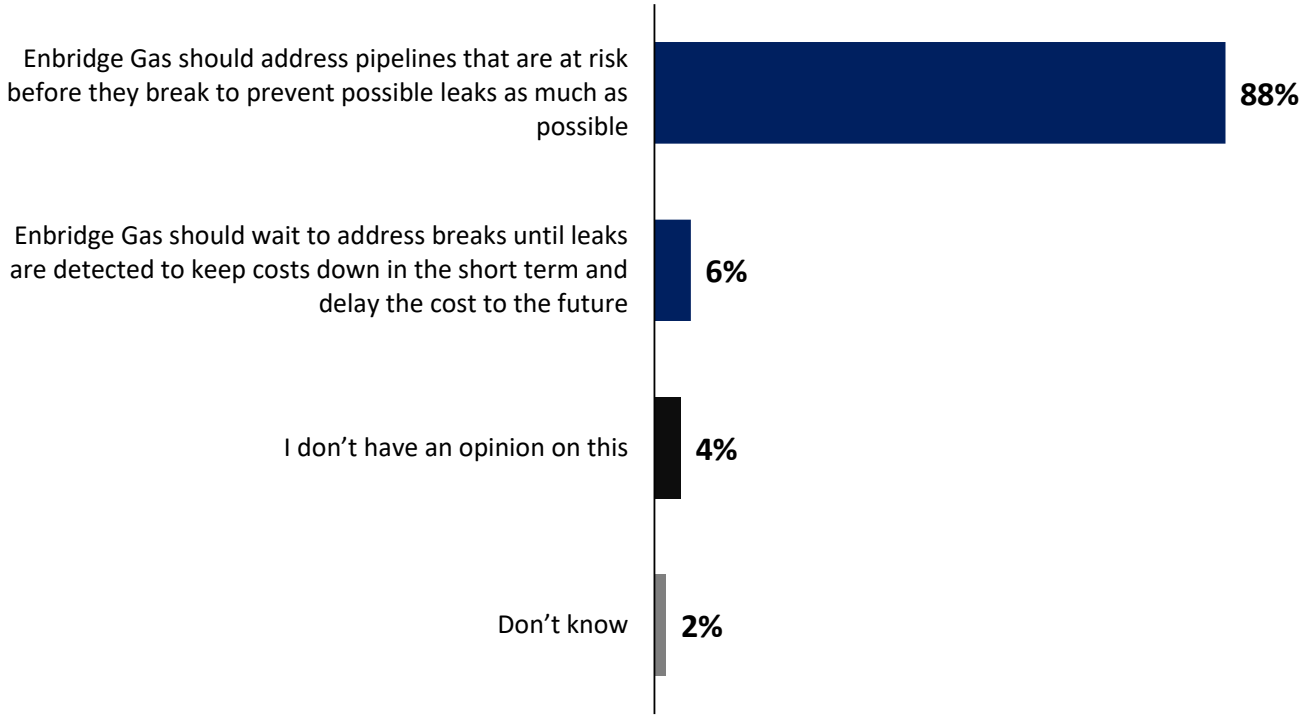
Potential number of leaks	**2023**	**2034**
Main pipelines	281	747
Smaller Service Pipelines	1920	3909

If Enbridge Gas waits, it can allocate its budget elsewhere, however it would increase the estimated number of leaks and extend the work into the future. The overall costs are expected to be higher with a delayed approach.

As a result, Enbridge Gas' program to replace these pipelines at an achievable pace is estimated to cost the average **residential** customer an average of an additional **$2.02** each year as the program ramps up from 2027–2032.

Asset Management
Distribution Pipe

Q Which of the following is closest to your view?
[asked of all respondents; n=3,600]



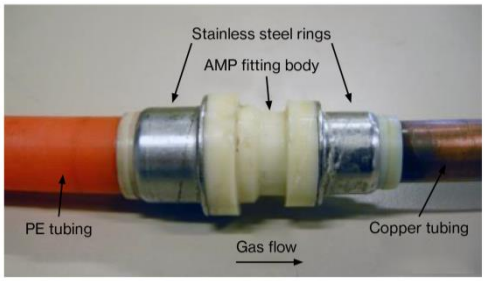
	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
Address pipelines that are at risk before they break to prevent leaks as much as possible	88%	88%	88%	89%	89%	88%	89%	88%	89%	80%	89%	91%
Should wait to address breaks until leaks are detected to keep costs down	5%	6%	5%	6%	6%	6%	5%	6%	5%	9%	5%	5%

Asset Management

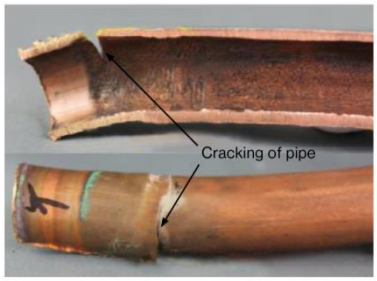
AMP Fittings – Preamble

Another example is related to AMP fittings.

AMP fittings are used to connect two different types of natural gas pipelines. Enbridge Gas has 240,000 AMP fittings in its system, near customer meters. AMP fittings cause a disturbance in the flow of gas, and a low-pressure zone after the fitting is created. This causes corrosion over time and eventually would create a crack. Based on Enbridge Gas' sampling and modelling, it is expected that all copper pipes will corrode, and cause a leak over time, which based on modelling estimates could result in property damage and injury.



Typical AMP fitting installation



Localized corrosion failure at AMP fitting

To address this issue, Enbridge Gas established a proactive replacement program in 2019 to remove the AMP fittings from the system. This program gradually ramps up the replacement of AMP fittings to a maximum of 14,000 per year and then ramps down until it ends in 2043. **It aims to reduce emergency repairs, although some will still be needed**. The expected cost of an emergency repair compared to a proactive replacement is an additional $400 per fitting.

In terms of number of emergency replacements:

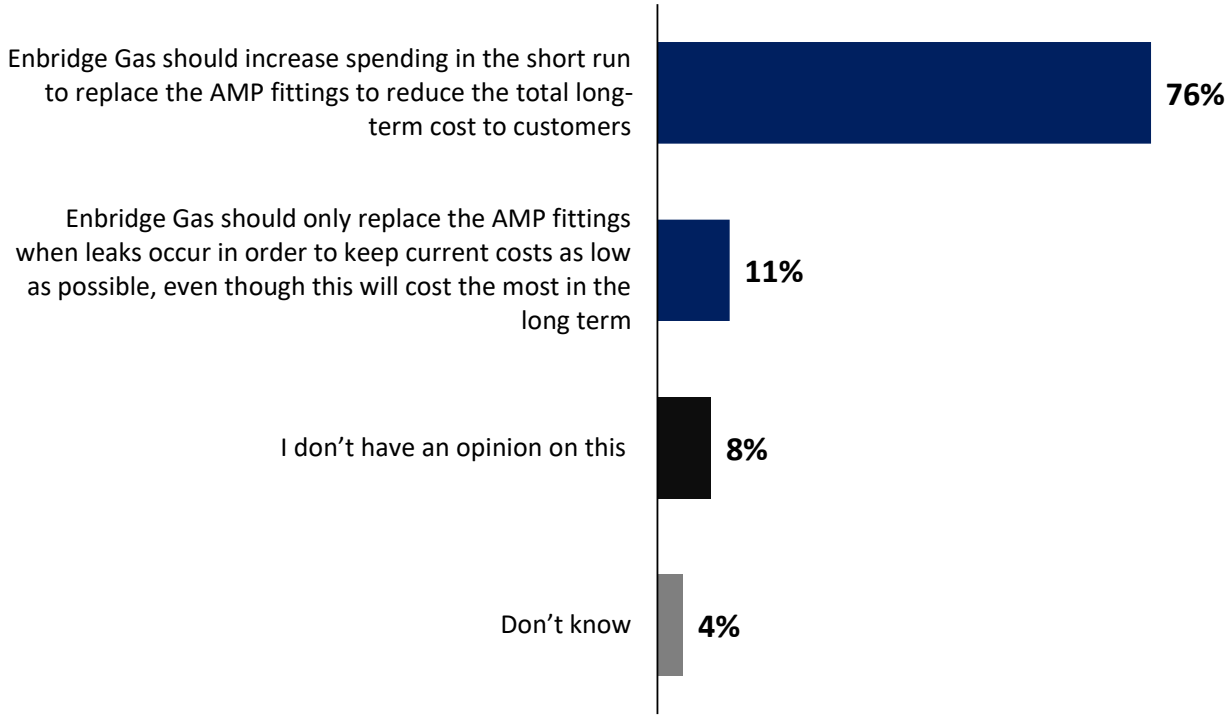
- ✓ Enbridge Gas has repaired about 1,200 per year so far.
- ✓ Enbridge Gas is expecting to repair about **2,000** per year **with the renewed proactive replacement program**.
- ✓ Enbridge Gas is expecting to repair up to **7,000** per year **without the renewed proactive replacement program**.

The renewed program is expected to reduce the total number of future leaks by 196,000.

Enbridge Gas would like to renew this program so that over the next 20 years, it would be able to reduce risks related to leaks and be able to save $346 million in total by proactively replacing AMP fittings, rather than reactively repairing leaks. The proposed program would slowly ramp up and at the height of the program in 2038 cost the average **residential** customer an additional **$0.74** each year but would save customers **$0.26** each year over the program term compared to only completing emergency replacements over the longer term.

Asset Management
AMP Fittings

Q Which of the following is closest to your view?
[asked of all respondents; n=3,600]



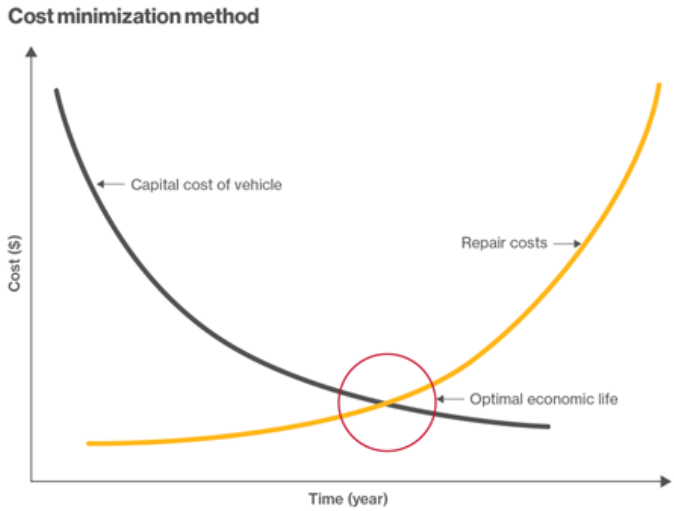
	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
Should increase spending in the short run to replace the AMP fittings	76%	77%	75%	78%	77%	77%	77%	75%	76%	70%	77%	82%
Should only replace the AMP fittings when leaks occur	11%	11%	12%	11%	10%	11%	10%	12%	12%	12%	11%	10%

Asset Management

Fleet and Equipment – Preamble

Enbridge Gas also plans to maintain its **fleet and equipment** for the safety of its employees as well as the efficiency and cost-effectiveness of its operations. The current fleet includes approximately 1,700 light and medium duty vehicles used by employees, as well as 1,200 pieces of heavy equipment and trailers.

Enbridge Gas analyzes a vehicle's cumulative maintenance cost against the average cost of all vehicles and the condition of the vehicle. A vehicle is considered for replacement when the average maintenance cost surpasses market value unless its maintenance costs much are unusually high (replaced sooner) or unusually low (replaced later). Other factors, such as age, mileage, hours of use, risk of failure and functional requirements are considered as well. With this approach, the average replacement age for light vehicles would be 72 months (or 6 years), and 144 months (or 12 years) for medium and heavy-duty vehicles. The general approach is shown in the cost minimization method figure below:

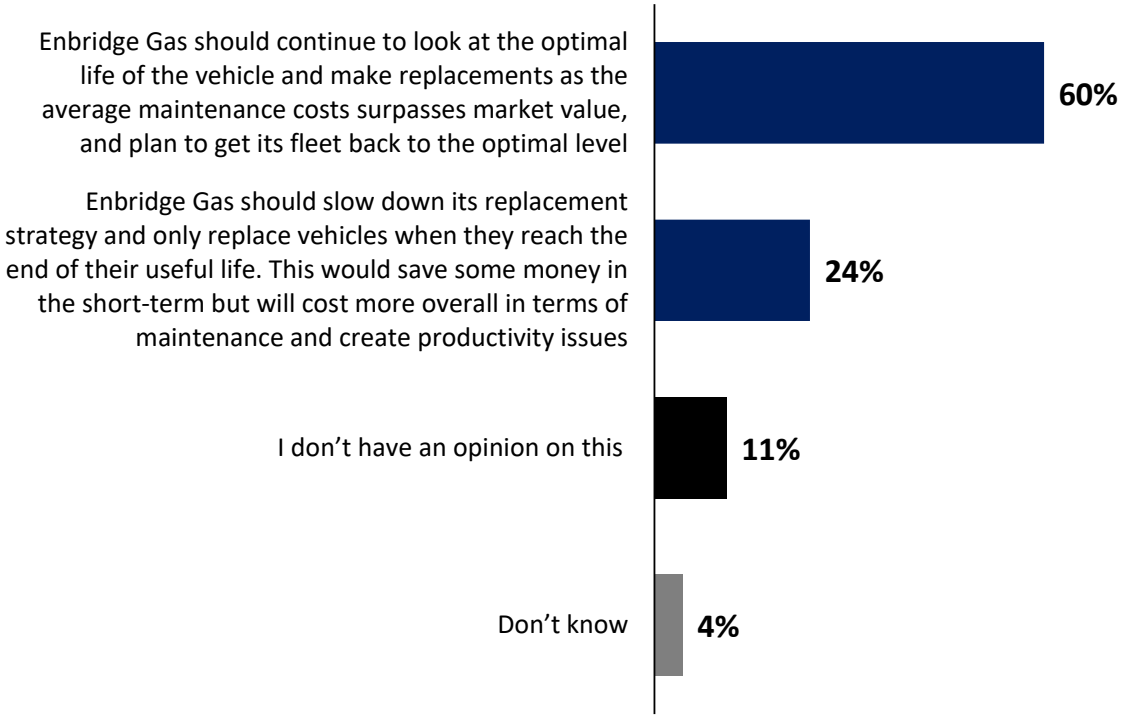


Currently, Enbridge Gas' fleet is older than the optimal level and has become more costly to maintain. Enbridge Gas would like to increase its investments over the coming years to get the fleet age back to the optimal level (returning to the approach described above). The fleet budget over the plan, which includes the budget to bring the fleet age back to the optimal level, would cost the average **residential** customer an additional **$0.75** each year.

Enbridge Gas could also slow down its replacement strategy, which may reduce the immediate replacement costs, but this would increase the maintenance costs.

Asset Management
Fleet and Equipment

Q Which of the following is closest to your view?
[asked of all respondents; n=3,600]



	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
Should continue to look at the optimal life of the vehicle	60%	61%	58%	63%	62%	60%	62%	62%	58%	52%	61%	65%
Should slow down its replacement strategy and only replace vehicles when they reach the end of their useful life	24%	25%	25%	22%	24%	24%	23%	23%	26%	25%	22%	24%

Asset Management

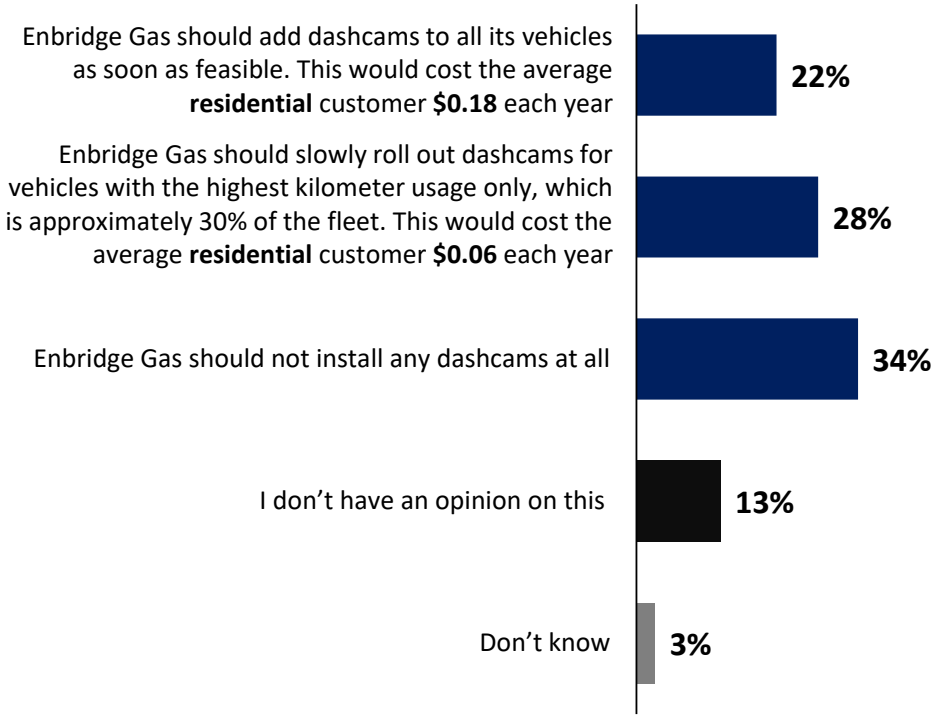
Dashcams – Preamble

Enbridge Gas is committed to the safety of its employees and the public. While fleet vehicles are equipped with Global Positioning System (GPS)/Telematics tracking devices, which are managed by fleet management software (i.e., Geotab), they are currently not equipped with any dash cameras or dashcams. Enbridge Gas is considering **adding dashcams to its vehicles** to allow for the review of the driving behaviour of its employees, as well as the driving conditions experienced by them. This would help to improve the safety of both employees and the public.

Adding dashcams to the entire fleet would require Enbridge Gas to purchase dashcams and the appropriate support systems for almost 1,800 road vehicles. For all vehicles, this would cost the average **residential** customer **$0.18** each year.

Asset Management
Dashcams

Q Which of the following is closest to your view?
[asked of all respondents; n=3,600]



	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
Should add dashcams to all its vehicles as soon as feasible	22%	21%	22%	20%	22%	21%	20%	21%	24%	23%	25%	23%
Should slowly roll out dashcams for vehicles	29%	27%	28%	31%	26%	30%	31%	28%	24%	28%	28%	30%
Should not install any dashcams at all	32%	37%	33%	34%	37%	33%	34%	35%	35%	29%	29%	35%

Asset Management

Technology and Information Systems (TIS) – Preamble

Enbridge Gas also has a budget for Technology and Information Systems (TIS), which pays for the technology and systems that keep the company operating. Enbridge Gas actively seeks out and has identified some opportunities available to **improve the efficiency of its business through technology**.

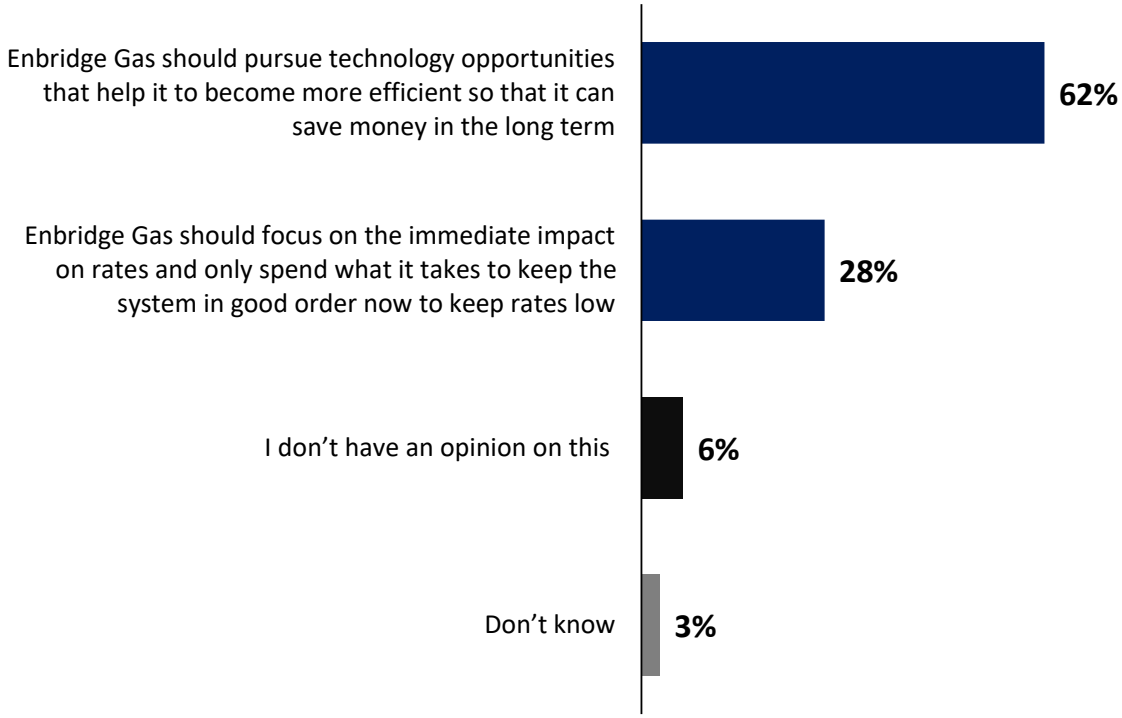
This includes an investment to improve business planning, work intake and scheduling for Enbridge's field operations, which includes meter exchanges, emergency calls and other jobs that require field service technicians. Improvements are intended to reduce administrative and manual work and will help achieve savings in the long-term, and improve customer and employee satisfaction. However, to implement these solutions some upfront investment is required. This project is estimated to cost the average **residential** customer **$0.02** more each year.

Asset Management

Technology and Information Systems (TIS)

Q Which of the following is closest to your view?

[asked of all respondents; n=3,600]



	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
Should pursue technology opportunities that help it to become more efficient	63%	61%	62%	65%	61%	62%	63%	62%	62%	52%	58%	68%
Should focus on the immediate impact on rates	27%	30%	28%	27%	30%	29%	28%	27%	29%	35%	32%	25%

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Energy Transition, IRP and GHG Emission Reductions

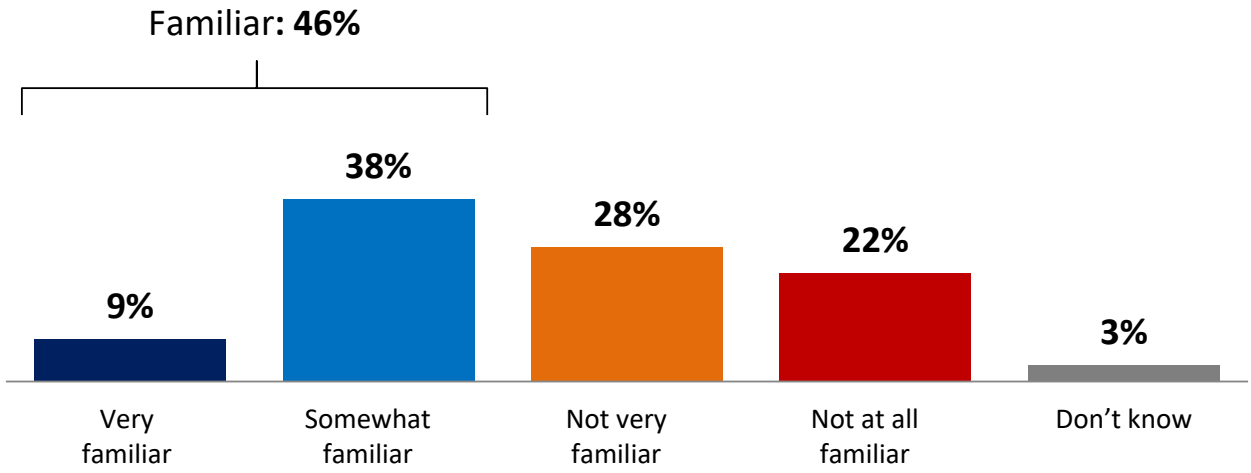
Preamble:

Energy transition in the broadest sense is a global shift away from using carbon-intense fossil fuels (like oil, gasoline, and coal) to a more sustainable, renewable energy future that includes more innovation and customer choice. When Enbridge Gas considers this, it focuses on reducing energy demand and reducing greenhouse gas (GHG) emissions to contribute to net zero goals.

Energy Transition, IRP & GHG Emission Reductions

Familiarity with Energy Transition

Q How familiar are you with the energy transition discussions in Ontario?
[asked of all respondents; n=3,600]



	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
Very familiar	9%	9%	8%	10%	9%	7%	8%	9%	11%	6%	6%	10%
Somewhat familiar	36%	39%	37%	37%	40%	36%	39%	38%	37%	28%	35%	40%
Not very familiar	28%	28%	28%	27%	27%	28%	28%	27%	28%	26%	30%	27%
Not at all familiar	23%	22%	23%	23%	21%	25%	22%	22%	21%	34%	26%	20%
Don't know	4%	3%	4%	3%	3%	4%	4%	4%	2%	5%	3%	2%
Familiar (Very + Somewhat)	**45%**	**48%**	**45%**	**47%**	**49%**	**43%**	**46%**	**47%**	**49%**	**34%**	**41%**	**51%**

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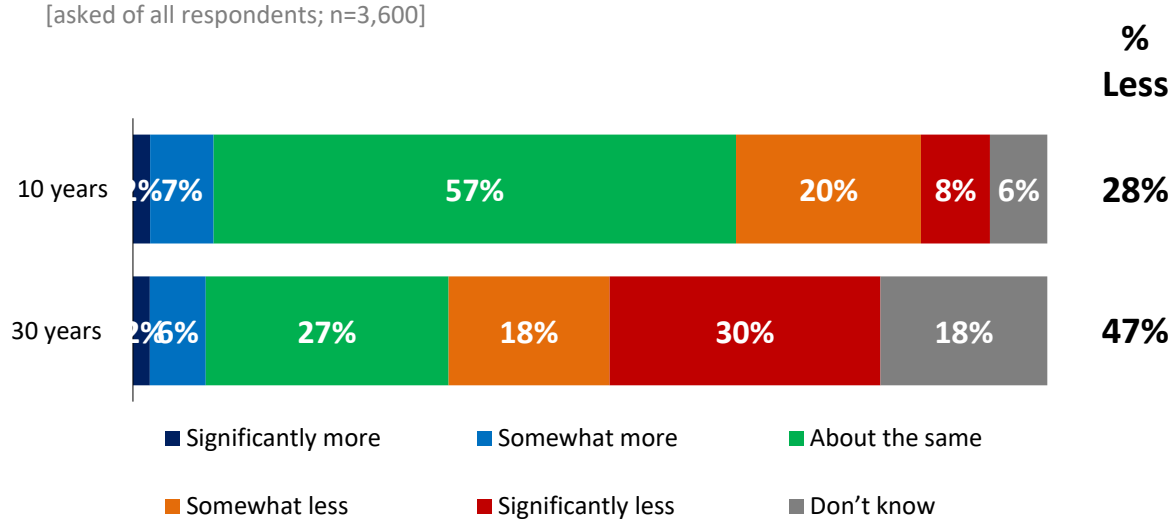
Energy Transition, IRP & GHG Emission Reductions

Natural Gas Consumption in 10 vs 30 Years

Q Thinking about everything you know today, and considering any changes that you might expect in the future as it relates to all the energy choices available to you, how much natural gas do you think someone like you will be using in...

[asked of all respondents; n=3,600]



10 Years	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
More	10%	7%	10%	8%	7%	8%	8%	9%	9%	11%	10%	9%
About the same	54%	61%	54%	60%	61%	59%	58%	55%	56%	53%	60%	56%
Less	28%	27%	29%	26%	27%	26%	27%	30%	29%	25%	25%	31%

30 Years	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
More	9%	7%	9%	6%	7%	8%	7%	8%	9%	11%	7%	8%
About the same	25%	28%	25%	27%	29%	28%	29%	25%	25%	25%	28%	25%
Less	47%	47%	48%	46%	47%	44%	45%	49%	50%	40%	42%	53%

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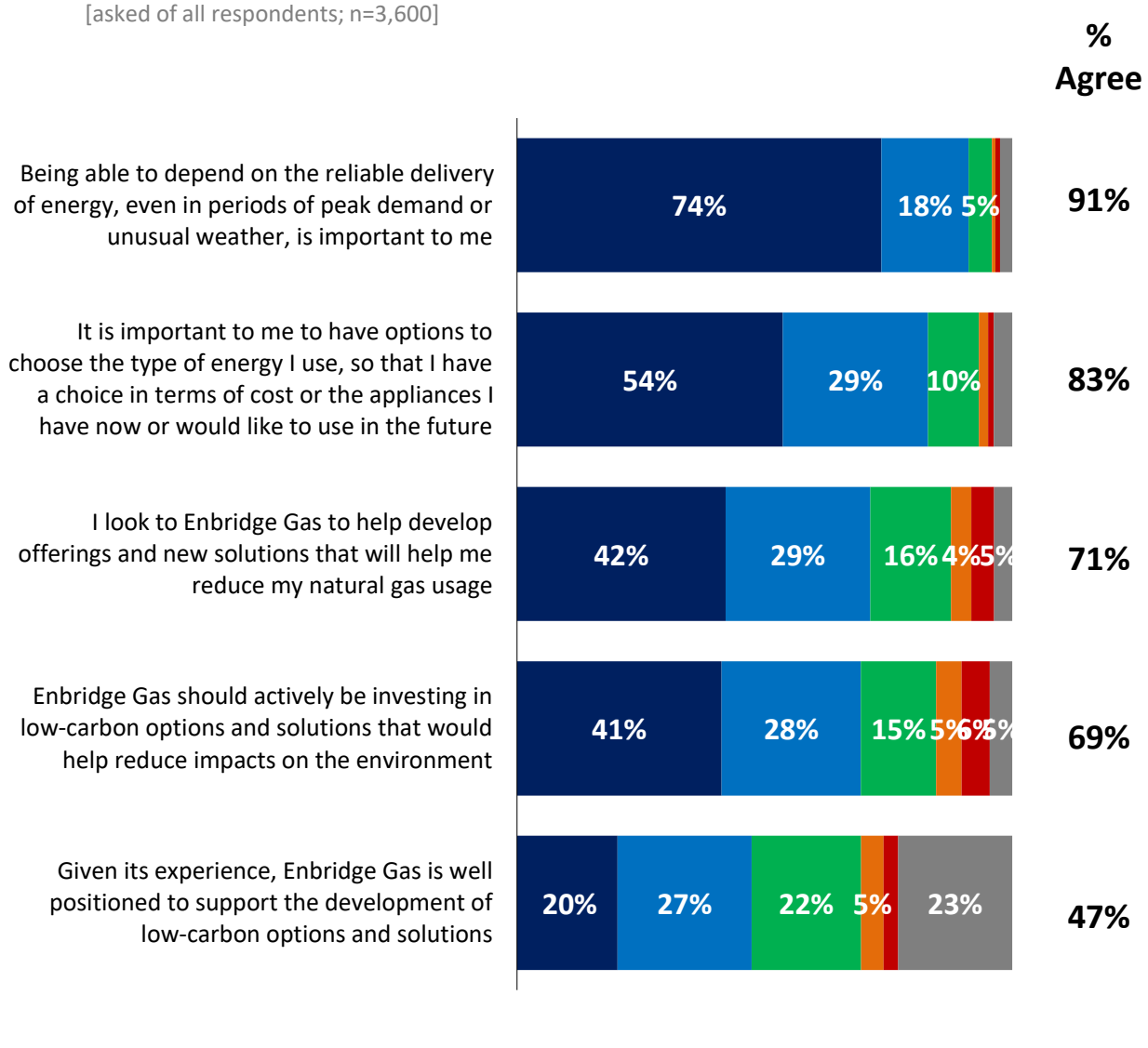
Energy Transition, IRP & GHG Emission Reductions

Reducing Impact on the Environment and Access to Energy

Q When you consider options and solutions to reduce impacts on the environment and access to energy, please tell me whether you agree or disagree with the following statements.

[asked of all respondents; n=3,600]



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Energy Transition, IRP & GHG Emission Reductions

Reducing Impact on the Environment and Access to Energy

Q When you consider options and solutions to reduce impacts on the environment and access to energy, please tell me whether you agree or disagree with the following statements.

[asked of all respondents; n=3,600]

% Agree	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
Being able to depend on the reliable delivery of energy, even in periods of peak demand or unusual weather	90%	92%	89%	94%	92%	92%	91%	90%	92%	87%	93%	93%
It is important to me to have options to choose the type of energy I use	82%	85%	82%	83%	85%	84%	82%	81%	84%	81%	84%	85%
I look to Enbridge Gas to help develop offerings and new solutions that will help me reduce my natural gas usage	72%	70%	72%	72%	71%	72%	71%	71%	72%	72%	76%	74%
Enbridge Gas should actively be investing in low-carbon options and solutions	70%	69%	69%	71%	69%	72%	69%	69%	68%	66%	72%	72%
Enbridge Gas is well positioned to support the development of low-carbon options and solutions	49%	46%	48%	46%	47%	47%	49%	47%	47%	50%	54%	49%

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Energy Transition, IRP & GHG Emission Reductions

Pipeline Replacement and IRP – Preamble

When considering its **pipeline projects**, Enbridge Gas is required by the Ontario Energy Board to evaluate whether alternatives are available that would delay, reduce, or eliminate the need for the project. These alternatives are beneficial in working **towards a clean energy future**, by reducing overall energy use and potential greenhouse gas (GHG) emissions.

Examples of **alternatives** include:

- Helping customers reduce the amount of natural gas they use through conservation programs or other options.

  Examples could include:

  - Incentives for installing new windows and doors; and/or
  - Adding insulation; and/or
  - Upgrading equipment, such as a furnace or water heater.

- Delivering compressed natural gas by truck or train to locations where pipelines do not exist; and/or
- Other alternatives such as geothermal heating and cooling, or air source heat pumps.

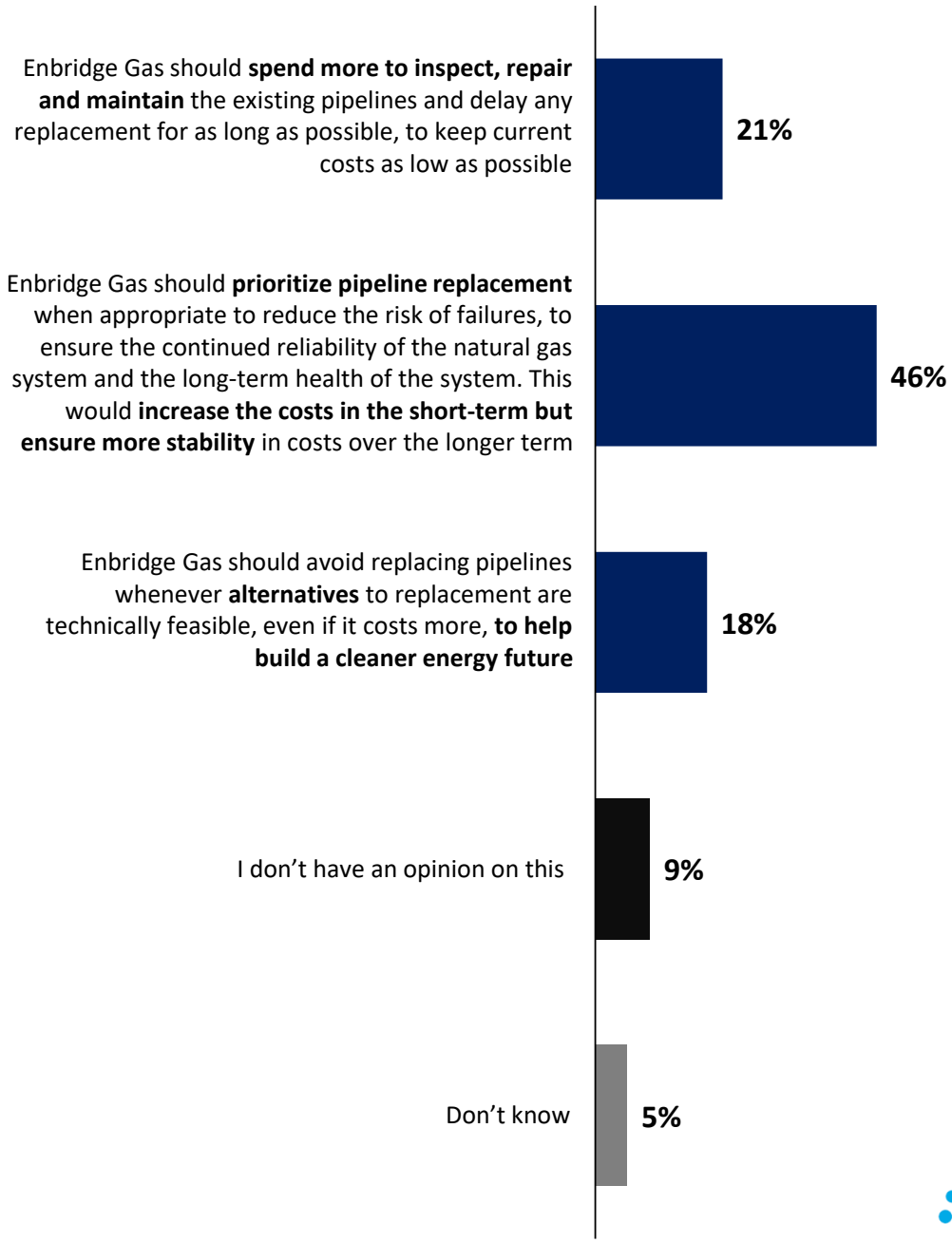
For each pipeline project, alternatives are evaluated from a technical and economic perspective, and as a result some alternatives to the pipeline project may be considered inappropriate according to criteria agreed upon with the Ontario Energy Board.

Energy Transition, IRP & GHG Emission Reductions

Pipeline Replacement and IRP

Q Let's now think about **existing pipelines and supporting infrastructure**. Assuming today's natural gas demands, which of the following statements best represents your point of view on how Enbridge Gas should manage its pipelines?

[asked of all respondents; n=3,600]



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Energy Transition, IRP & GHG Emission Reductions

Pipeline Replacement and IRP

Q Let's now think about **existing pipelines and supporting infrastructure**. Assuming today's natural gas demands, which of the following statements best represents your point of view on how Enbridge Gas should manage its pipelines?

[asked of all respondents; n=3,600]

	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
Should spend more to inspect, repair and maintain	21%	21%	22%	20%	21%	20%	21%	22%	21%	23%	23%	20%
Should prioritize pipeline replacement	46%	47%	45%	48%	48%	46%	46%	47%	47%	41%	48%	49%
Should avoid replacing pipelines whenever alternatives to replacement	19%	18%	19%	18%	18%	20%	19%	17%	18%	14%	15%	22%

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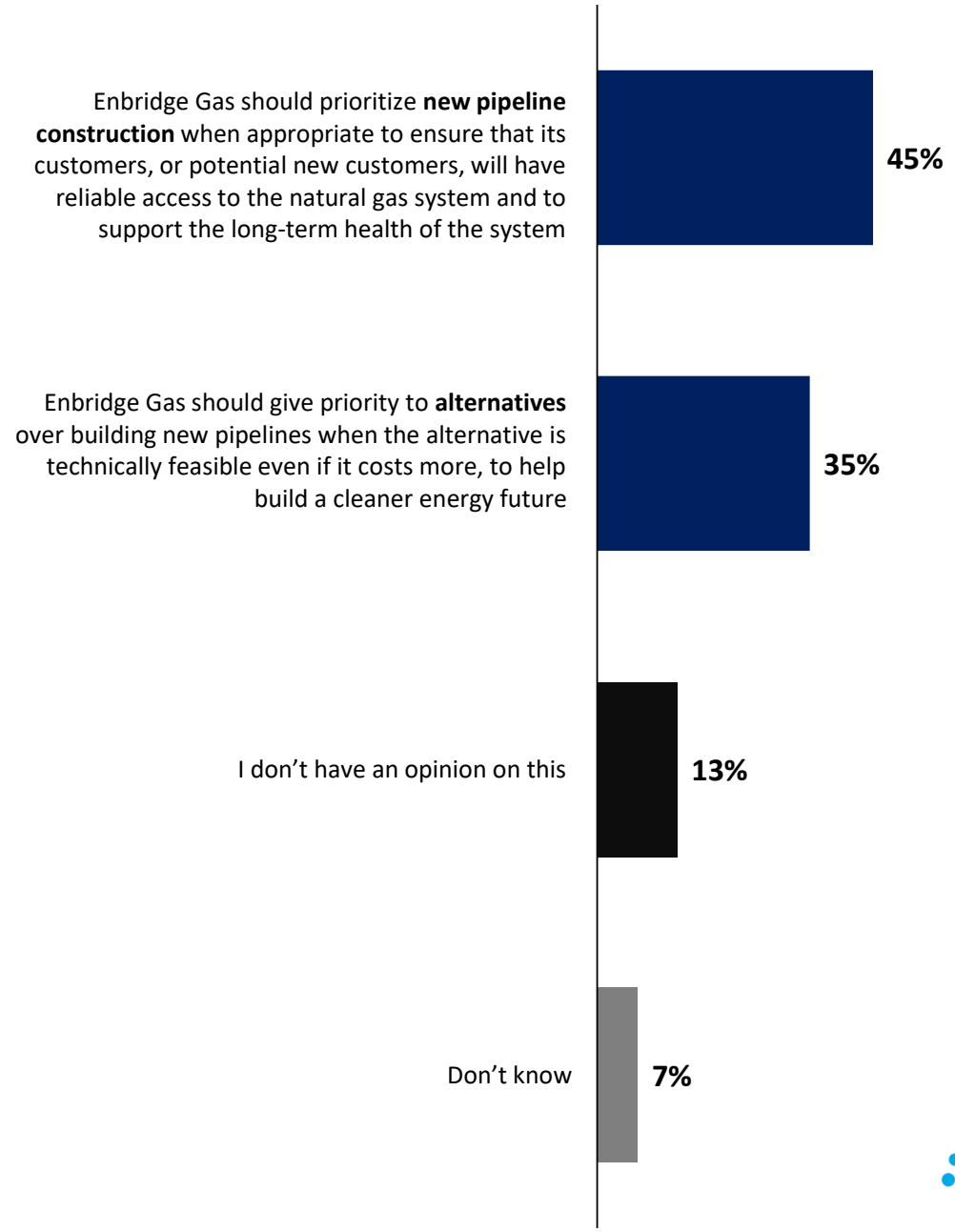
Energy Transition, IRP & GHG Emission Reductions

New Pipelines and IRP

Q Now think only about **new pipeline expansion or capacity building**. Still assuming today's natural gas demands, which of the following statements best represents your point of view of how Enbridge Gas should manage the request for new pipelines (i.e., pipeline expansion, as in new pipes or bigger pipes)?

[asked of all respondents; n=3,600]



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Energy Transition, IRP & GHG Emission Reductions

New Pipelines and IRP

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[asked of all respondents; n=3,600]

	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
Should prioritize new pipeline construction	44%	47%	44%	46%	47%	43%	46%	46%	47%	44%	47%	45%
Should give priority to alternatives	36%	34%	35%	34%	35%	37%	35%	33%	34%	29%	33%	40%

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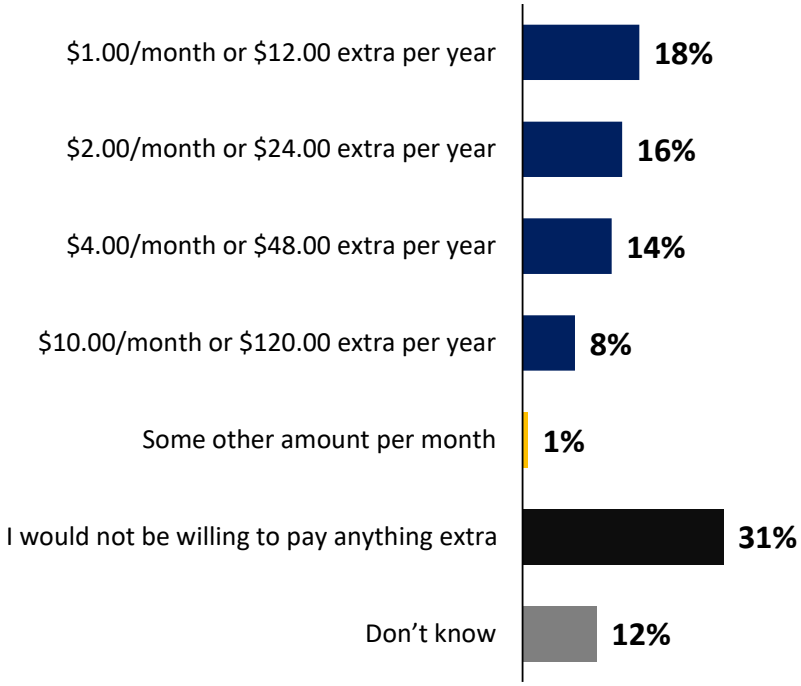
Energy Transition, IRP & GHG Emission Reductions

New Pipelines and IRP

Q When Enbridge Gas has a choice between pipeline or non-pipeline alternatives, if the cost is the same it will implement the non-pipeline alternative. When the cost for the non-pipeline alternative is higher, it will have a choice of which solution to implement. In this case, the alternative would cost more. How much, if anything, would you be willing to pay per year for Enbridge Gas to implement these alternative solutions instead of pipeline solutions?

[asked of all respondents; n=3,600]



	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
$1.00/month or $12.00 extra per year	18%	19%	18%	17%	19%	21%	18%	17%	17%	22%	23%	17%
$2.00/month or $24.00 extra per year	15%	16%	15%	17%	16%	16%	17%	16%	14%	15%	15%	18%
$4.00/month or $48.00 extra per year	15%	13%	15%	14%	13%	15%	14%	13%	13%	8%	15%	17%
$10.00/month or $120.00 extra per year	8%	8%	8%	8%	8%	7%	8%	8%	9%	3%	5%	12%

Energy Transition, IRP & GHG Emission Reductions

GHG Emission Reductions | Introduction – Preamble

Enbridge Gas' plans continue to place more emphasis on preparing for the future. This means that Enbridge Gas is looking at ways in which it can **support federal, provincial, and municipal goals**, as well as its **own organization goals**, to reduce greenhouse gas (GHG) emissions and achieve Net-Zero targets.

- Federal targets are to reduce GHG emissions by 40-45% by 2030 over 2005 levels, and to reach Net-Zero GHG emissions by 2050.
- Provincial target is to reduce GHG emissions by 30% by 2030 over 2005 levels.
- Various municipalities have set interim and Net-Zero GHG targets.
- Enbridge Inc. targets:
    - Reduce GHG emissions intensity from its own operations, by 35% by 2030 over 2018 levels;
    - Reach Net-Zero GHG emissions by 2050.

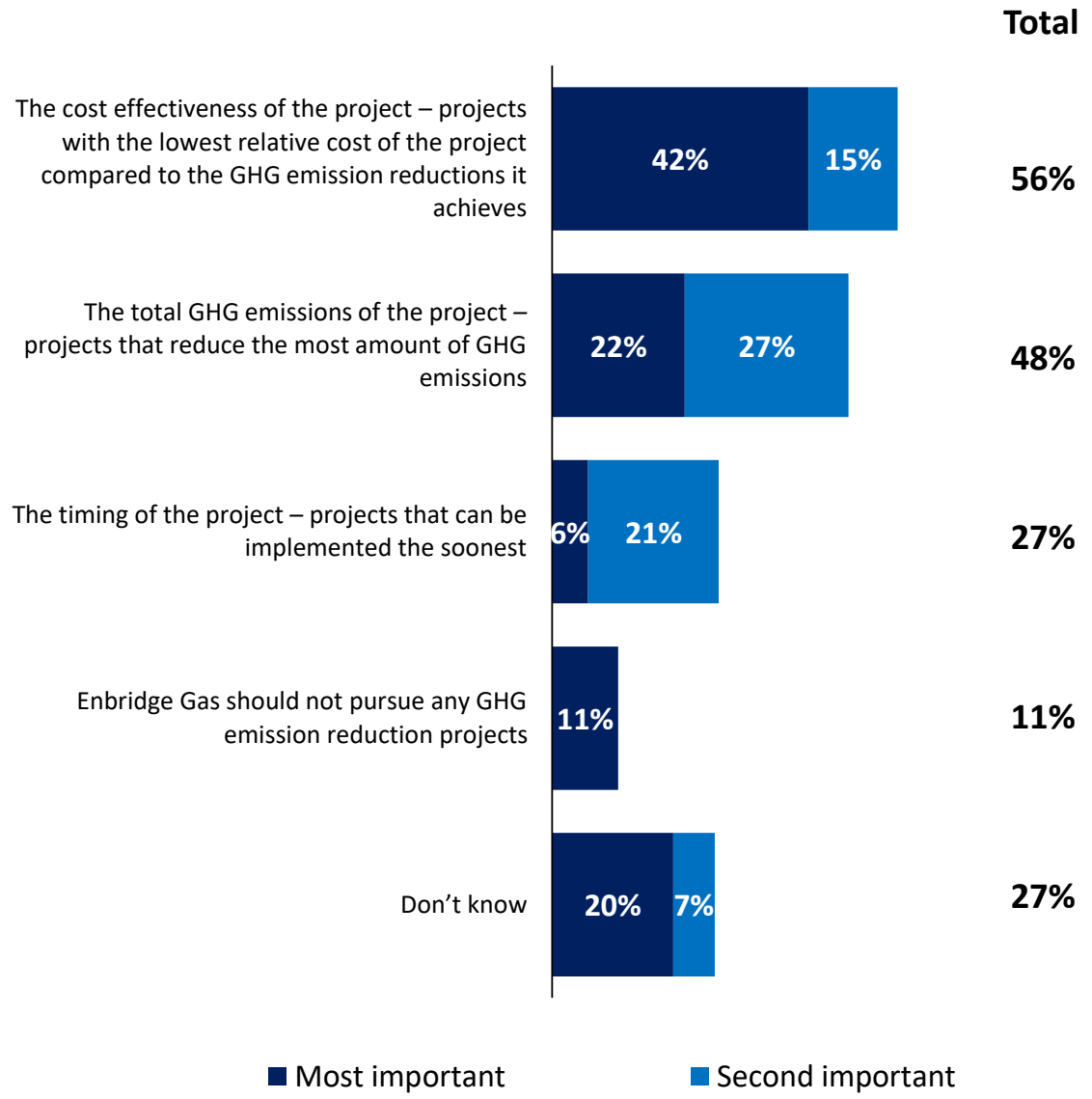
Enbridge Gas must therefore consider GHG emissions from its own operations and would like to ask you some questions about this.

Energy Transition, IRP & GHG Emission Reductions

Ranking Importance of GHG Emission Reductions

Q As Enbridge Gas considers different projects and opportunities for GHG emissions reductions, it will have to consider several different things, such as costs, emissions reduction potential, timing, and technical feasibility. When Enbridge Gas has to decide which projects to implement, which of the following is the **most important** to you? And what is the **second most important**?

[asked of all respondents; n=3,600]



Note: Respondents who say 'Don't know' or "Enbridge Gas should not pursue any GHG emission reduction projects" do not get asked for further priorities.
'No response' not shown.

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Energy Transition, IRP & GHG Emission Reductions

Ranking Importance of GHG Emission Reductions

Q As Enbridge Gas considers different projects and opportunities for GHG emissions reductions, it will have to consider several different things, such as costs, emissions reduction potential, timing, and technical feasibility. When Enbridge Gas has to decide which projects to implement, which of the following is the **most important** to you? And what is the **second most important**?

[asked of all respondents; n=3,600]

% Total Important	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
The cost effectiveness of the project – projects with the lowest relative cost of the project compared to the GHG emission reductions it achieves	56%	57%	56%	57%	57%	55%	58%	55%	58%	51%	55%	61%
The total GHG emissions of the project – projects that reduce the most amount of GHG emissions	49%	48%	48%	49%	49%	50%	49%	46%	49%	38%	44%	55%
The timing of the project – projects that can be implemented the soonest	28%	26%	27%	27%	27%	27%	28%	27%	27%	25%	29%	30%

Note: Respondents who say 'Don't know' or "Enbridge Gas should not pursue any GHG emission reduction projects" do not get asked for further priorities.

INNOVATIVE RESEARCH GROUP

Energy Transition, IRP & GHG Emission Reductions

Compressor Stations | Fuel Costs Only – Preamble

Enbridge Gas has 50 compressors and supporting equipment. These are required to move gas along the transmission system and inject it into and out of storage.

Compressors need energy to operate. Enbridge Gas has the opportunity to **reduce its greenhouse gas (GHG) emissions by using renewable natural gas (RNG) to operate its compressors** in the place of conventional natural gas. This is currently the largest opportunity for Enbridge Gas to reduce its own GHG emissions.

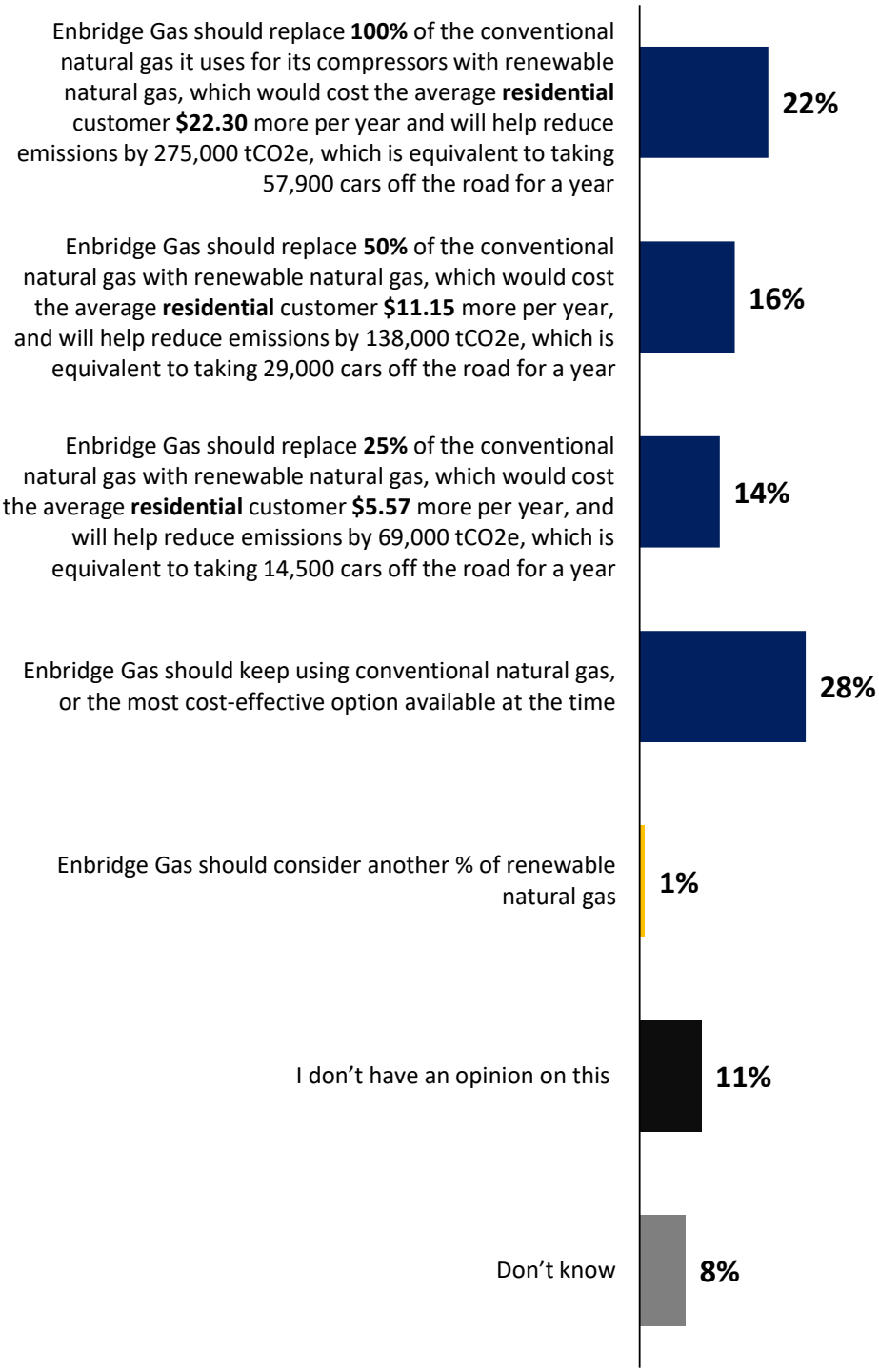
RNG is derived from organic waste from farms, landfills, and water treatment plants and is considered to be carbon neutral. Using it instead of conventional natural gas would reduce GHG emissions and help meet climate change targets, however, it will also increase Enbridge Gas' operational costs because RNG is more expensive than conventional natural gas.

Energy Transition, IRP & GHG Emission Reductions

Compressor Stations | Fuel Costs Only

Q Which of the following is closest to your point of view?

[asked of all respondents; n=3,600]



Energy Transition, IRP & GHG Emission Reductions

Compressor Stations | Fuel Costs Only

Q Which of the following is closest to your point of view?

[asked of all respondents; n=3,600]

	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
Should replace 100% of the conventional natural gas	22%	22%	23%	22%	21%	22%	21%	22%	23%	13%	18%	27%
Should replace 50% of the conventional natural gas	16%	17%	15%	19%	17%	17%	17%	17%	15%	14%	18%	18%
Should replace 25% of the conventional natural gas	14%	13%	14%	13%	14%	15%	14%	13%	13%	16%	15%	13%
Should keep using conventional natural gas	27%	30%	28%	29%	30%	27%	28%	28%	31%	29%	28%	27%

INNOVATIVE RESEARCH GROUP

Energy Transition, IRP & GHG Emission Reductions

Real Estate and Workplace Services | Net Zero Buildings – Preamble

Another opportunity for GHG emissions reductions is from **Enbridge Gas' buildings**.

Enbridge Gas uses more than 80 facilities (administration and operations centres as well as depots) across Ontario ranging in both age and size to support its work and operations.

Enbridge Gas is considering some major building projects, and it has to make the choice of whether to build to the current Ontario Building Code (OBC) and energy standards or to exceed them in an effort to further reduce energy use and GHG emissions.

This includes the new build of one of Enbridge Gas' operations centres (which is currently too small and inefficient and does not meet the needs of the business). Estimates for this **new build project** show that upgrading the conventional design option to a Net-Zero design option would cost the average **residential** customer **$0.04** each year.

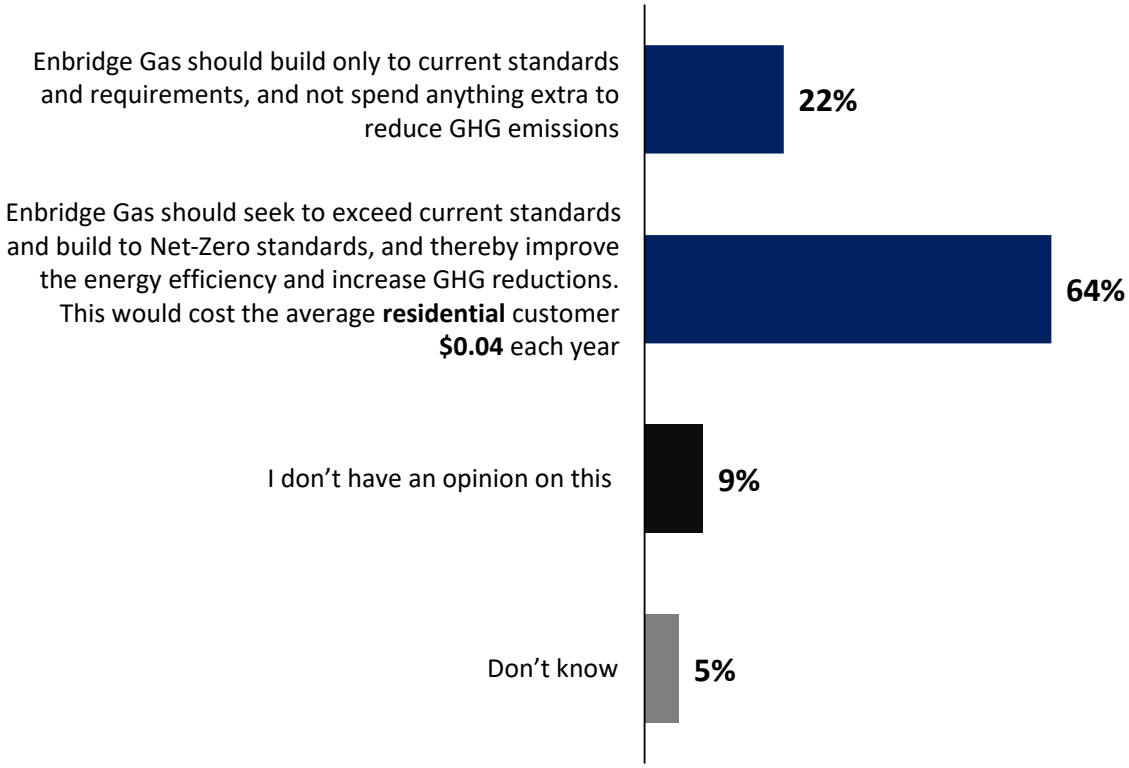
Note that these new buildings are necessary and not building is not a cost-effective option.

Energy Transition, IRP & GHG Emission Reductions

Real Estate and Workplace Services – Net Zero Buildings

Q Which of the following is closest to your point of view?

[asked of all respondents; n=3,600]



	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
Should build only to current standards and requirement	21%	23%	22%	19%	23%	21%	21%	22%	24%	21%	21%	21%
Should seek to exceed current standards and build to Net-Zero standards	64%	64%	62%	67%	63%	65%	64%	62%	63%	54%	63%	70%

Energy Transition, IRP & GHG Emission Reductions

GHG Emissions Reductions | Other – Preamble

Enbridge Gas has provided some specific examples of GHG emission reduction opportunities earlier in this survey. There are **other opportunities** available as well, however, in most cases this might incur more costs compared with doing business as usual.

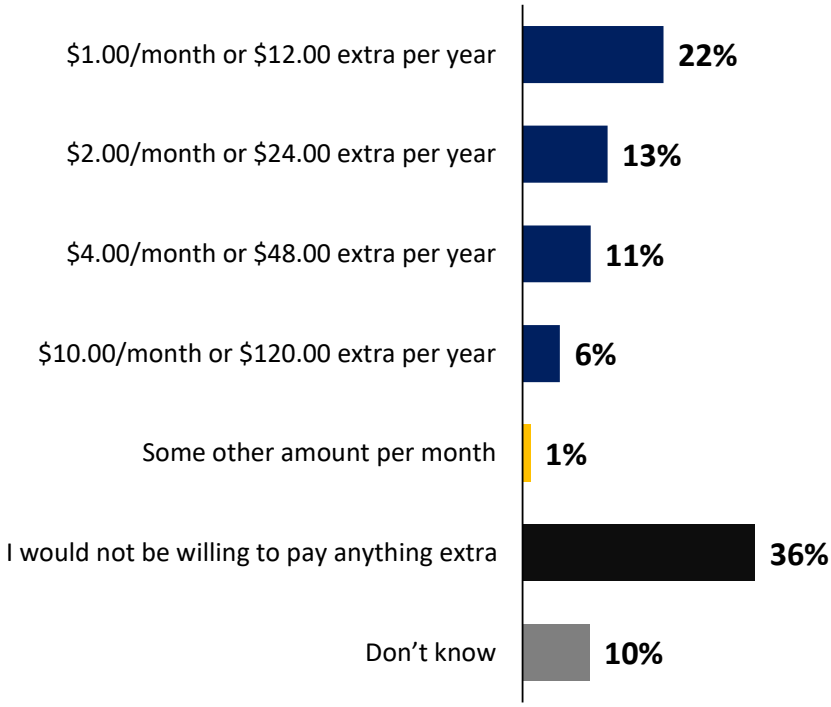
Examples of further emission reduction opportunities include reducing vented gas (such as gas released to the atmosphere during maintenance activities), reducing the amount of natural gas that is burned as part of its operations, and electrification.

Energy Transition, IRP & GHG Emission Reductions

GHG Emissions Reductions | Other

Q Generally, how much more, if anything, would you be willing to pay for Enbridge Gas to invest in further GHG emission reduction opportunities across its operations?

[asked of all respondents; n=3,600]

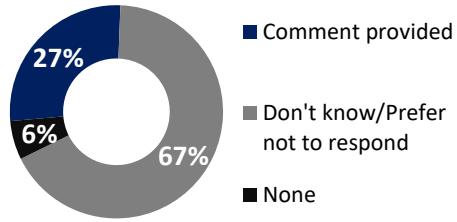


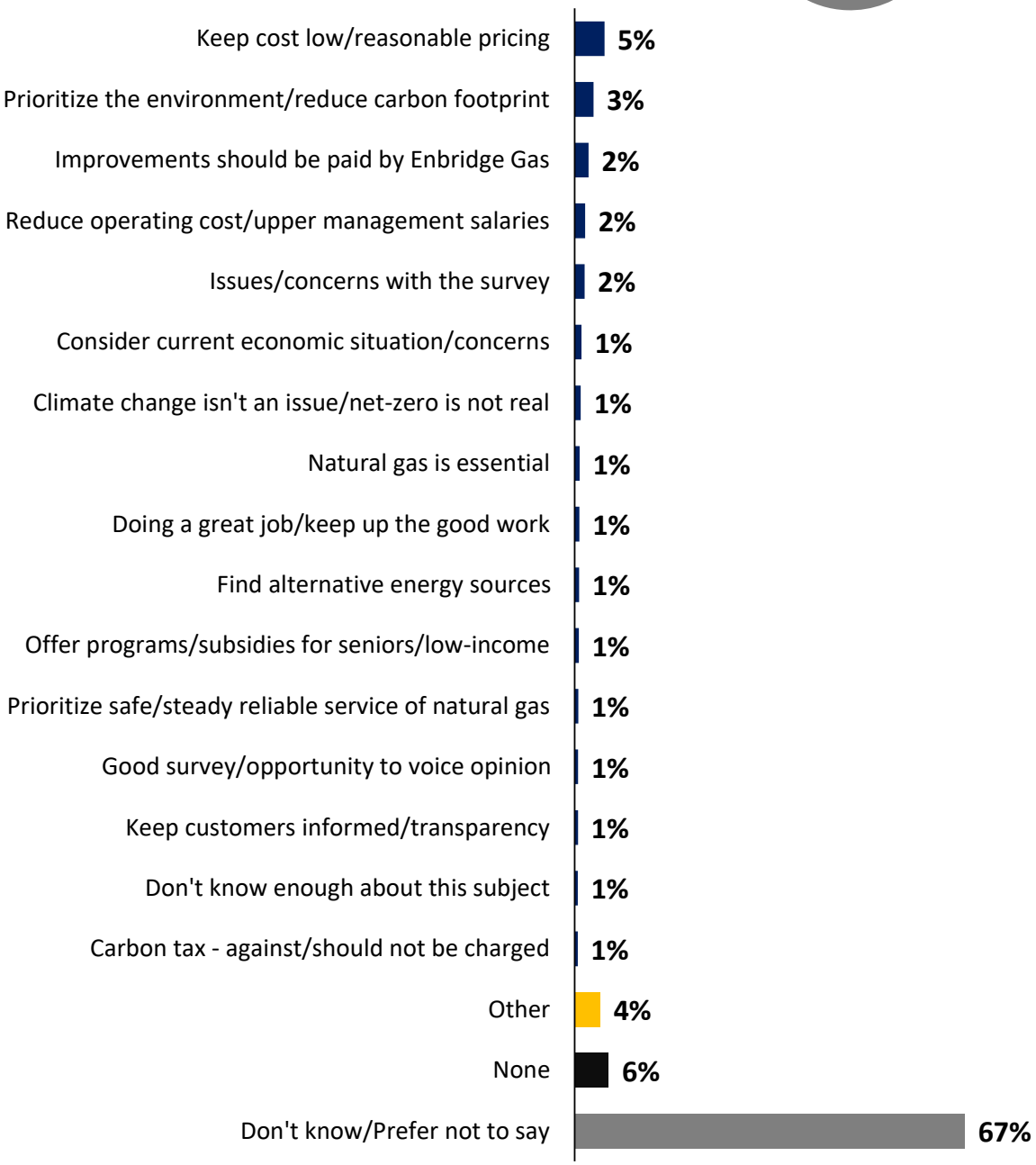
	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
$1.00/month or $12.00 extra per year	22%	23%	22%	23%	22%	24%	21%	22%	21%	23%	26%	22%
$2.00/month or $24.00 extra per year	14%	13%	13%	13%	14%	13%	14%	13%	12%	8%	15%	15%
$4.00/month or $48.00 extra per year	11%	10%	11%	10%	10%	11%	11%	10%	11%	7%	11%	13%
$10.00/month or $120.00 extra per year	6%	5%	6%	6%	5%	5%	6%	6%	7%	1%	4%	8%

Final Thoughts

Final Thoughts
Additional Comments

Q Is there anything that you would like to share with Enbridge Gas as it works on building its business plan?
[asked of all respondents; n=3,600]



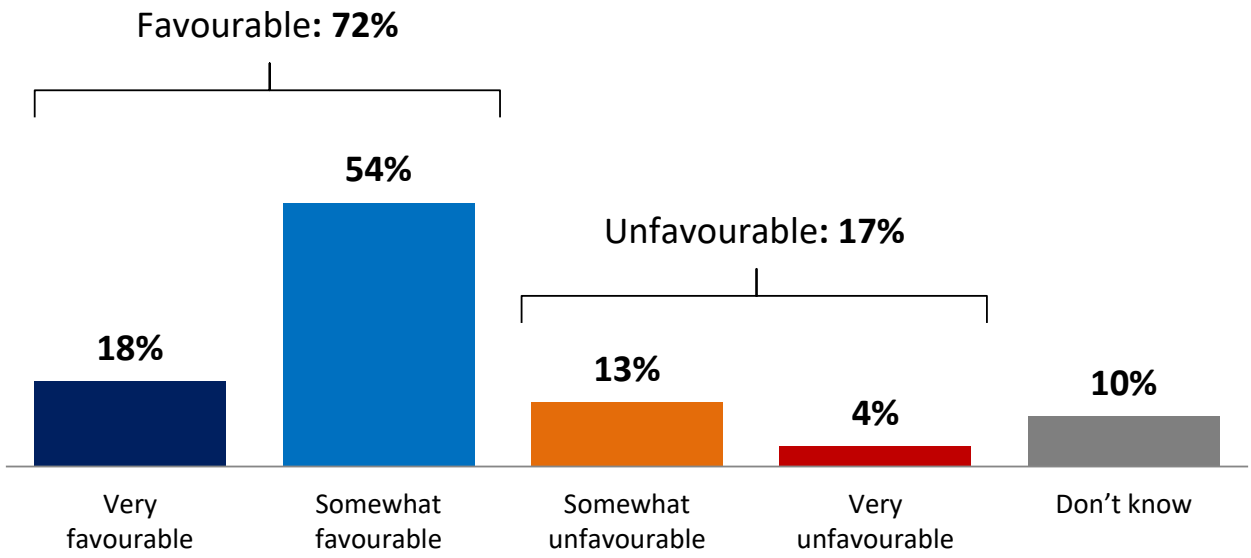


Final Thoughts

Survey Impression

Q Overall, did you have a favourable or unfavourable impression of the survey you just completed?

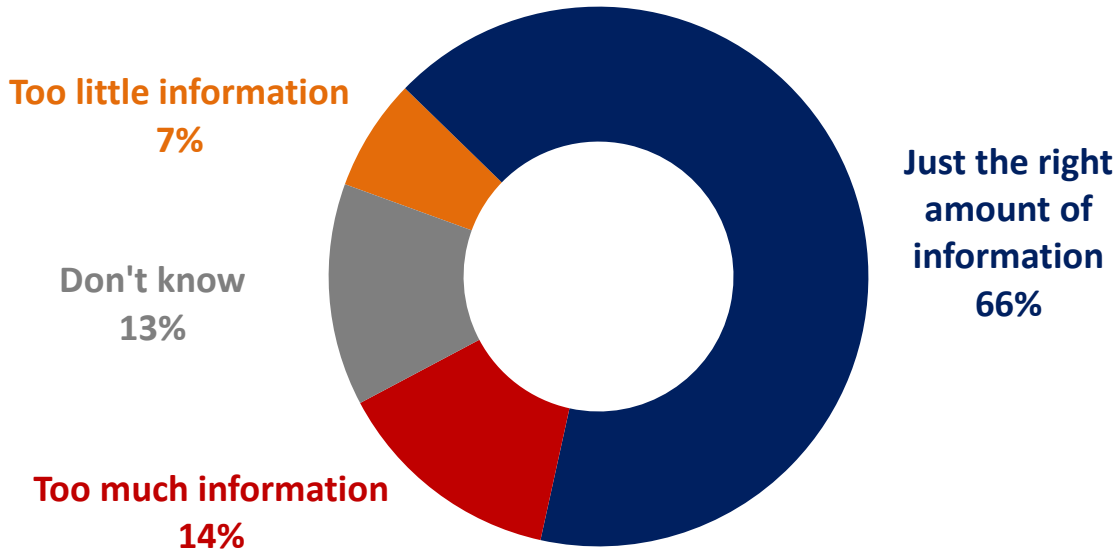
[asked of all respondents; n=3,600]



	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
Very favourable	18%	17%	18%	17%	17%	17%	19%	19%	17%	17%	20%	21%
Somewhat favourable	54%	55%	54%	58%	53%	57%	54%	52%	55%	53%	57%	56%
Somewhat unfavourable	13%	13%	13%	12%	14%	13%	13%	13%	14%	13%	10%	12%
Very unfavourable	4%	5%	4%	3%	5%	4%	3%	5%	4%	4%	3%	3%
Don't know	10%	10%	10%	11%	11%	10%	11%	11%	9%	13%	10%	8%
Favourable (Very + Somewhat)	**73%**	**72%**	**72%**	**75%**	**70%**	**73%**	**73%**	**71%**	**72%**	**70%**	**77%**	**77%**
Unfavourable (Very + Somewhat)	**17%**	**18%**	**18%**	**14%**	**19%**	**17%**	**16%**	**18%**	**19%**	**17%**	**13%**	**15%**

Final Thoughts
Amount of Information

Q In this survey, do you feel that Enbridge Gas provided too much information, not enough, or just the right amount?
[asked of all respondents; n=3,600]



	Rate Zone		Operations Regions			Consumption				LEAP Qualification		
	EGD	Union	GTA	North/ East	South	Low	Med-low	Med-high	High	Yes	No <$52K	No >$52K
Too little information	7%	7%	7%	6%	7%	7%	6%	7%	8%	6%	6%	6%
Just the right amount	65%	67%	65%	68%	66%	67%	69%	63%	66%	66%	67%	72%
Too much information	14%	13%	15%	12%	13%	14%	13%	15%	13%	14%	11%	13%

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2025-2034 Asset Management Plan Customer Engagement

Business Survey Results

December 2023

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Project Overview & Methodology

Enbridge Gas 2023 AMP Customer Engagement Survey

Innovative Research Group Inc. (INNOVATIVE) was engaged by Enbridge Gas to assist on their customer engagement program aimed at supporting its *2025-34 Asset Management Plan Customer Engagement* initiative. The project aligns with the principles outlined in the Ontario Energy Board's "consumer-centric" Renewed Regulatory Framework for Electricity Distributors (RRFE), which emphasizes the shift from utility cost-centric operations to delivering value to customers. This report summarises the findings survey with small and medium-large business customers.

Research Objectives & Survey Development

- The project focused on updating the Asset Management Plan without seeking additional rates. This aligns with the OEB's expectations that both planning and customer engagement are ongoing processes.
- The survey covered topics on asset management, customer outcomes, and energy transition. A final open-ended question allowed respondents to provide any additional comments they felt Enbridge Gas should take into account when developing their investment plan.
- The online survey was completed by a random sample of business customers that were given the opportunity to provide their input into the Asset Management Plan.
- The surveys were developed by Enbridge Gas and finalized with input from INNOVATIVE. The residential and business versions were different only where wording adjustments were needed to tailor the question or response options for a residential vs business customer.
- Online survey was pre-tested through one-on-one interviews with 10 residential customers to ensure customer understanding and a positive survey experience.

Methodological Notes

- All data was collected between November 14th and December 15th, 2023. Details on sample design, weighting and validation can be found on the following pages.

Sample Design

Sample Design
Weighting the Data

Weighting the Data

The final data for the business survey were then weighted to be proportionate based on the actual distribution of customers in each of the operations regions and consumption quartiles and a sample target of 1,200. *The table below summarizes the unweighted and weighted (in brackets) sample breakdown by quartile and operations region.*

Small Business Customers

Operations Regions	Consumption Quartiles		Total
	Low	High	
Eastern	98 (54)	77 (63)	175 (117)
GTA East	115 (67)	60 (77)	175 (145)
GTA Toronto	85 (65)	65 (96)	150 (161)
GTA West	127 (96)	73 (94)	200 (190)
Northern	48 (40)	64 (48)	112 (88)
Southeast	209 (115)	156 (102)	365 (217)
Southwest	176 (102)	118 (76)	294 (177)
Total	**858 (539)**	**613 (556)**	**1,471 (1,094)**

Medium-Large Business Customers

Operations Regions	Consumption Quartiles		Total
	Low	High	
Eastern	7 (5)	6 (5)	13 (11)
GTA East	5 (7)	5 (6)	10 (13)
GTA Toronto	10 (12)	9 (18)	19 (30)
GTA West	9 (10)	6 (9)	15 (20)
Northern	8 (3)	6 (2)	14 (5)
Southeast	12 (9)	22 (8)	34 (16)
Southwest	16 (6)	7 (4)	23 (10)
Total	**67 (54)**	**61 (52)**	**128 (106)**

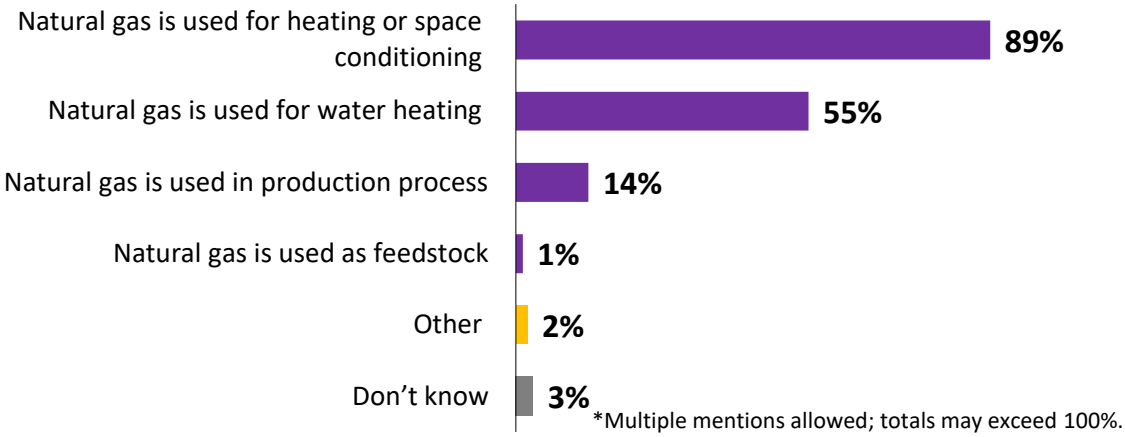
Note: *Graphs and tables may not always total 100% due to rounding values rather than any error in data. Sums are added before rounding numbers.*

Respondent Profile

Respondent Profile

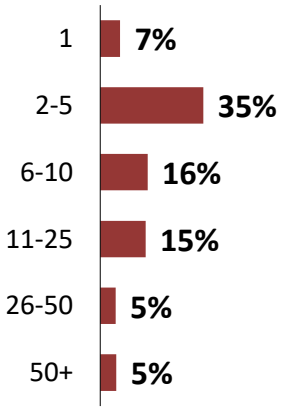
Firmographics breakdown

Natural Gas Use at the Organization*



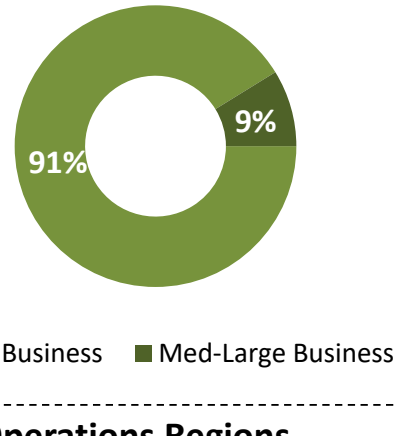
*Multiple mentions allowed; totals may exceed 100%.

Number of Employees

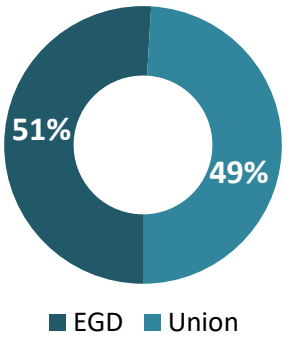


Don't know: 17%

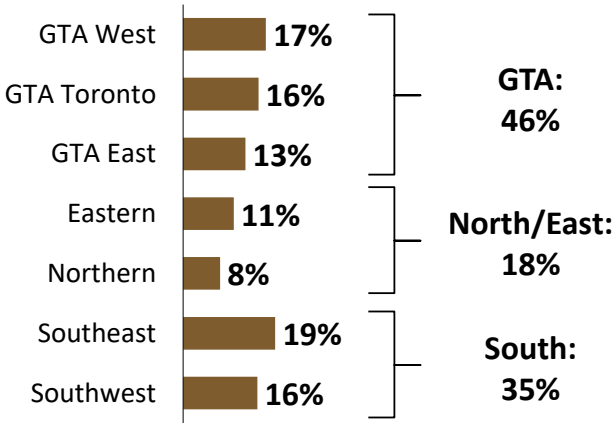
Consumption Volume



Rate Zone

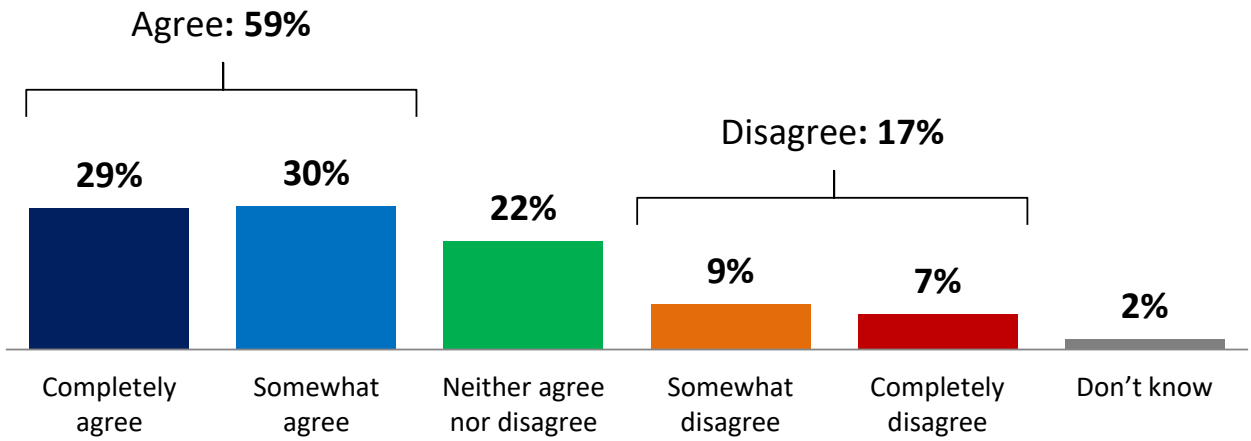


Operations Regions

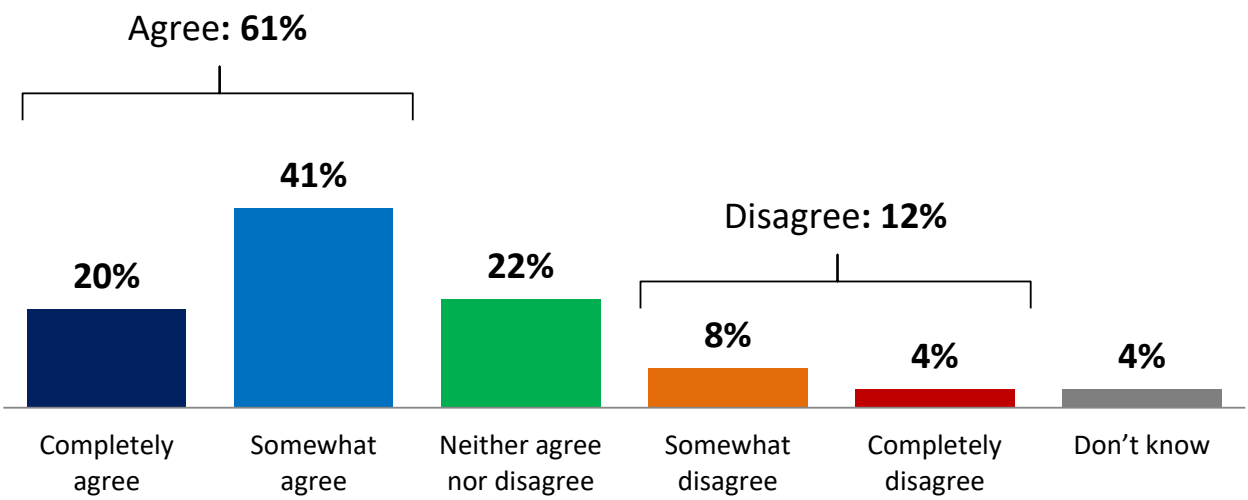


Respondent Profile
Environmental Controls

Q To what extent do you agree or disagree with the following statements?
The cost of my Enbridge Gas bill has a major impact on my business' finances and requires the business do without some other important priorities.
[asked of all respondents; n=1,200]



Q To what extent do you agree or disagree with the following statements?
Customers are well served by the energy system in Ontario.
[asked of all respondents; n=1,200]



Overall Satisfaction

Preamble:

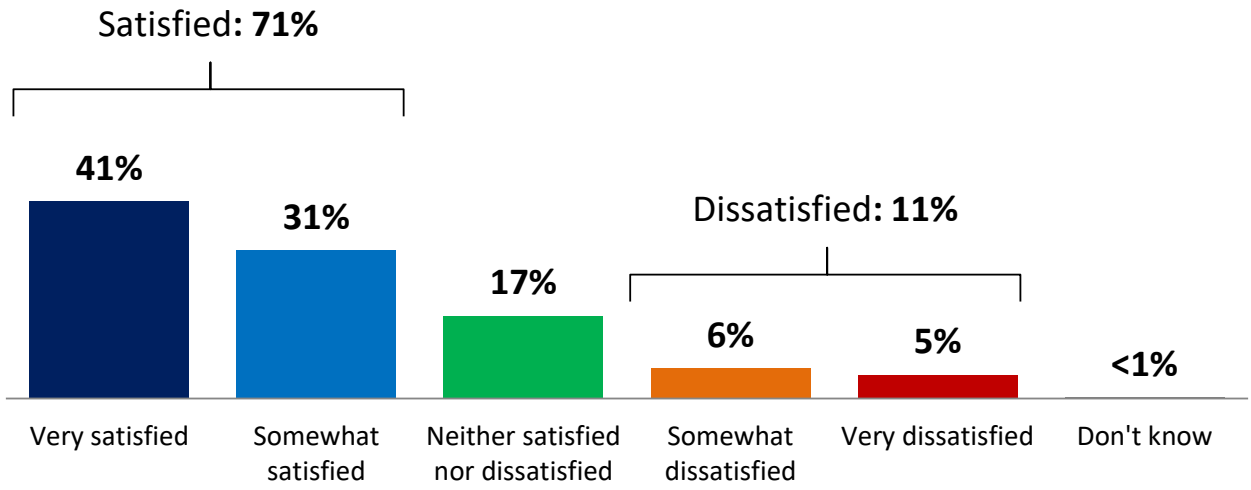
Let's first talk about your overall experience with Enbridge Gas.

Customer Experience

Satisfaction with Enbridge Gas Service

Q Taking into consideration all aspects of your utility service experience, how satisfied are you with your Enbridge Gas service?

[asked of all respondents; n=1,200]



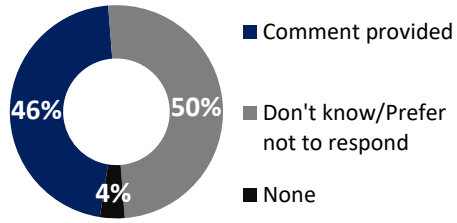
	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
Very satisfied	37%	45%	35%	44%	46%	41%	34%
Somewhat satisfied	33%	29%	32%	29%	30%	30%	34%
Neither	19%	15%	20%	17%	13%	17%	21%
Somewhat dissatisfied	6%	6%	7%	6%	6%	6%	6%
Very dissatisfied	5%	5%	6%	4%	5%	5%	5%
Don't know	<1%	<1%	<1%	--	<1%	<1%	--
Satisfied (Very + Somewhat)	**69%**	**74%**	**67%**	**73%**	**76%**	**72%**	**68%**
Dissatisfied (Very + Somewhat)	**11%**	**11%**	**12%**	**10%**	**11%**	**11%**	**12%**

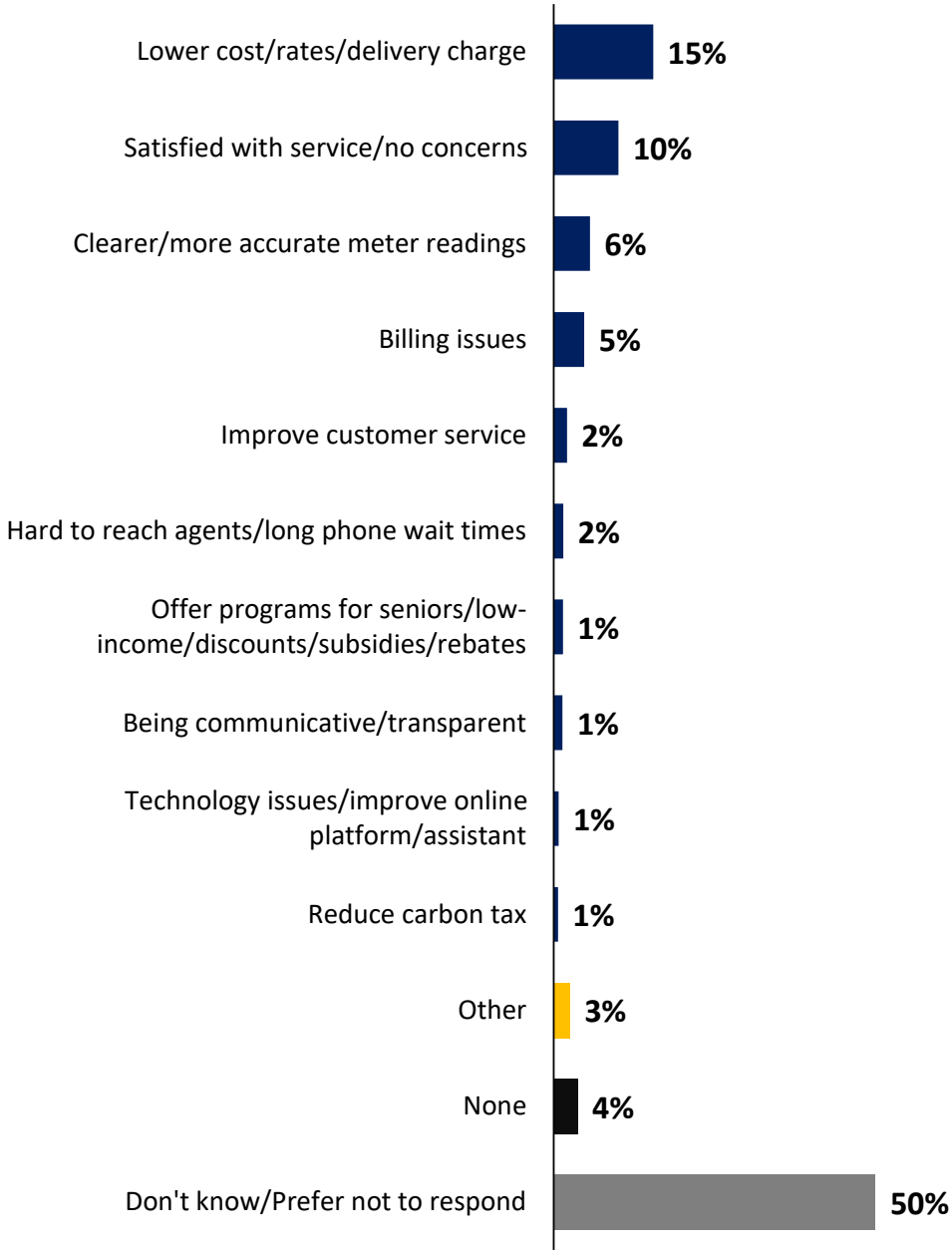
Customer Experience

Improving Enbridge Gas Service

Q Is there anything in particular Enbridge Gas can do to improve their service to you?

[asked of all respondents; n=1,200]





Customer Outcomes

Preamble:

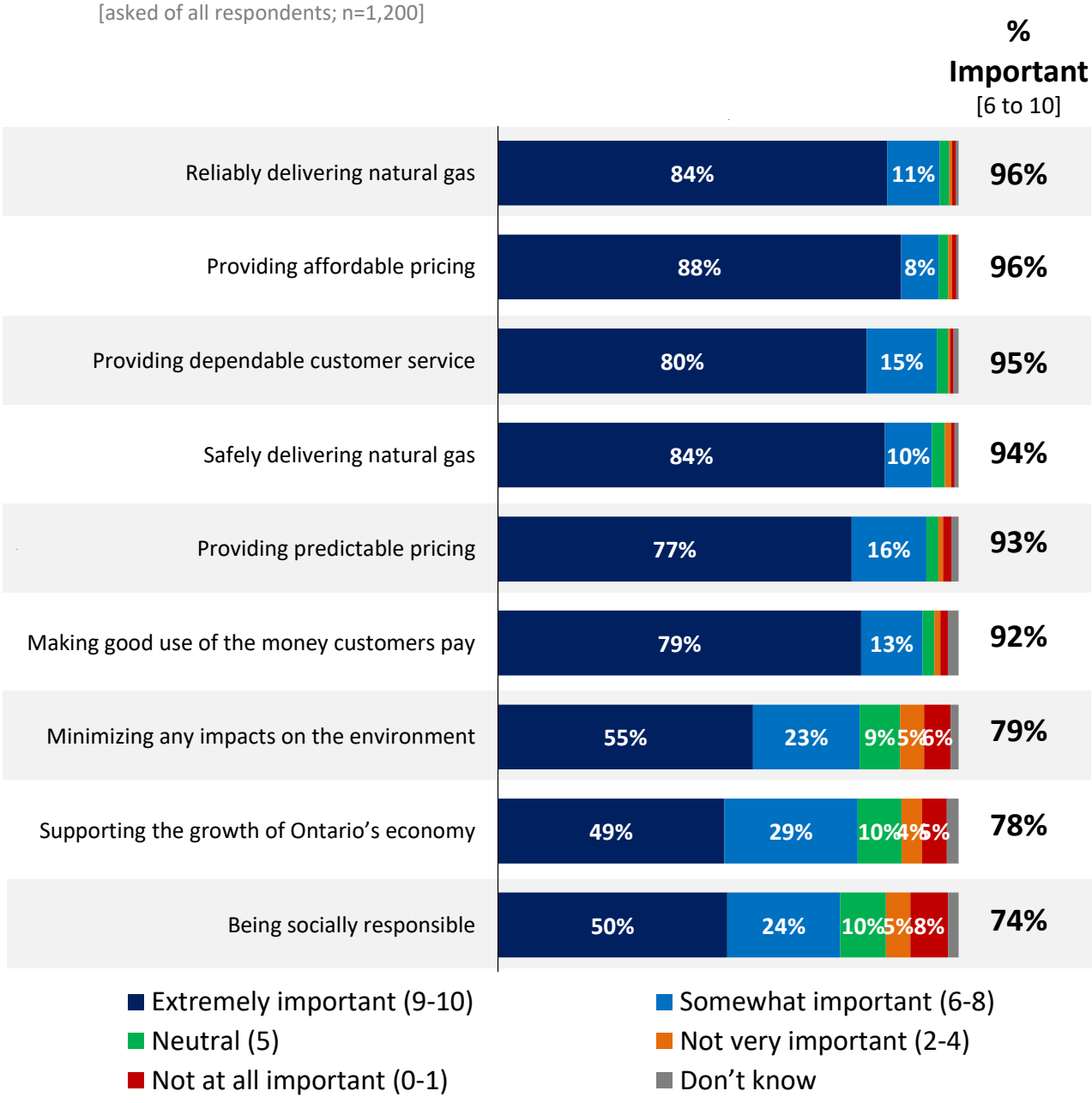
In considering its business plans, including its plan to manage its assets from 2025–2034, Enbridge Gas must make many decisions. We would like your feedback on the outcomes you would like Enbridge Gas to focus on in its plan. Outcomes are the goals and priorities that matter to you.

Customer Outcomes

Importance of Outcomes

Q There is a list of broad outcomes that Enbridge Gas will need to consider. Please indicate how important the following outcomes are to you. Please rate each outcome using the scales below, from 0 to 10 in terms of **how important it is to you** – where **0 means "not important at all"** and **10 means "extremely important".**

[asked of all respondents; n=1,200]



Note: Data labels are removed where 3% or less.

Customer Outcomes

Importance of Outcomes

Q There is a list of broad outcomes that Enbridge Gas will need to consider. Please indicate how important the following outcomes are to you. Please rate each outcome using the scales below, from 0 to 10 in terms of **how important it is to you** – where **0 means "not important at all"** and **10 means "extremely important".**

[asked of all respondents; n=1,200]

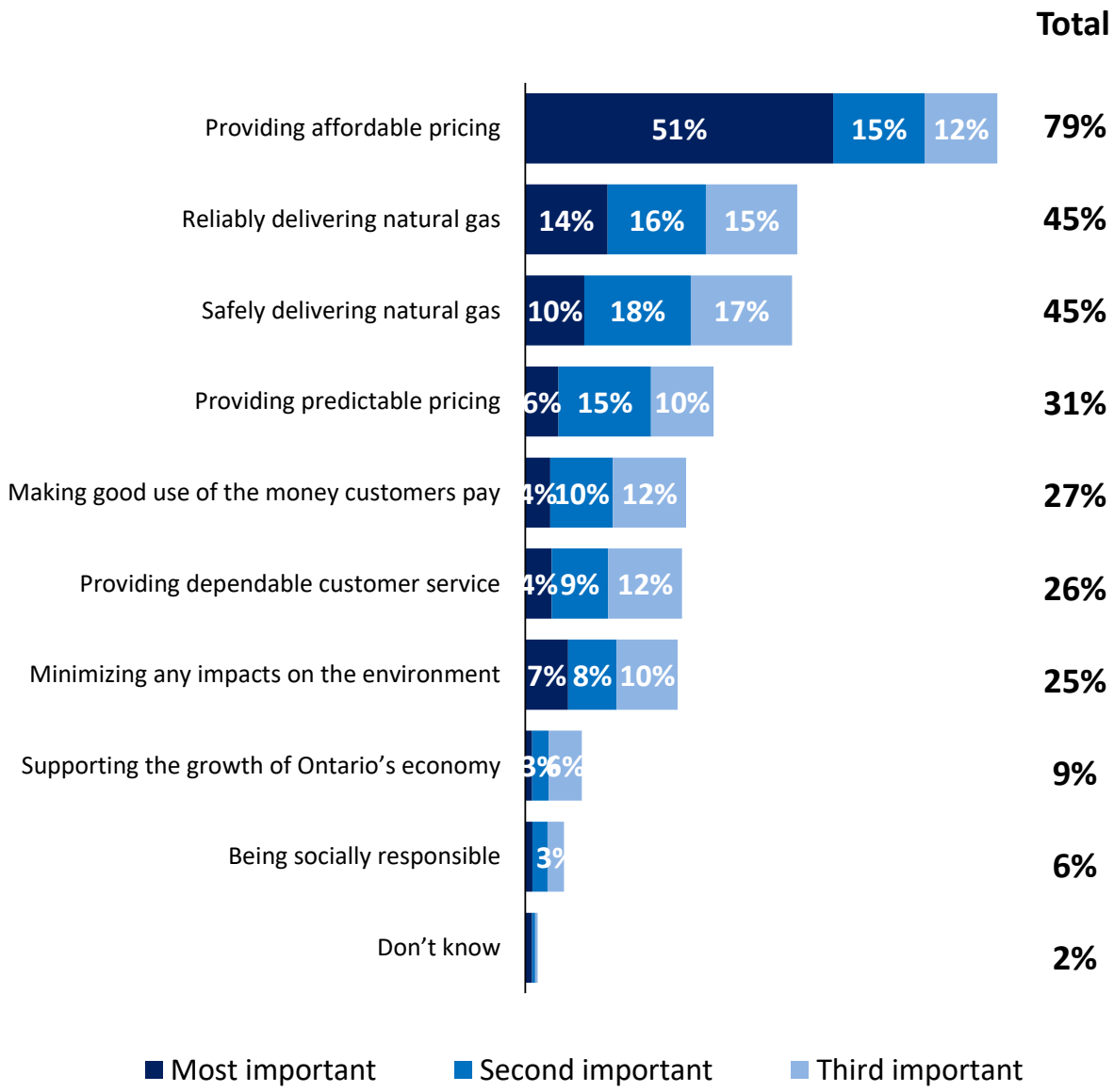
% Important [6 to 10]	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
Reliably delivering natural gas	96%	96%	96%	95%	97%	96%	95%
Providing affordable pricing	95%	96%	95%	96%	97%	96%	93%
Providing dependable customer service	94%	96%	94%	95%	97%	95%	93%
Safely delivering natural gas	94%	95%	94%	92%	96%	94%	93%
Providing predictable pricing	92%	94%	92%	93%	95%	93%	91%
Making good use of the money customers pay	91%	93%	91%	92%	94%	92%	92%
Minimizing any impacts on the environment	77%	80%	77%	81%	79%	79%	77%
Supporting the growth of Ontario's economy	79%	77%	79%	75%	79%	78%	83%
Being socially responsible	73%	76%	73%	75%	76%	74%	73%

Customer Outcomes

Ranking of Importance

Q Sometimes Enbridge Gas needs to choose between priorities that are all considered important. Thinking about these outcomes, which one would you say is most important to you as a customer? And which one is second most important to you? And, finally, which one is third most important to you?

[asked of all respondents; n=1,200]



Note: 'No response' not shown. Respondents who say 'Don't know' do not get asked for further priorities.

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Customer Outcomes

Ranking of Importance

Q Sometimes Enbridge Gas needs to choose between priorities that are all considered important. Thinking about these outcomes, which one would you say is most important to you as a customer? And which one is second most important to you? And, finally, which one is third most important to you?

[asked of all respondents; n=1,200]

% Total Important	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
Providing affordable pricing	80%	78%	81%	78%	77%	79%	74%
Reliably delivering natural gas	43%	48%	44%	48%	46%	44%	63%
Safely delivering natural gas	45%	44%	47%	43%	43%	45%	43%
Providing predictable pricing	33%	30%	33%	33%	29%	31%	37%
Making good use of the money customers pay	27%	27%	26%	26%	29%	27%	22%
Providing dependable customer service	24%	29%	24%	25%	30%	26%	27%
Minimizing any impacts on the environment	26%	25%	27%	24%	24%	26%	17%
Supporting the growth of Ontario's economy	10%	9%	8%	8%	12%	10%	9%
Being socially responsible	7%	6%	6%	8%	7%	7%	6%

Note: 'No response' not shown. Respondents who say 'Don't know' do not get asked for further priorities.

INNOVATIVE RESEARCH GROUP

Asset Management

Asset Management

Investing in Service Quality – Preamble

Now we will ask you about some of the choices that Enbridge Gas planners must make in developing their business plans. **These choices see trade-offs between competing outcomes**, such as doing more to meet customer needs or reduce greenhouse gas (GHG) emissions, versus keeping bills down.

Enbridge Gas planners seek to ensure:

- ✓ that the natural gas system continues to **operate safely and reliably**; and
- ✓ to demonstrate continuous improvement in **productivity and cost performance** (which is also required by the OEB); and
- ✓ to prepare for the **future**.

All costs provided in this survey are preliminary estimates and are expressed as an additional cost each year to the average customer. However, as noted earlier, the actual rates you pay for your natural gas service are determined by a Cost-of-Service application to the Ontario Energy Board (OEB). This happens every five years and has already been submitted for the 2024–2028 period.

Even though your choices in this survey may not directly affect the rates for your natural gas service over this period, it will help Enbridge Gas business managers update its plans.

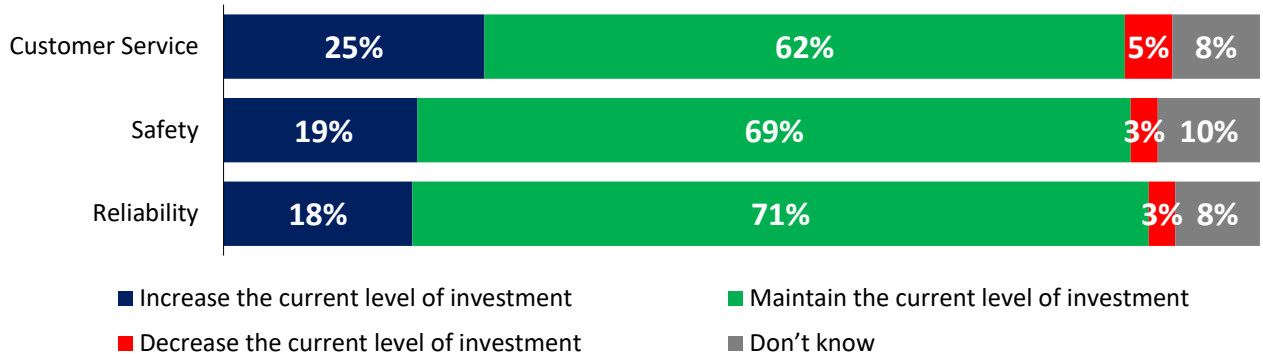
19

Asset Management

Investing in Service Quality

Q Thinking about the level of **safety**, **reliability**, and **customer service** you receive from Enbridge Gas, would you like to see the company invest in maintaining, invest in improving upon the current level, or invest less altogether? Please consider the items below. Should Enbridge Gas...

[asked of all respondents; n=1,200]



Customer Service	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
Increase	26%	24%	28%	22%	23%	24%	37%
Maintain	59%	65%	57%	67%	65%	63%	53%
Decrease	5%	4%	5%	5%	4%	5%	2%

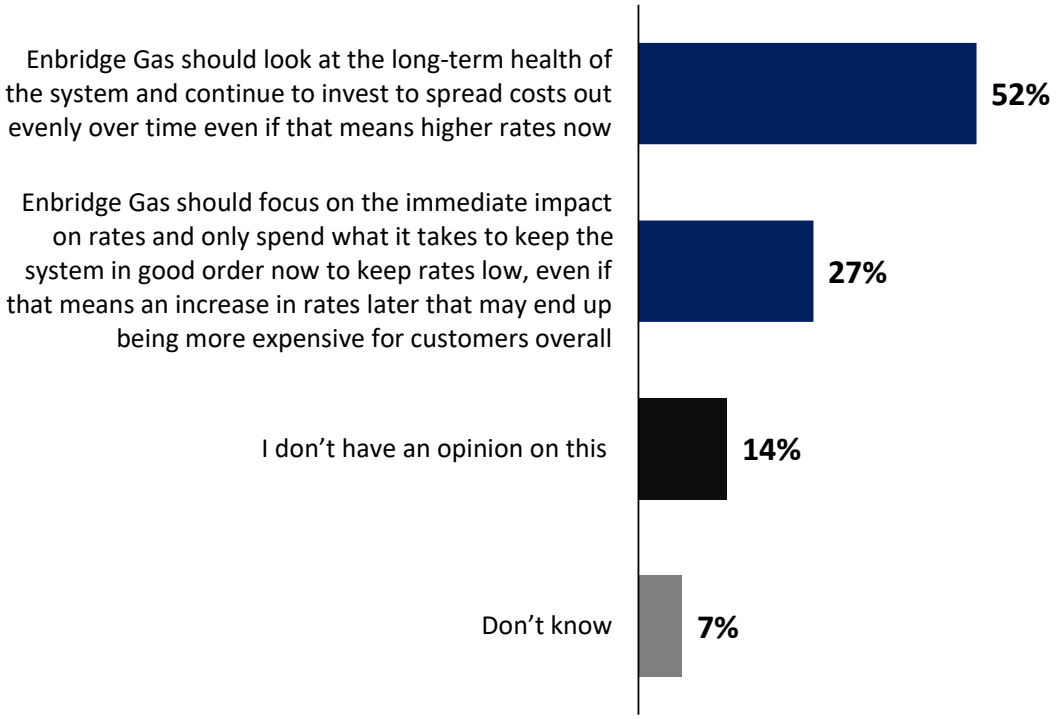
Safety	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
Increase	20%	18%	21%	15%	17%	19%	20%
Maintain	67%	71%	65%	75%	70%	69%	64%
Decrease	3%	2%	3%	2%	2%	3%	4%

Reliability	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
Increase	19%	17%	20%	15%	18%	18%	20%
Maintain	69%	73%	68%	76%	72%	71%	71%
Decrease	3%	2%	3%	3%	2%	3%	1%

Asset Management
Budget Allocation

Q Thinking generally about Enbridge Gas' budget for replacing pipelines and equipment that deliver gas to your organization, which of the following statements best represents your point of view?

[asked of all respondents; n=1,200]



	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
Spread costs out evenly over time	48%	57%	49%	57%	55%	52%	60%
Spend what it takes to keep the system in good order now	30%	24%	30%	24%	25%	28%	22%

Asset Management

Distribution Pipe – Preamble

As suggested in the previous question, in some cases, where alternative options may not exist, Enbridge Gas will have to make a choice to **spend more now**, or to **spend more later**.

One example is related to its steel pipelines.

- Enbridge Gas operates approximately 32,000 km of main distribution pipelines that are made of steel.
- Another 50,000 km of main distribution pipelines are made of plastic.
- **17,000 km of steel pipelines are 3 times more leak-prone** than newer pipes due to the materials and practices from the 1950s and 1960s when they were built.

Failure of distribution pipelines can lead to serious concerns including:

- ✓ increased greenhouse gas emissions (GHGs)
- ✓ property damage, and
- ✓ in the worst-case scenario, although the risk is low, injury to people.

Typical steel pipeline with protective coating

Steel pipeline with corrosion failure

Enbridge Gas uses a data driven approach to prioritize the replacement of pipe which is most likely to fail first or have the greatest consequence if it does fail. It also checks for leaks every one to four years (depending on the pipe categorization) to maintain the safety of the system. However, to fully understand the condition of the pipeline, visual inspection is required which can be of comparable cost to replacement.

Of the 17,000 km, Enbridge Gas has identified approximately **5,100 km as <u>most</u> important for replacement** due to its predicted risk. The majority of these are smaller in diameter and would be replaced with plastic pipelines, which will be cheaper to maintain.

Asset Management

Distribution Pipe – Preamble

Not addressing the aging pipeline infrastructure is expected to result in a gradual increase in leaks over time as shown in the table below:

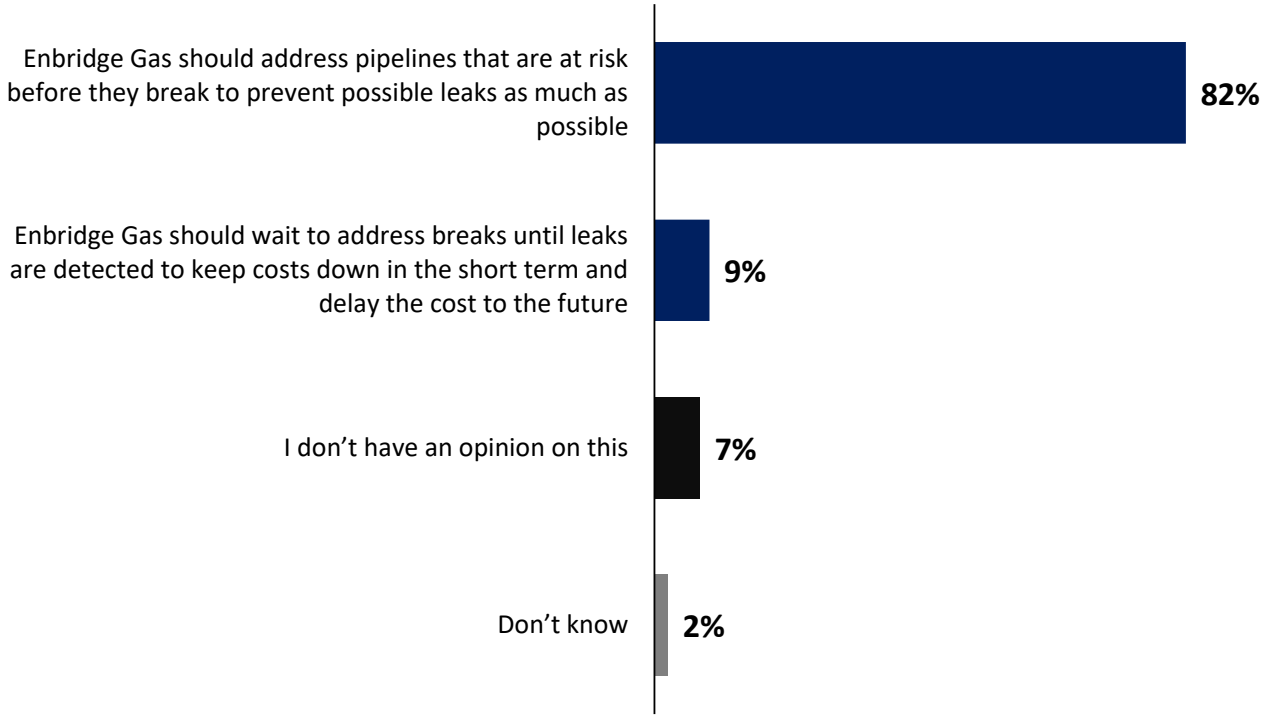
Potential number of leaks	**2023**	**2034**
Main pipelines	281	747
Smaller Service Pipelines	1920	3909

If Enbridge Gas waits, it can allocate its budget elsewhere, however it would increase the estimated number of leaks and extend the work into the future. The overall costs are expected to be higher with a delayed approach.

As a result, Enbridge Gas' program to replace these pipelines at an achievable pace is estimated to cost the average **business** customer an average of an additional **0.108%** each year as the program ramps up from 2027–2032.

Asset Management
Distribution Pipe

Q Which of the following is closest to your view?
[asked of all respondents; n=1,200]



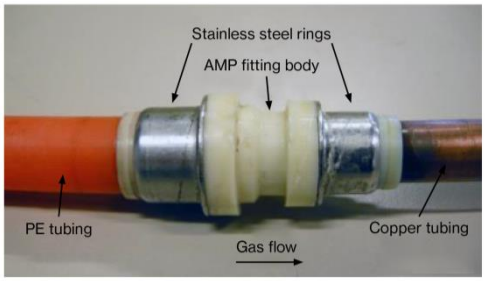
	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
Address pipelines that are at risk before they break to prevent leaks as much as possible	81%	84%	80%	86%	83%	82%	86%
Should wait to address breaks until leaks are detected to keep costs down	10%	7%	11%	5%	8%	9%	8%

Asset Management

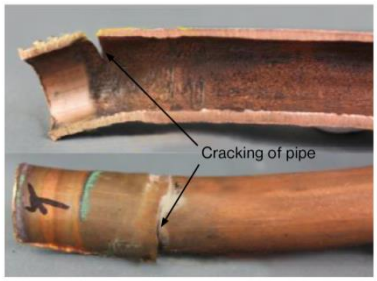
AMP Fittings – Preamble

Another example is related to AMP fittings.

AMP fittings are used to connect two different types of natural gas pipelines. Enbridge Gas has 240,000 AMP fittings in its system, near customer meters. AMP fittings cause a disturbance in the flow of gas, and a low-pressure zone after the fitting is created. This causes corrosion over time and eventually would create a crack. Based on Enbridge Gas' sampling and modelling, it is expected that all copper pipes will corrode, and cause a leak over time, which based on modelling estimates could result in property damage and injury.



Typical AMP fitting installation



Localized corrosion failure at AMP fitting

To address this issue, Enbridge Gas established a proactive replacement program in 2019 to remove the AMP fittings from the system. This program gradually ramps up the replacement of AMP fittings to a maximum of 14,000 per year and then ramps down until it ends in 2043. **It aims to reduce emergency repairs, although some will still be needed**. The expected cost of an emergency repair compared to a proactive replacement is an additional $400 per fitting.

In terms of number of emergency replacements:

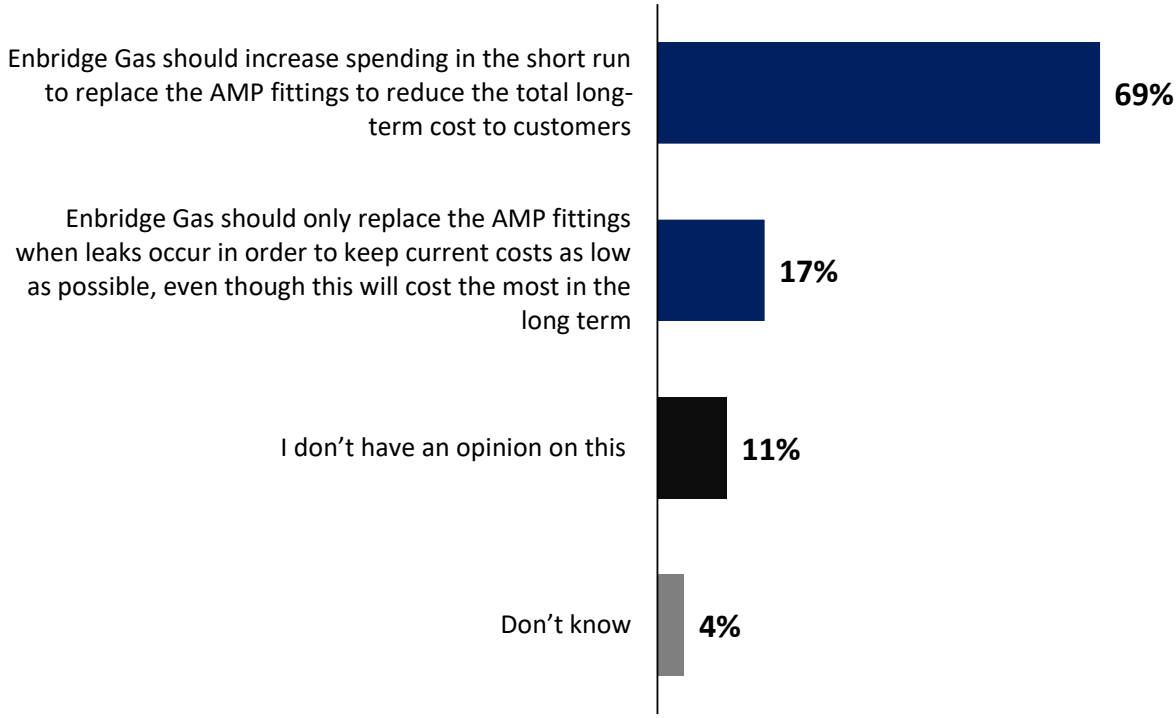
- ✓ Enbridge Gas has repaired about 1,200 per year so far.
- ✓ Enbridge Gas is expecting to repair about **2,000** per year **with the renewed proactive replacement program**.
- ✓ Enbridge Gas is expecting to repair up to **7,000** per year **without the renewed proactive replacement program**.

The renewed program is expected to reduce the total number of future leaks by 196,000.

Enbridge Gas would like to renew this program so that over the next 20 years, it would be able to reduce risks related to leaks and be able to save $346 million in total by proactively replacing AMP fittings, rather than reactively repairing leaks. The proposed program would slowly ramp up and at the height of the program in 2038 cost the average **business** customer an additional **0.008%** each year but would save customers **0.0006%** each year over the program term compared to only completing emergency replacements over the longer term.

Asset Management
AMP Fittings

Q Which of the following is closest to your view?
[asked of all respondents; n=1,200]



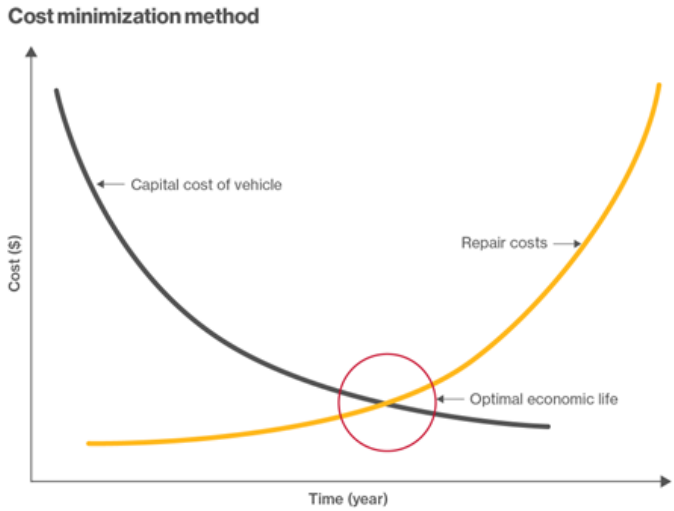
	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
Should increase spending in the short run to replace the AMP fittings	67%	70%	67%	69%	70%	68%	73%
Should only replace the AMP fittings when leaks occur	18%	15%	19%	14%	15%	17%	15%

Asset Management

Fleet and Equipment – Preamble

Enbridge Gas also plans to maintain its **fleet and equipment** for the safety of its employees as well as the efficiency and cost-effectiveness of its operations. The current fleet includes approximately 1,700 light and medium duty vehicles used by employees, as well as 1,200 pieces of heavy equipment and trailers.

Enbridge Gas analyzes a vehicle's cumulative maintenance cost against the average cost of all vehicles and the condition of the vehicle. A vehicle is considered for replacement when the average maintenance cost surpasses market value unless its maintenance costs much are unusually high (replaced sooner) or unusually low (replaced later). Other factors, such as age, mileage, hours of use, risk of failure and functional requirements are considered as well. With this approach, the average replacement age for light vehicles would be 72 months (or 6 years), and 144 months (or 12 years) for medium and heavy-duty vehicles. The general approach is shown in the cost minimization method figure below:

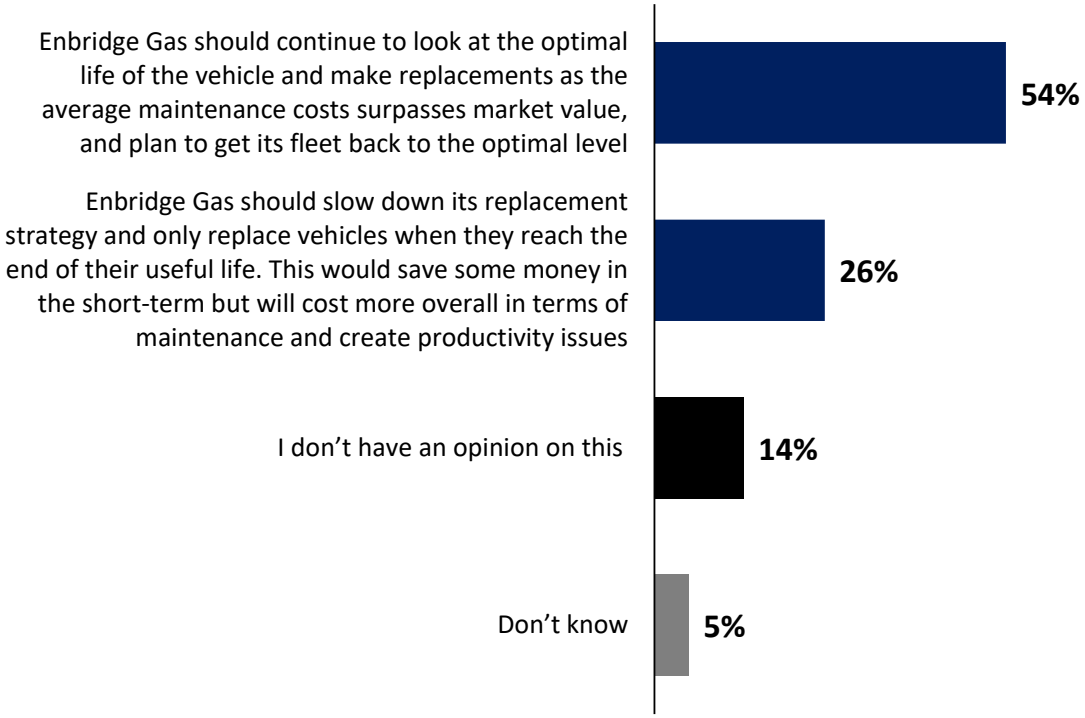


Currently, Enbridge Gas' fleet is older than the optimal level and has become more costly to maintain. Enbridge Gas would like to increase its investments over the coming years to get the fleet age back to the optimal level (returning to the approach described above). The fleet budget over the plan, which includes the budget to bring the fleet age back to the optimal level, would cost the average **business** customer an additional **0.008%** each year.

Enbridge Gas could also slow down its replacement strategy, which may reduce the immediate replacement costs, but this would increase the maintenance costs.

Asset Management
Fleet and Equipment

Q Which of the following is closest to your view?
[asked of all respondents; n=1,200]



	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
Should continue to look at the optimal life of the vehicle	53%	56%	53%	62%	53%	54%	55%
Should slow down its replacement strategy and only replace vehicles when they reach the end of their useful life	25%	27%	27%	21%	29%	26%	28%

Asset Management

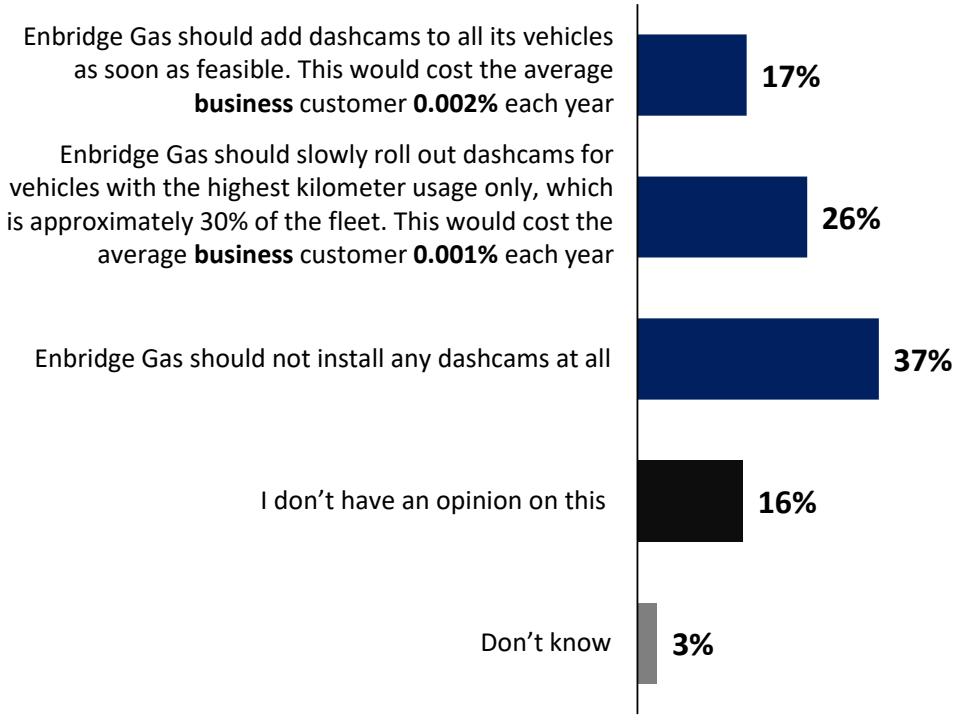
Dashcams – Preamble

Enbridge Gas is committed to the safety of its employees and the public. While fleet vehicles are equipped with Global Positioning System (GPS)/Telematics tracking devices, which are managed by fleet management software (i.e., Geotab), they are currently not equipped with any dash cameras or dashcams. Enbridge Gas is considering **adding dashcams to its vehicles** to allow for the review of the driving behaviour of its employees, as well as the driving conditions experienced by them. This would help to improve the safety of both employees and the public.

Adding dashcams to the entire fleet would require Enbridge Gas to purchase dashcams and the appropriate support systems for almost 1,800 road vehicles. For all vehicles, this would cost the average **business** customer **0.002%** each year.

Asset Management
Dashcams

Q Which of the following is closest to your view?
[asked of all respondents; n=1,200]



	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
Should add dashcams to all its vehicles as soon as feasible	19%	15%	18%	17%	15%	17%	19%
Should slowly roll out dashcams for vehicles	27%	26%	28%	25%	25%	26%	28%
Should not install any dashcams at all	34%	41%	33%	42%	41%	38%	33%

Asset Management

Technology and Information Systems (TIS) – Preamble

Enbridge Gas also has a budget for Technology and Information Systems (TIS), which pays for the technology and systems that keep the company operating. Enbridge Gas actively seeks out and has identified some opportunities available to **improve the efficiency of its business through technology**.

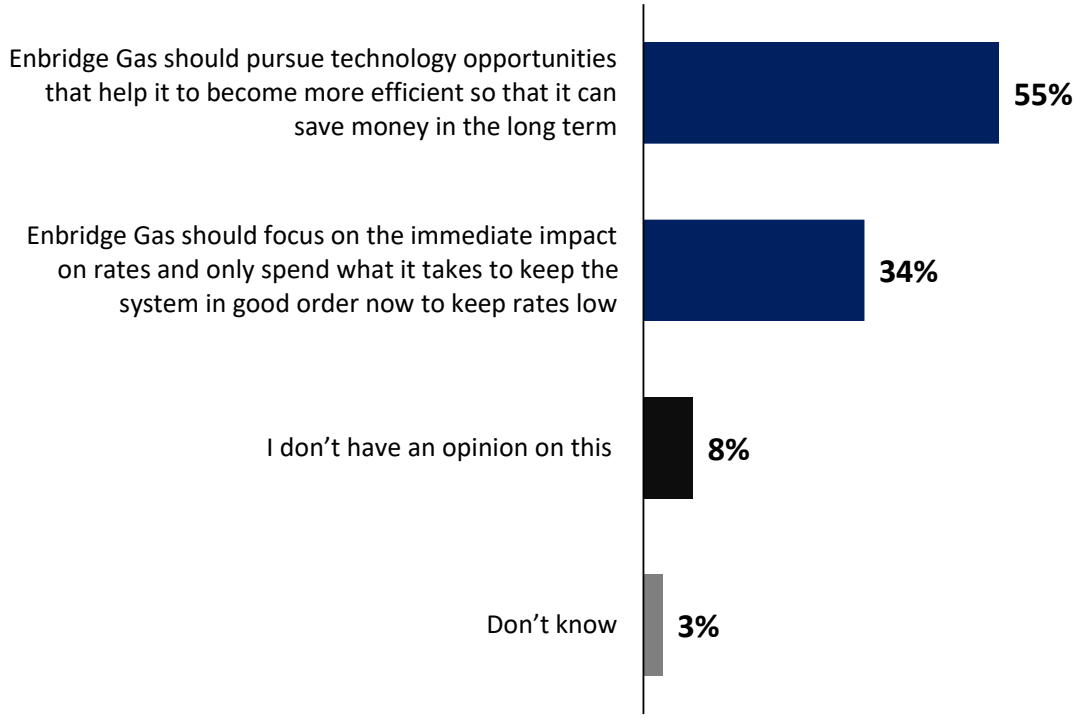
This includes an investment to improve business planning, work intake and scheduling for Enbridge's field operations, which includes meter exchanges, emergency calls and other jobs that require field service technicians. Improvements are intended to reduce administrative and manual work and will help achieve savings in the long-term, and improve customer and employee satisfaction. However, to implement these solutions some upfront investment is required. This project is estimated to cost the average **business** customer **0.0002%** more each year.

Asset Management

Technology and Information Systems (TIS)

Q Which of the following is closest to your view?

[asked of all respondents; n=1,200]



	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
Should pursue technology opportunities that help it to become more efficient	54%	56%	55%	58%	54%	54%	68%
Should focus on the immediate impact on rates	36%	33%	36%	30%	34%	35%	23%

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Energy Transition, IRP and GHG Emission Reductions

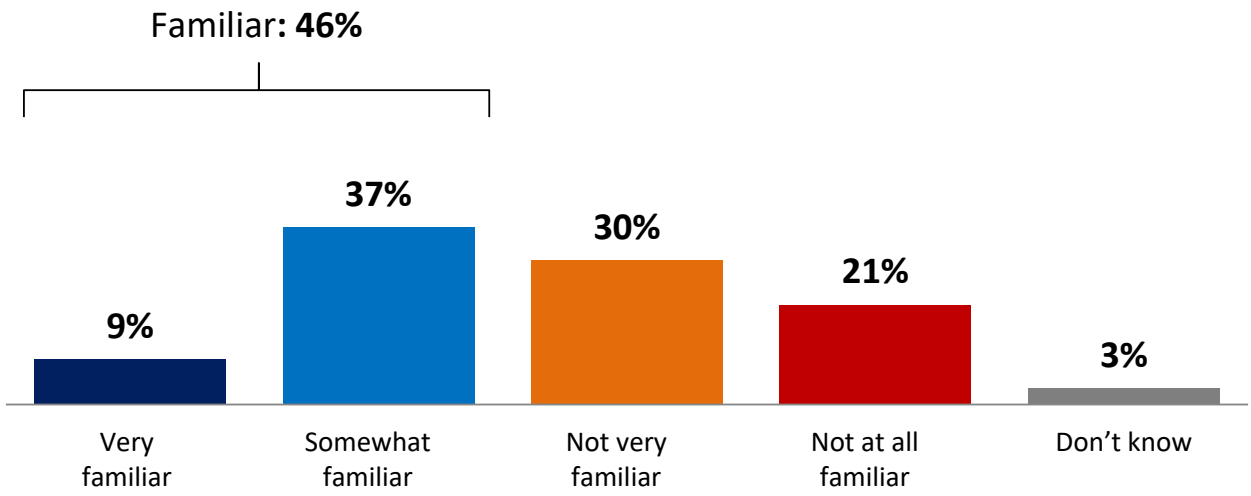
Preamble:

Energy transition in the broadest sense is a global shift away from using carbon-intense fossil fuels (like oil, gasoline, and coal) to a more sustainable, renewable energy future that includes more innovation and customer choice. When Enbridge Gas considers this, it focuses on reducing energy demand and reducing greenhouse gas (GHG) emissions to contribute to net zero goals.

Energy Transition, IRP & GHG Emission Reductions

Familiarity with Energy Transition

Q How familiar are you with the energy transition discussions in Ontario?
[asked of all respondents; n=1,200]



	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
Very familiar	10%	9%	10%	9%	9%	9%	13%
Somewhat familiar	35%	38%	33%	38%	40%	37%	35%
Not very familiar	30%	29%	32%	29%	27%	30%	33%
Not at all familiar	20%	21%	20%	23%	20%	21%	18%
Don't know	4%	3%	4%	1%	4%	4%	2%
Familiar (Very + Somewhat)	**46%**	**46%**	**43%**	**47%**	**49%**	**46%**	**48%**

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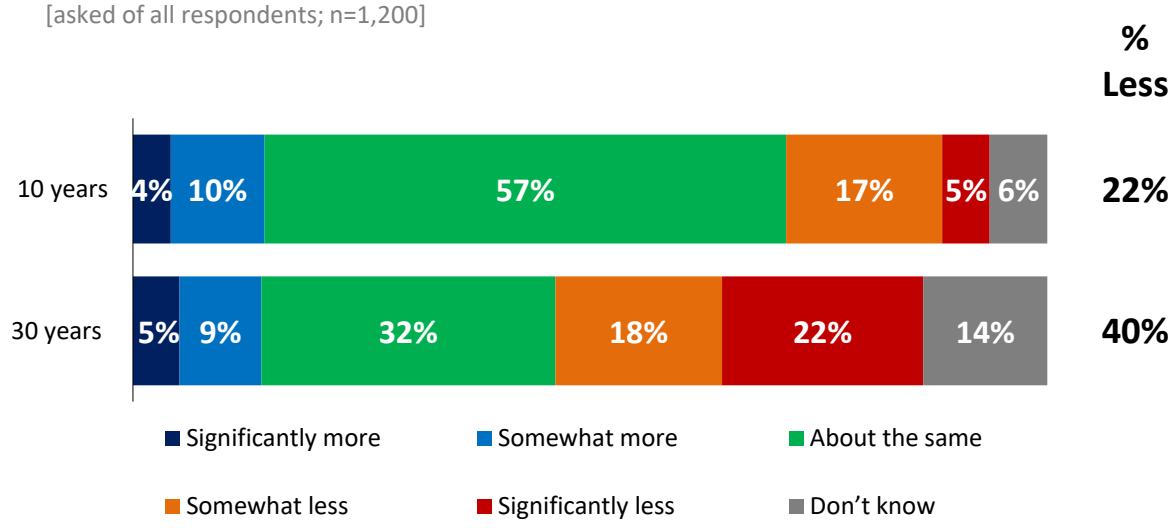
Energy Transition, IRP & GHG Emission Reductions

Natural Gas Consumption in 10 vs 30 Years

Q Thinking about everything you know today, and considering any changes that you might expect in the future as it relates to all the energy choices available to you, how much natural gas do you think someone like you will be using in...

[asked of all respondents; n=1,200]



10 Years	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
More	15%	14%	14%	13%	15%	14%	19%
About the same	55%	59%	55%	61%	58%	57%	59%
Less	24%	21%	23%	23%	21%	22%	21%

30 Years	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
More	15%	14%	15%	11%	14%	14%	20%
About the same	32%	32%	31%	38%	31%	32%	33%
Less	41%	40%	41%	40%	40%	41%	36%

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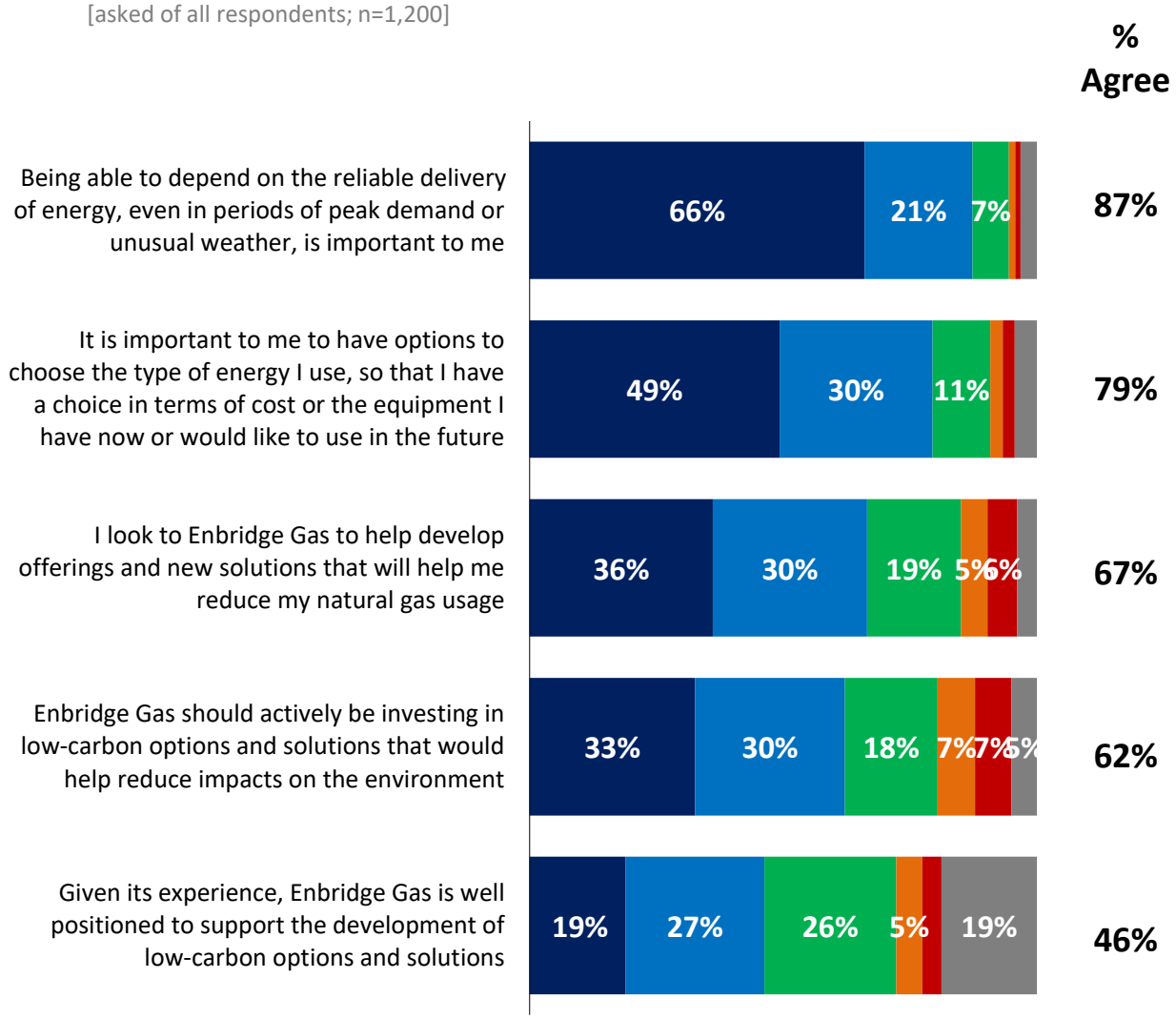
Energy Transition, IRP & GHG Emission Reductions

Reducing Impact on the Environment and Access to Energy

Q When you consider options and solutions to reduce impacts on the environment and access to energy, please tell me whether you agree or disagree with the following statements.

[asked of all respondents; n=1,200]



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Energy Transition, IRP & GHG Emission Reductions

Reducing Impact on the Environment and Access to Energy

Q When you consider options and solutions to reduce impacts on the environment and access to energy, please tell me whether you agree or disagree with the following statements.

[asked of all respondents; n=1,200]

% Agree	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
Being able to depend on the reliable delivery of energy, even in periods of peak demand or unusual weather	84%	91%	85%	89%	90%	87%	89%
It is important to me to have options to choose the type of energy I use	78%	81%	77%	80%	82%	79%	81%
I look to Enbridge Gas to help develop offerings and new solutions that will help me reduce my natural gas usage	67%	66%	68%	65%	66%	66%	71%
Enbridge Gas should actively be investing in low-carbon options and solutions	62%	62%	62%	62%	62%	62%	60%
Enbridge Gas is well positioned to support the development of low-carbon options and solutions	47%	46%	47%	46%	45%	46%	49%

Energy Transition, IRP & GHG Emission Reductions

Pipeline Replacement and IRP – Preamble

When considering its **pipeline projects**, Enbridge Gas is required by the Ontario Energy Board to evaluate whether alternatives are available that would delay, reduce, or eliminate the need for the project. These alternatives are beneficial in working **towards a clean energy future**, by reducing overall energy use and potential greenhouse gas (GHG) emissions.

Examples of **alternatives** include:

- Helping customers reduce the amount of natural gas they use through conservation programs or other options.

  Examples could include:

  - Incentives for installing new windows and doors; and/or
  - Adding insulation; and/or
  - Upgrading equipment, such as a furnace or water heater.

- Delivering compressed natural gas by truck or train to locations where pipelines do not exist; and/or
- Other alternatives such as geothermal heating and cooling, or air source heat pumps.

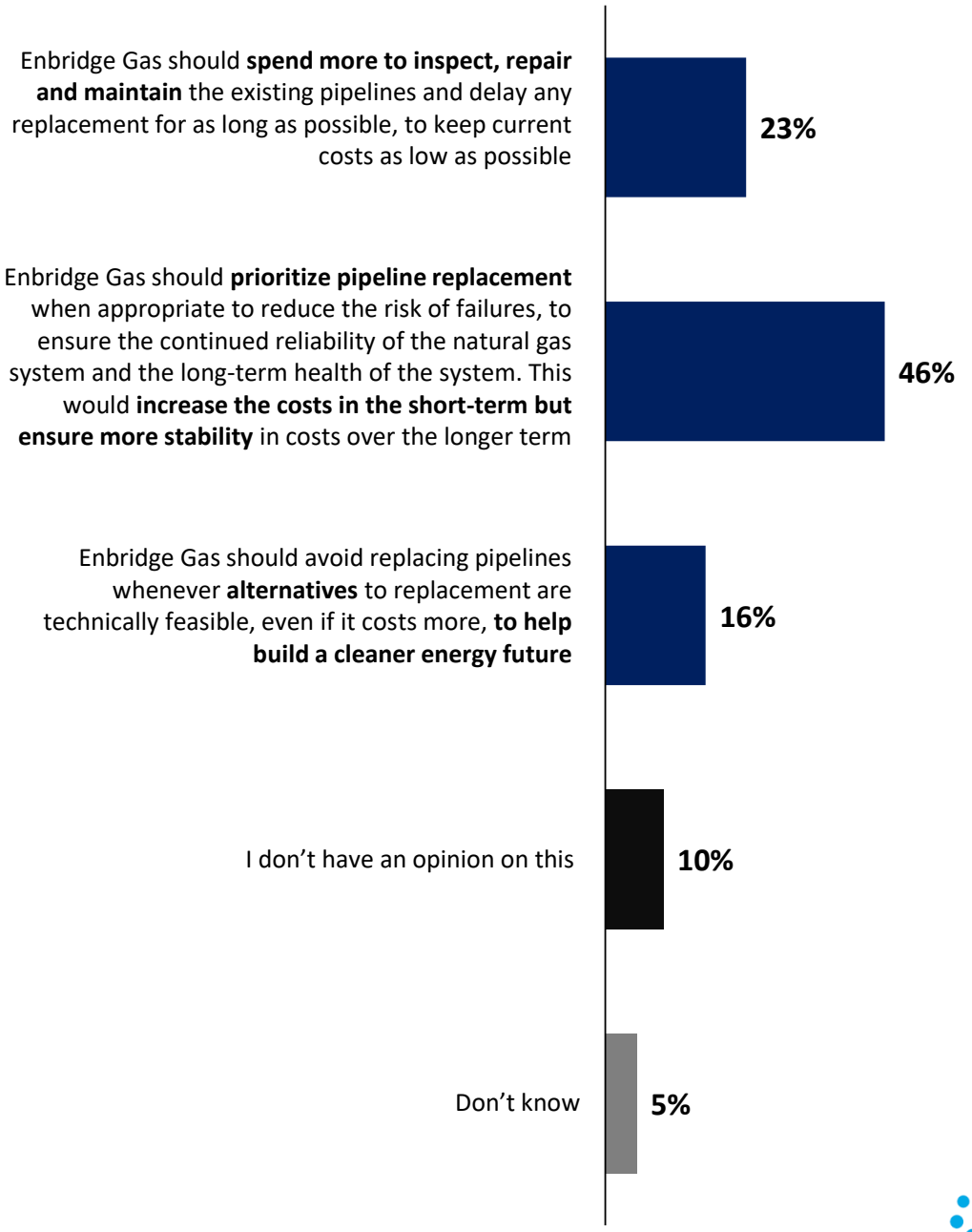
For each pipeline project, alternatives are evaluated from a technical and economic perspective, and as a result some alternatives to the pipeline project may be considered inappropriate according to criteria agreed upon with the Ontario Energy Board.

Energy Transition, IRP & GHG Emission Reductions

Pipeline Replacement and IRP

Q Let's now think about **existing pipelines and supporting infrastructure**. Assuming today's natural gas demands, which of the following statements best represents your point of view on how Enbridge Gas should manage its pipelines?

[asked of all respondents; n=1,200]



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Energy Transition, IRP & GHG Emission Reductions

Pipeline Replacement and IRP

Q Let's now think about **existing pipelines and supporting infrastructure**. Assuming today's natural gas demands, which of the following statements best represents your point of view on how Enbridge Gas should manage its pipelines?

[asked of all respondents; n=1,200]

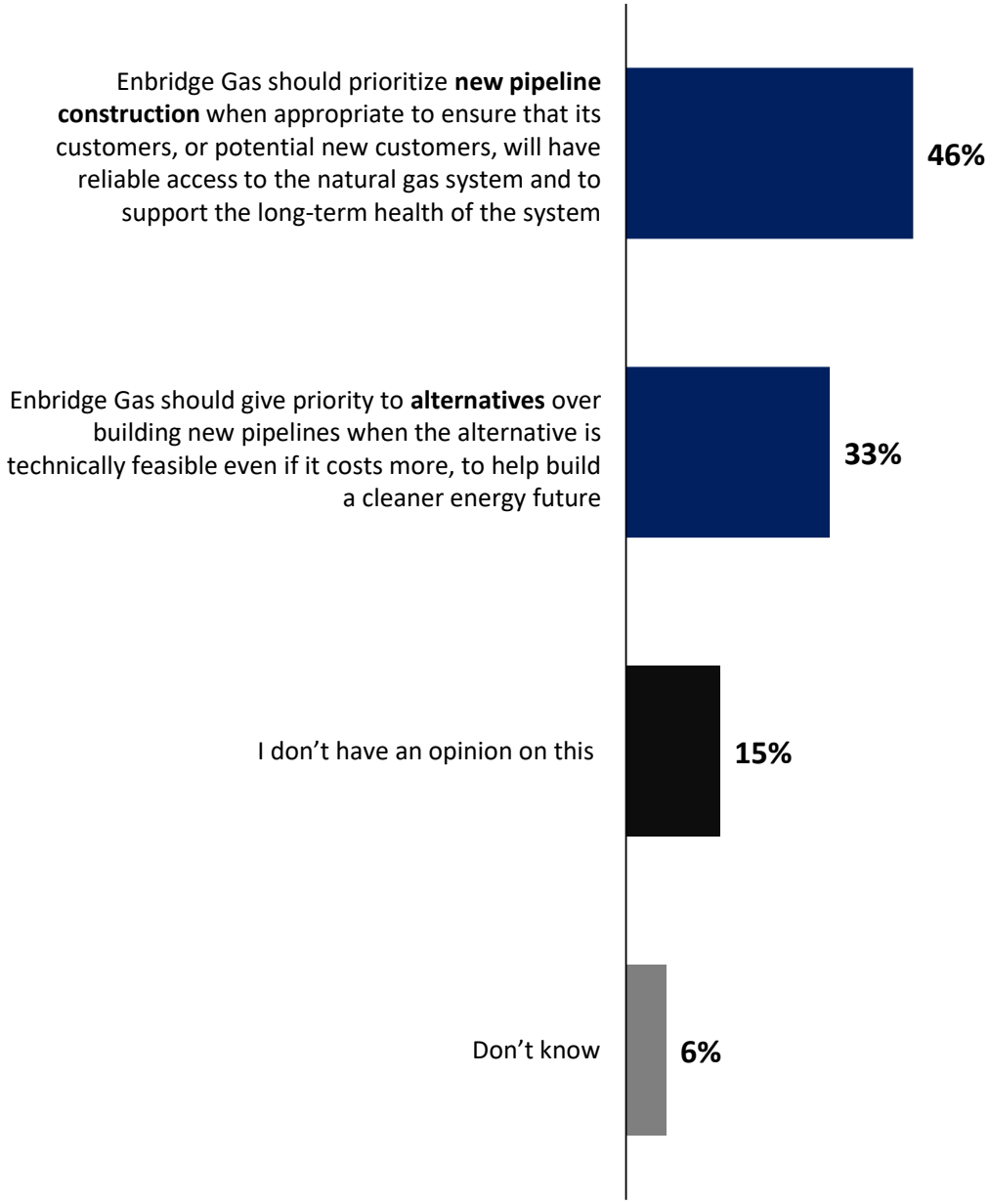
	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
Should spend more to inspect, repair and maintain	22%	25%	22%	21%	25%	23%	19%
Should prioritize pipeline replacement	46%	46%	45%	49%	45%	45%	53%
Should avoid replacing pipelines whenever alternatives to replacement	17%	16%	17%	15%	16%	16%	17%

Energy Transition, IRP & GHG Emission Reductions

New Pipelines and IRP

Q Now think only about **new pipeline expansion or capacity building**. Still assuming today's natural gas demands, which of the following statements best represents your point of view of how Enbridge Gas should manage the request for new pipelines (i.e., pipeline expansion, as in new pipes or bigger pipes)?

[asked of all respondents; n=1,200]



Energy Transition, IRP & GHG Emission Reductions

New Pipelines and IRP

Q Now think only about **new pipeline expansion or capacity building**. Still assuming today's natural gas demands, which of the following statements best represents your point of view of how Enbridge Gas should manage the request for new pipelines (i.e., pipeline expansion, as in new pipes or bigger pipes)?

[asked of all respondents; n=1,200]

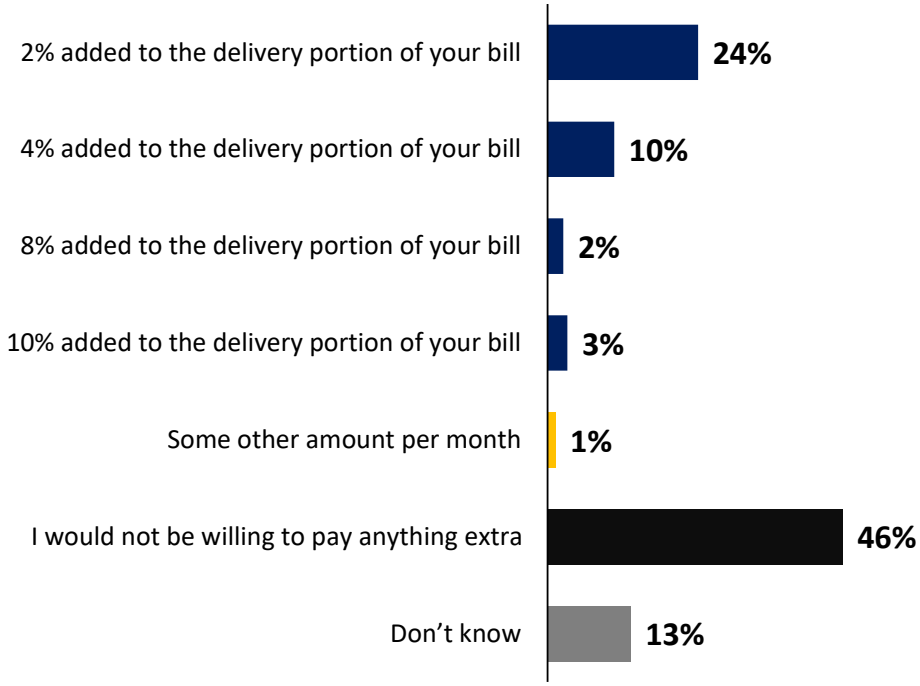
	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
Should prioritize new pipeline construction	43%	49%	43%	44%	51%	45%	56%
Should give priority to alternatives	35%	30%	35%	35%	28%	33%	28%

Energy Transition, IRP & GHG Emission Reductions

New Pipelines and IRP

Q When Enbridge Gas has a choice between pipeline or non-pipeline alternatives, if the cost is the same it will implement the non-pipeline alternative. When the cost for the non-pipeline alternative is higher, it will have a choice of which solution to implement. In this case, the alternative would cost more. How much, if anything, would you be willing to pay per year for Enbridge Gas to implement these alternative solutions instead of pipeline solutions?

[asked of all respondents; n=1,200]



	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
2% added to the delivery portion of your bill	22%	25%	22%	28%	23%	24%	21%
4% added to the delivery portion of your bill	12%	9%	12%	9%	10%	11%	9%
8% added to the delivery portion of your bill	2%	3%	2%	2%	3%	3%	2%
10% added to the delivery portion of your bill	3%	4%	2%	7%	3%	3%	2%

Energy Transition, IRP & GHG Emission Reductions

GHG Emission Reductions | Introduction – Preamble

Enbridge Gas' plans continue to place more emphasis on preparing for the future. This means that Enbridge Gas is looking at ways in which it can **support federal, provincial, and municipal goals**, as well as its **own organization goals**, to reduce greenhouse gas (GHG) emissions and achieve Net-Zero targets.

- Federal targets are to reduce GHG emissions by 40-45% by 2030 over 2005 levels, and to reach Net-Zero GHG emissions by 2050.
- Provincial target is to reduce GHG emissions by 30% by 2030 over 2005 levels.
- Various municipalities have set interim and Net-Zero GHG targets.
- Enbridge Inc. targets:
    - Reduce GHG emissions intensity from its own operations, by 35% by 2030 over 2018 levels;
    - Reach Net-Zero GHG emissions by 2050.

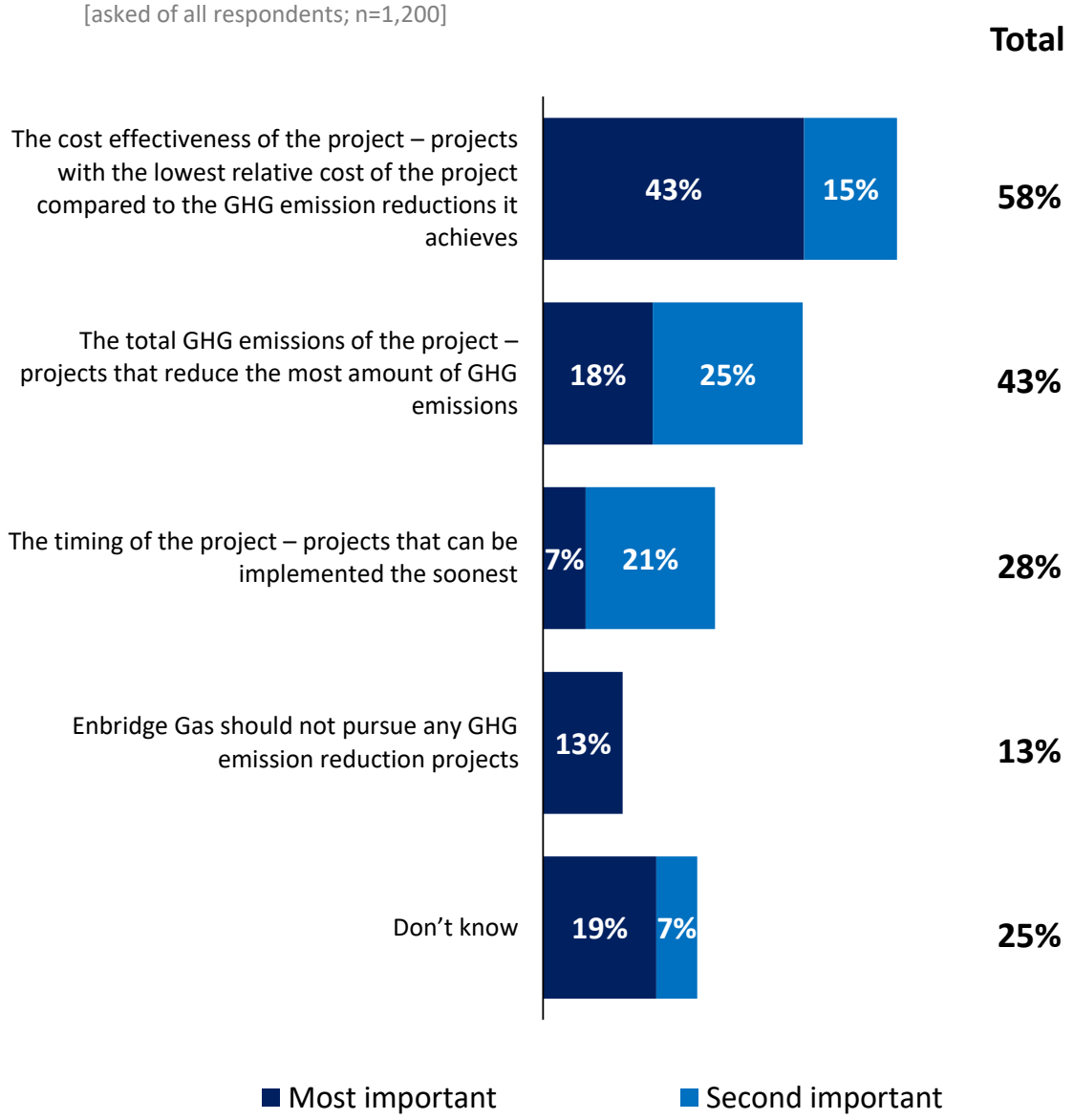
Enbridge Gas must therefore consider GHG emissions from its own operations and would like to ask you some questions about this.

Energy Transition, IRP & GHG Emission Reductions

Ranking Importance of GHG Emission Reductions

Q As Enbridge Gas considers different projects and opportunities for GHG emissions reductions, it will have to consider several different things, such as costs, emissions reduction potential, timing, and technical feasibility. When Enbridge Gas has to decide which projects to implement, which of the following is the **most important** to you? And what is the **second most important**?

[asked of all respondents; n=1,200]



Note: Respondents who say 'Don't know' or "Enbridge Gas should not pursue any GHG emission reduction projects" do not get asked for further priorities.
'No response' not shown.

INNOVATIVE RESEARCH GROUP

Energy Transition, IRP & GHG Emission Reductions

Ranking Importance of GHG Emission Reductions

Q As Enbridge Gas considers different projects and opportunities for GHG emissions reductions, it will have to consider several different things, such as costs, emissions reduction potential, timing, and technical feasibility. When Enbridge Gas has to decide which projects to implement, which of the following is the **most important** to you? And what is the **second most important**?

[asked of all respondents; n=1,200]

% Total Important	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
The cost effectiveness of the project – projects with the lowest relative cost of the project compared to the GHG emission reductions it achieves	59%	58%	59%	61%	56%	58%	66%
The total GHG emissions of the project – projects that reduce the most amount of GHG emissions	42%	44%	42%	45%	43%	43%	41%
The timing of the project – projects that can be implemented the soonest	30%	27%	31%	29%	25%	28%	34%

Note: Respondents who say 'Don't know' or "Enbridge Gas should not pursue any GHG emission reduction projects" do not get asked for further priorities.

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Energy Transition, IRP & GHG Emission Reductions

Compressor Stations | Fuel Costs Only – Preamble

Enbridge Gas has 50 compressors and supporting equipment. These are required to move gas along the transmission system and inject it into and out of storage.

Compressors need energy to operate. Enbridge Gas has the opportunity to **reduce its greenhouse gas (GHG) emissions by using renewable natural gas (RNG) to operate its compressors** in the place of conventional natural gas. This is currently the largest opportunity for Enbridge Gas to reduce its own GHG emissions.

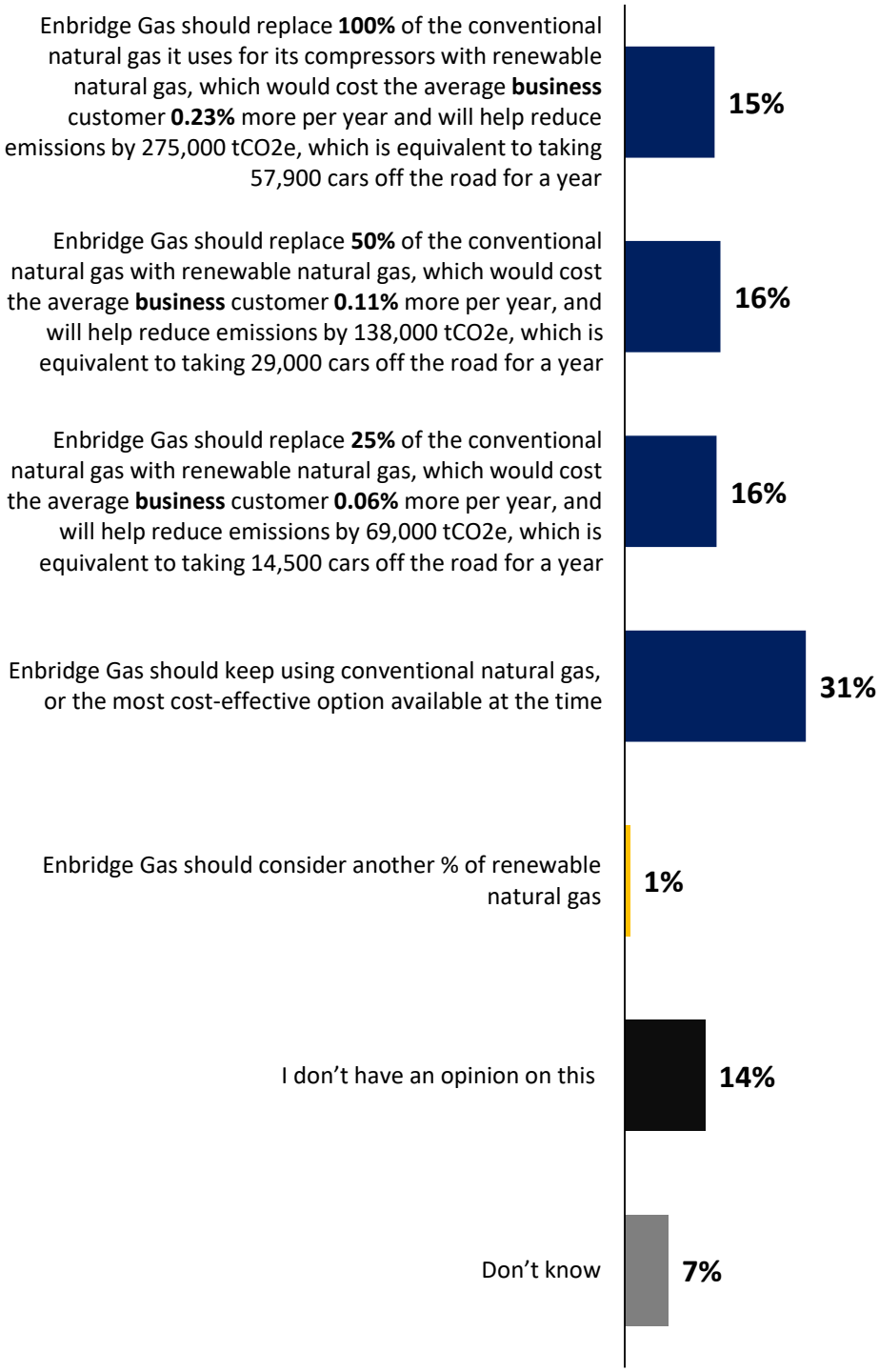
RNG is derived from organic waste from farms, landfills, and water treatment plants and is considered to be carbon neutral. Using it instead of conventional natural gas would reduce GHG emissions and help meet climate change targets, however, it will also increase Enbridge Gas' operational costs because RNG is more expensive than conventional natural gas.

Energy Transition, IRP & GHG Emission Reductions

Compressor Stations | Fuel Costs Only

Q Which of the following is closest to your point of view?

[asked of all respondents; n=1,200]



Energy Transition, IRP & GHG Emission Reductions

Compressor Stations | Fuel Costs Only

Q Which of the following is closest to your point of view?

[asked of all respondents; n=1,200]

	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
Should replace 100% of the conventional natural gas	16%	14%	16%	15%	15%	16%	11%
Should replace 50% of the conventional natural gas	17%	16%	16%	17%	16%	17%	13%
Should replace 25% of the conventional natural gas	16%	16%	16%	17%	14%	15%	22%
Should keep using conventional natural gas	30%	31%	29%	33%	32%	31%	34%

Energy Transition, IRP & GHG Emission Reductions

Real Estate and Workplace Services | Net Zero Buildings – Preamble

Another opportunity for GHG emissions reductions is from **Enbridge Gas' buildings**.

Enbridge Gas uses more than 80 facilities (administration and operations centres as well as depots) across Ontario ranging in both age and size to support its work and operations.

Enbridge Gas is considering some major building projects, and it has to make the choice of whether to build to the current Ontario Building Code (OBC) and energy standards or to exceed them in an effort to further reduce energy use and GHG emissions.

This includes the new build of one of Enbridge Gas' operations centres (which is currently too small and inefficient and does not meet the needs of the business). Estimates for this **new build project** show that upgrading the conventional design option to a Net-Zero design option would cost the average **business** customer **0.0004%** each year.

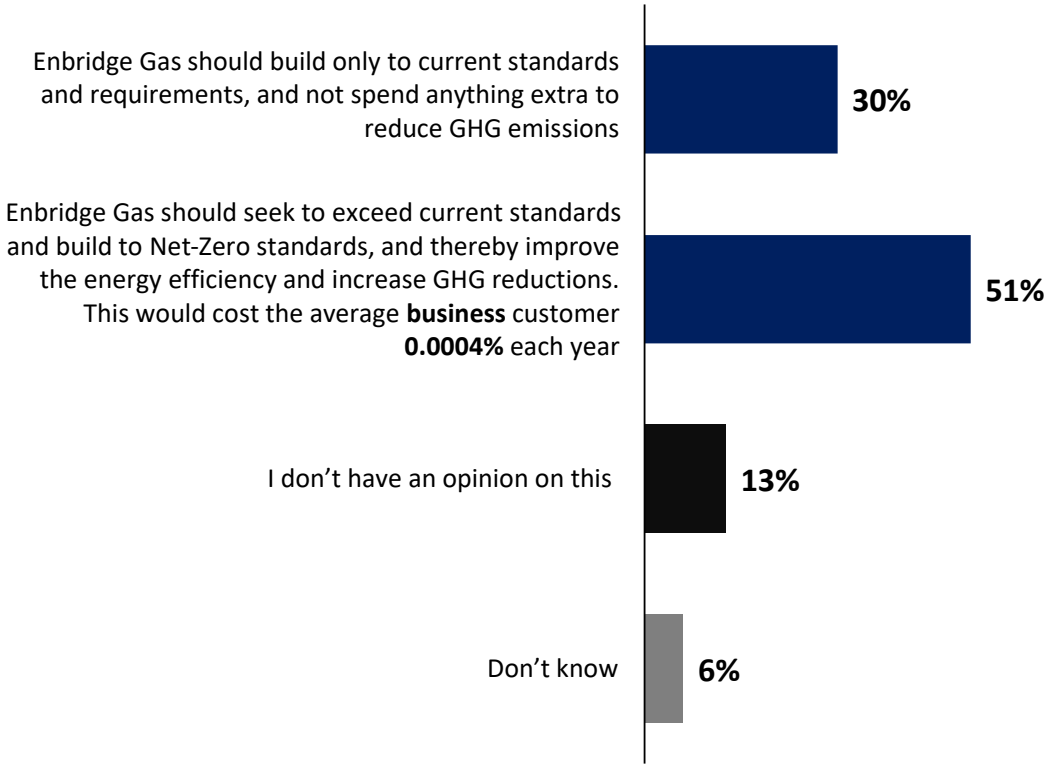
Note that these new buildings are necessary and not building is not a cost-effective option.

Energy Transition, IRP & GHG Emission Reductions

Real Estate and Workplace Services – Net Zero Buildings

Q Which of the following is closest to your point of view?

[asked of all respondents; n=1,200]



	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
Should build only to current standards and requirement	32%	28%	33%	27%	28%	30%	32%
Should seek to exceed current standards and build to Net-Zero standards	50%	52%	49%	55%	51%	51%	55%

Energy Transition, IRP & GHG Emission Reductions

GHG Emissions Reductions | Other – Preamble

Enbridge Gas has provided some specific examples of GHG emission reduction opportunities earlier in this survey. There are **other opportunities** available as well, however, in most cases this might incur more costs compared with doing business as usual.

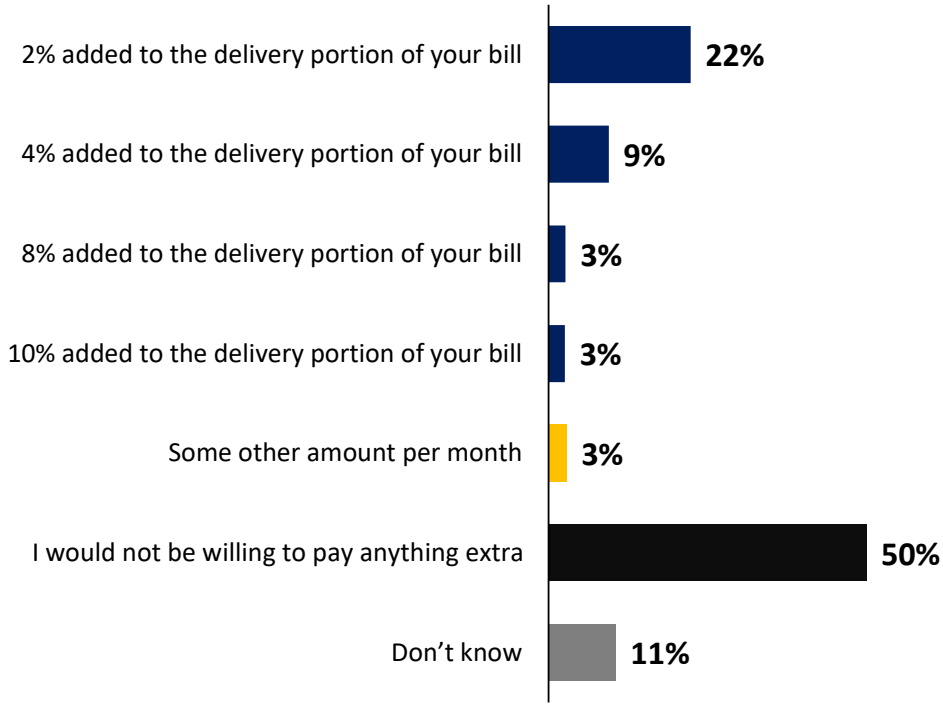
Examples of further emission reduction opportunities include reducing vented gas (such as gas released to the atmosphere during maintenance activities), reducing the amount of natural gas that is burned as part of its operations, and electrification.

Energy Transition, IRP & GHG Emission Reductions

GHG Emissions Reductions | Other

Q Generally, how much more, if anything, would you be willing to pay for Enbridge Gas to invest in further GHG emission reduction opportunities across its operations?

[asked of all respondents; n=1,200]

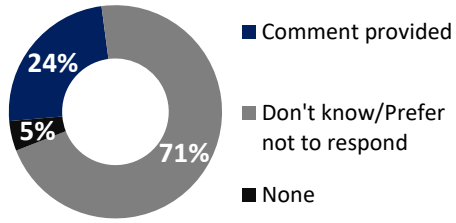


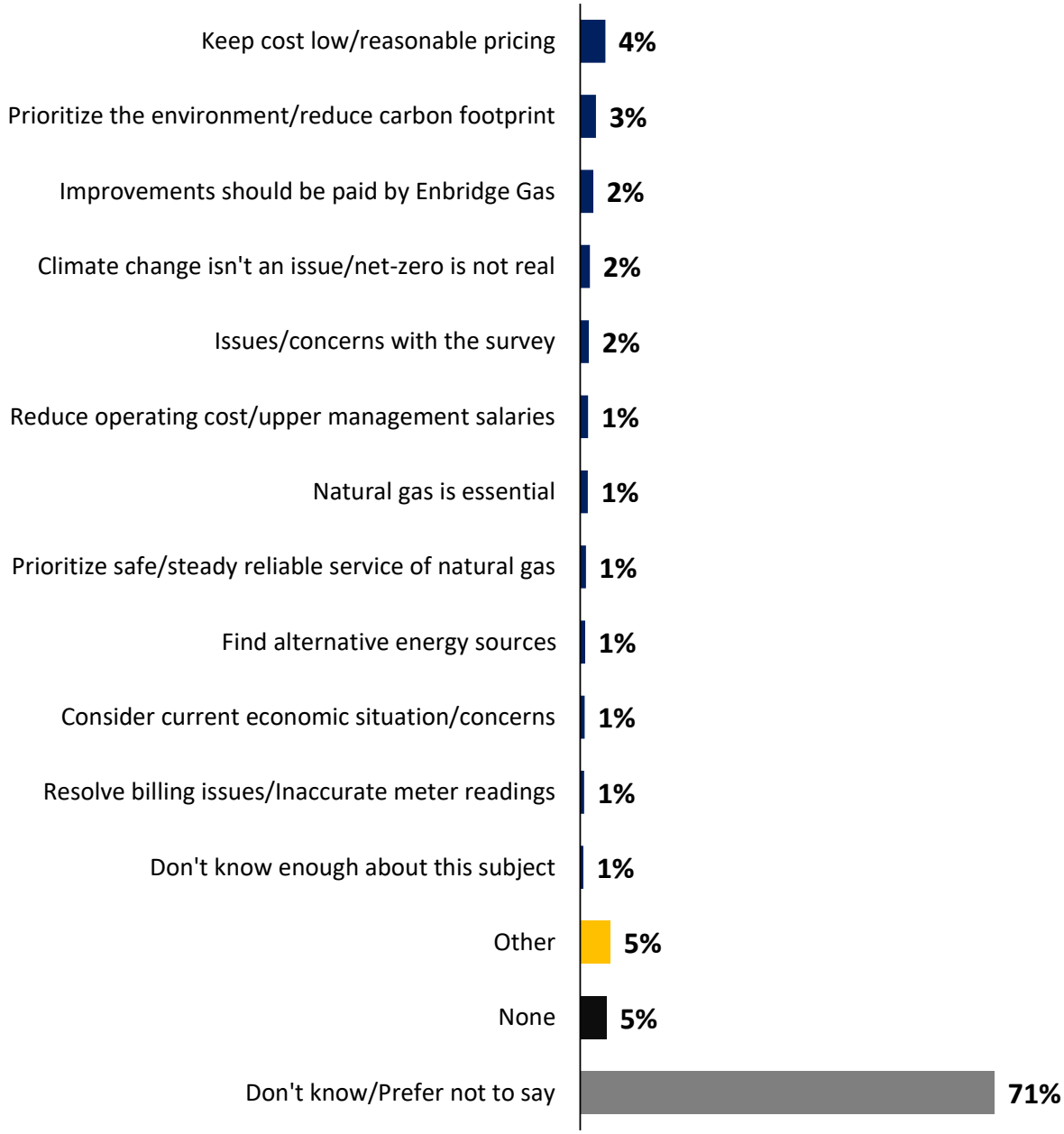
	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
2% added to the delivery portion of your bill	20%	24%	20%	25%	23%	22%	23%
4% added to the delivery portion of your bill	10%	9%	10%	8%	9%	9%	10%
8% added to the delivery portion of your bill	3%	2%	3%	2%	3%	3%	1%
10% added to the delivery portion of your bill	2%	3%	2%	5%	2%	3%	2%

Final Thoughts

Final Thoughts
Additional Comments

Q Is there anything that you would like to share with Enbridge Gas as it works on building its business plan?
[asked of all respondents; n=1,200]



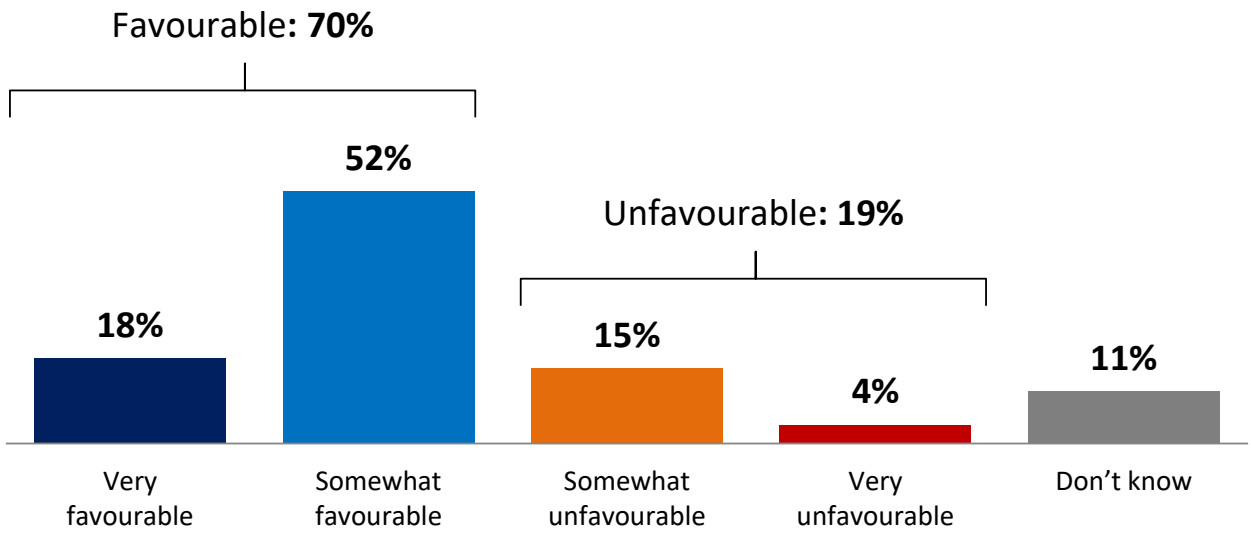


Final Thoughts

Survey Impression

Q Overall, did you have a favourable or unfavourable impression of the survey you just completed?

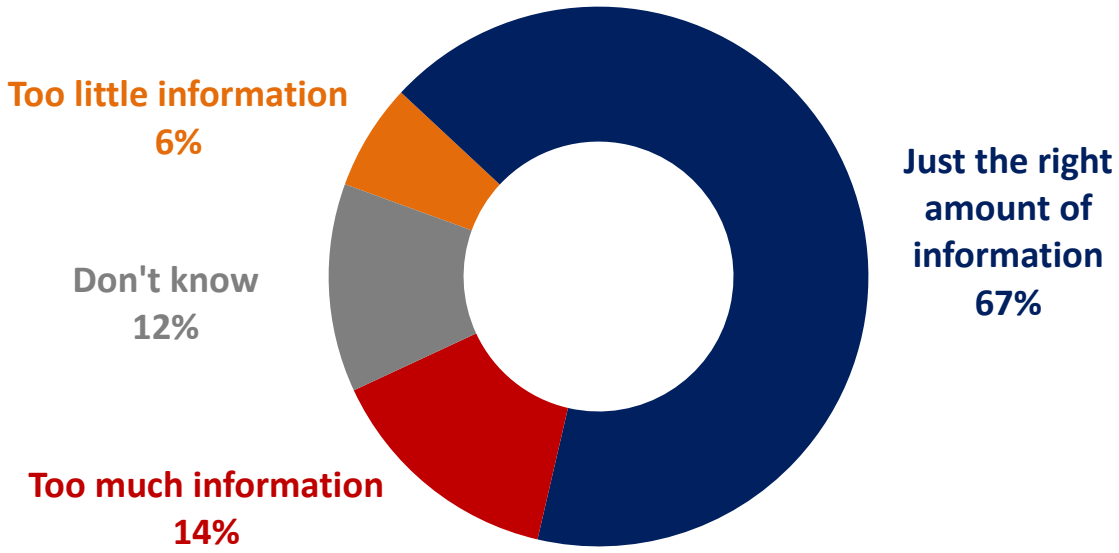
[asked of all respondents; n=1,200]



	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
Very favourable	20%	16%	20%	16%	16%	18%	18%
Somewhat favourable	51%	53%	51%	52%	54%	51%	61%
Somewhat unfavourable	15%	16%	15%	18%	15%	16%	13%
Very unfavourable	4%	3%	5%	4%	3%	4%	3%
Don't know	10%	12%	10%	10%	12%	11%	5%
Favourable (Very + Somewhat)	**71%**	**69%**	**70%**	**68%**	**70%**	**69%**	**80%**
Unfavourable (Very + Somewhat)	**19%**	**19%**	**20%**	**22%**	**17%**	**20%**	**15%**

Final Thoughts
Amount of Information

Q In this survey, do you feel that Enbridge Gas provided too much information, not enough, or just the right amount?
[asked of all respondents; n=1,200]



	Rate Zone		Operations Regions			Business Size	
	EGD	Union	GTA	North/ East	South	Small	Med-Large
Too little information	8%	5%	7%	6%	5%	6%	5%
Just the right amount	66%	67%	67%	65%	67%	66%	72%
Too much information	13%	16%	13%	19%	14%	14%	16%

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2025-2034 Asset Management Plan Customer Engagement

Contract Survey Results

January 2024

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Project Overview & Methodology

Enbridge Gas 2023 AMP Customer Engagement Survey

Innovative Research Group Inc. (INNOVATIVE) was engaged by Enbridge Gas to assist on their customer engagement program aimed at supporting its *2025-34 Asset Management Plan Customer Engagement* initiative. The project aligns with the principles outlined in the Ontario Energy Board's "consumer-centric" Renewed Regulatory Framework for Electricity Distributors (RRFE), which emphasizes the shift from utility cost-centric operations to delivering value to customers. This report summarises the findings survey with contract customers.

Research Objectives & Survey Development

- The project focused on updating the Asset Management Plan without seeking additional rates. This aligns with the OEB's expectations that both planning and customer engagement are ongoing processes.
- The survey covered topics on asset management, customer outcomes, and energy transition. A final open-ended question allowed respondents to provide any additional comments they felt Enbridge Gas should take into account when developing their investment plan.
- The online survey was completed by a sample of contract customers that were given the opportunity to provide their input into the Asset Management Plan.
- The surveys were developed by Enbridge Gas and finalized with input from INNOVATIVE. The residential and business versions were different only where wording adjustments were needed to tailor the question or response options for a residential vs business customer.
- Online survey was pre-tested through one-on-one interviews with 10 residential customers to ensure customer understanding and a positive survey experience.

Methodological Notes

- All data was collected between November 28th, 2023 and January 16th, 2024.

Contact & Completion Rates

In order to get as many completed surveys as possible from Contract Customers, all customers were invited to complete the survey.

Enbridge Gas provided a list of 671 contract customers with unique email addresses. Approximately, 18% opened their unique survey link. As anticipated, not all respondents completed the entire survey. Specific cut-off points were established at which a respondent would be counted as having completed a particular section of the workbook for reporting purposes.

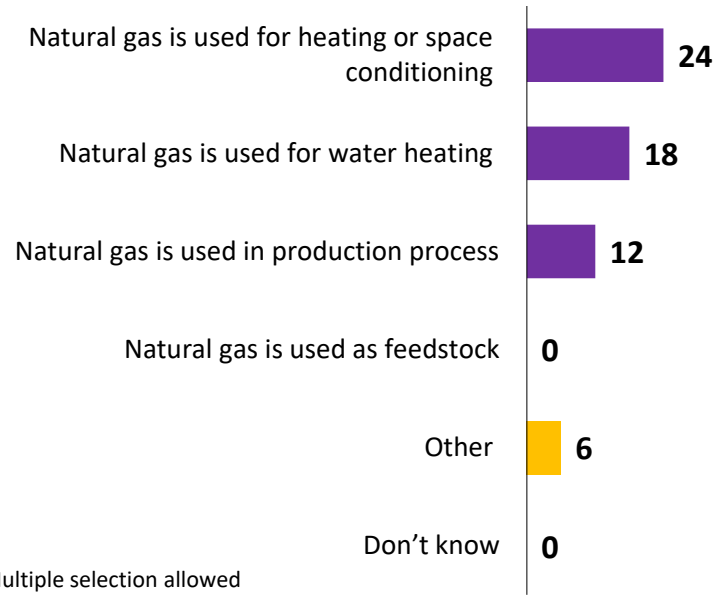
Section Title	Sample Size	Completion Rate
Overall Satisfaction	36	5%
Customer Outcomes	36	5%
Asset Management	36	5%
Energy Transition, IRP & GHG Emission Reductions	35	5%
Final Thoughts	30	4%

Respondent Profile

Respondent Profile

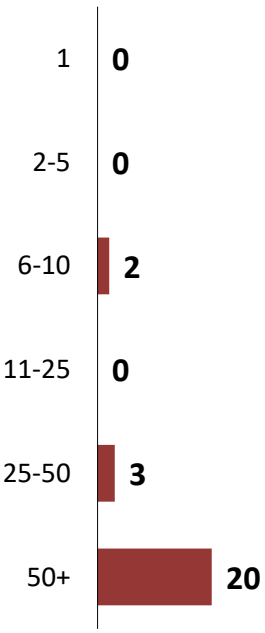
Firmographics breakdown

Natural Gas Use at the Organization*



*Multiple selection allowed
Not asked: 7

Number of Employees

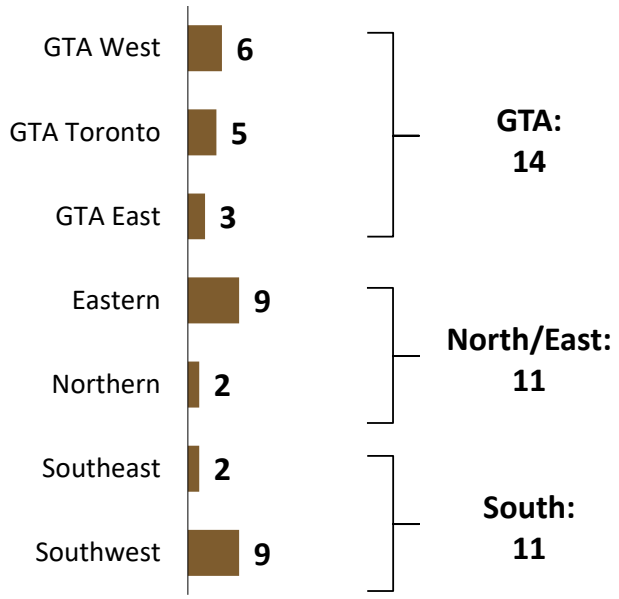


Don't know: 0
Not asked: 11

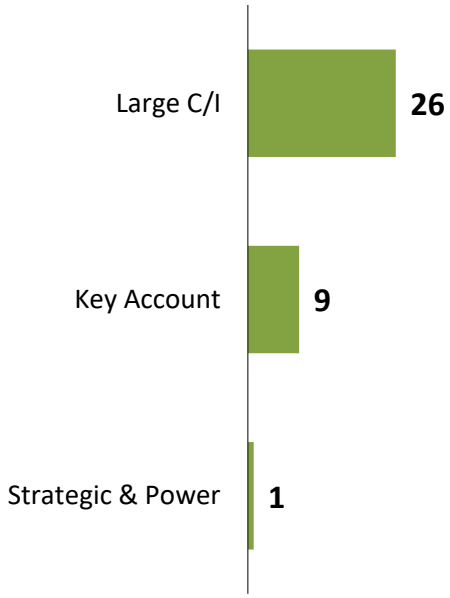
Respondent Profile

Firmographics breakdown

Operations Regions



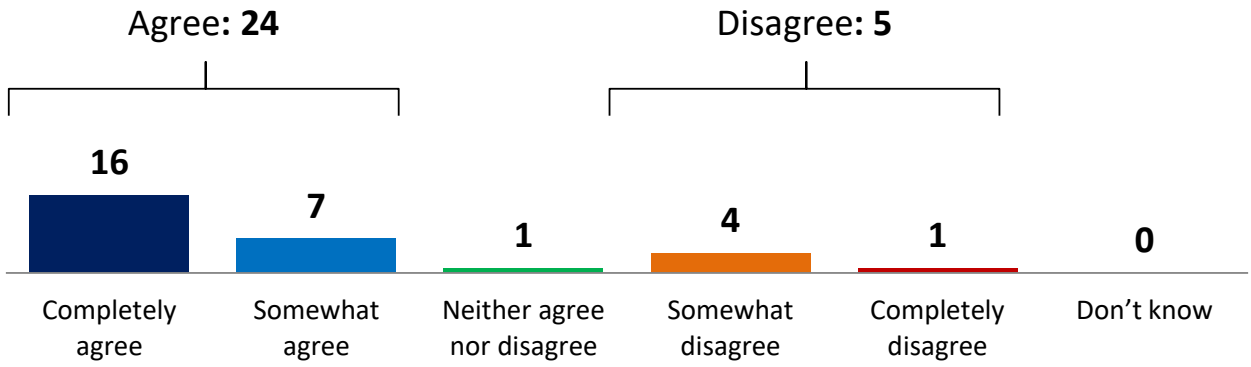
Consumption Volume



Respondent Profile

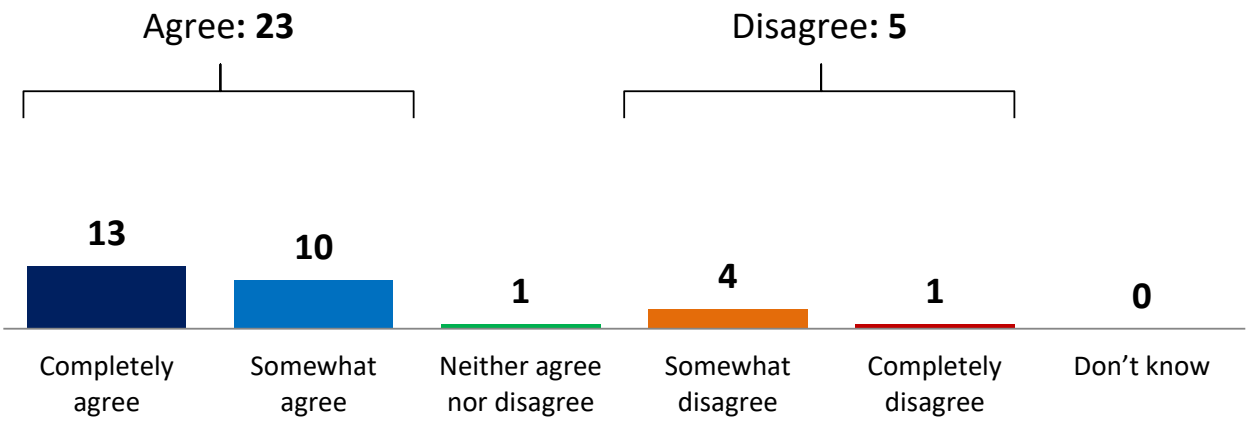
Environmental Controls

Q To what extent do you agree or disagree with the following statements?
The cost of my Enbridge Gas bill has a major impact on my business' finances and requires the business do without some other important priorities.
[asked of all respondents; n=36]



Not asked: 7

Q To what extent do you agree or disagree with the following statements?
Customers are well served by the energy system in Ontario.
[asked of all respondents; n=36]



Not asked: 7

Overall Satisfaction

Preamble:

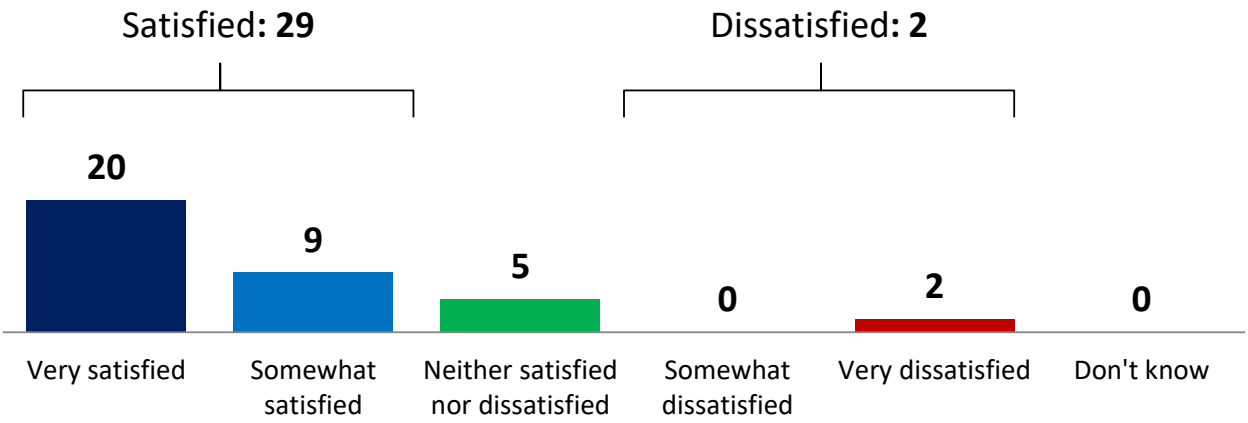
Let's first talk about your overall experience with Enbridge Gas.

Customer Experience

Satisfaction with Enbridge Gas Service

Q Taking into consideration all aspects of your utility service experience, how satisfied are you with your Enbridge Gas service?

[asked of all respondents; n=36]

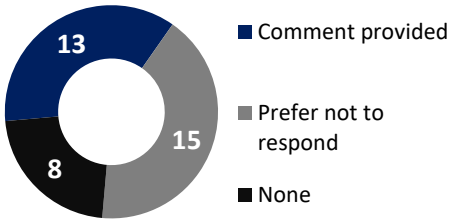


Customer Experience

Improving Enbridge Gas Service

Q Is there anything in particular Enbridge Gas can do to improve their service to you?

[asked of all respondents; n=36]



Verbatim
"At our rural site no one is doing actual meter reads any longer. This makes tracking usage and reporting to my board a challenge. We are a hospital with two campuses, one large volume and then the smaller rural site."
"Billing."
"Enbridge appears more focused on paper pushing than correcting problems in the field.."
"Faster response on new installations of metering stations."
"I occasionally find that servicing and meter issues can take a while to resolve, but overall the team does a good job."
"Include SMEs in chats about decarbonization plans, dates, ideas and what options are coming available to us."
"Inaccurate billing. No answer from customer service and/or representative. Spike monthly billing with no explanation for a few years in a row. Spike months billing with no explanation even if we enter monthly readings of the meters on your website. Not able to combine readings of two meters for the same building."
"Listen to growers requests and concerns."
"Meters shut down frequently therefore our consumption is estimated and hard to manage the CVS balance."
"Not ask the customer to read the meter."
"Provide better support to assisting with conservation programs and to provide clearer understanding of bills."
"Start and finish times of projects could use a lot of improvement."
*"We operate under a Direct Purchase Agreement and having an annual outreach by pool sponsor/key account rep to review DPA framework would be helpful (*we used to have such a contact a number of years ago)."*

Customer Outcomes

Preamble:

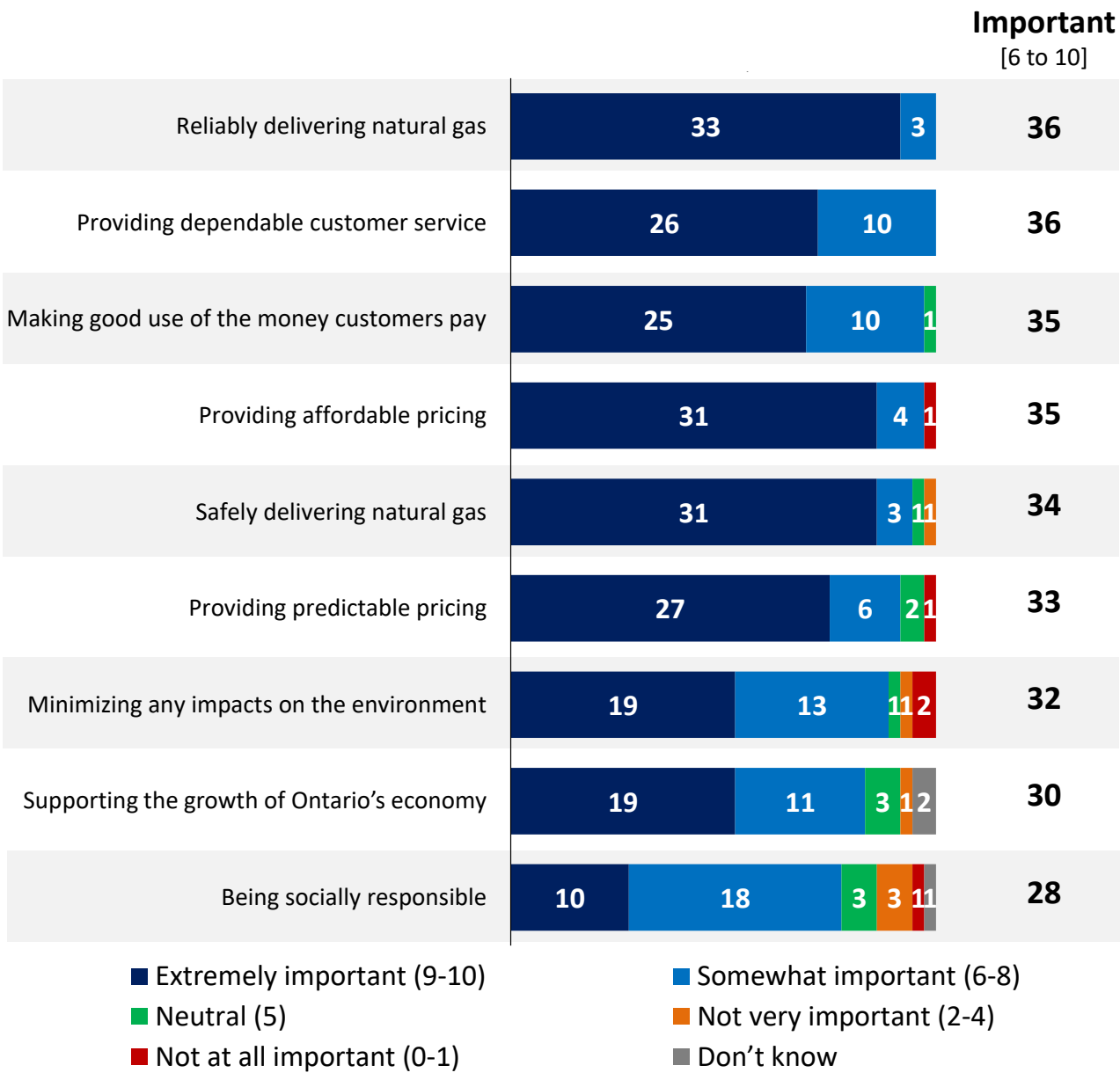
In considering its business plans, including its plan to manage its assets from 2025–2034, Enbridge Gas must make many decisions. We would like your feedback on the outcomes you would like Enbridge Gas to focus on in its plan. Outcomes are the goals and priorities that matter to you.

Customer Outcomes

Importance of Outcomes

Q There is a list of broad outcomes that Enbridge Gas will need to consider. Please indicate how important the following outcomes are to you. Please rate each outcome using the scales below, from 0 to 10 in terms of **how important it is to you** – where **0 means "not important at all"** and **10 means "extremely important".**

[asked of all respondents; n=36]

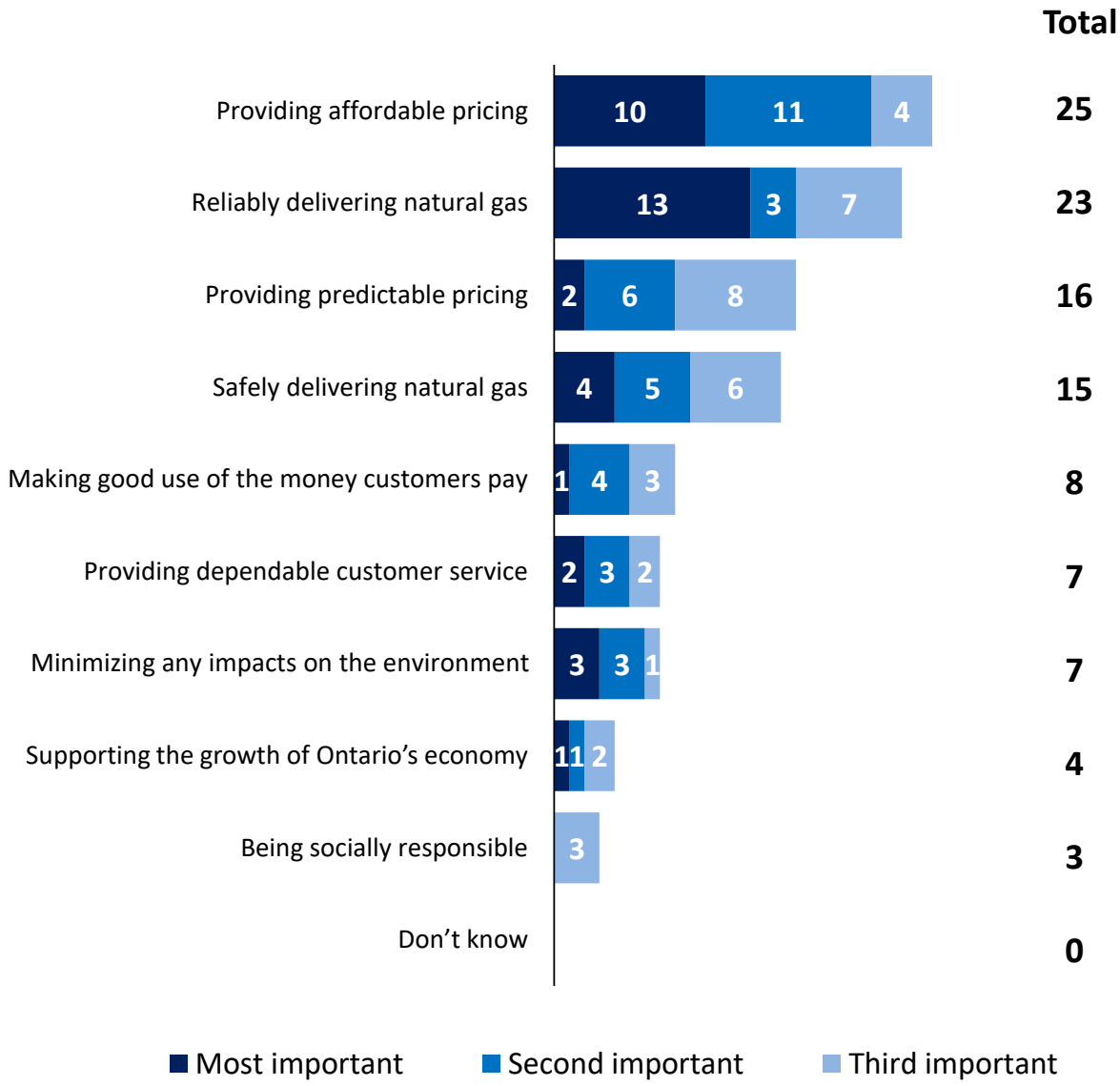


Customer Outcomes

Ranking of Importance

Q Sometimes Enbridge Gas needs to choose between priorities that are all considered important. Thinking about these outcomes, which one would you say is most important to you as a customer? And which one is second most important to you? And, finally, which one is third most important to you?

[asked of all respondents; n=36]



Note: 'No response' not shown. Respondents who say 'Don't know' do not get asked for further priorities.

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Asset Management

Asset Management

Investing in Service Quality – Preamble

Now we will ask you about some of the choices that Enbridge Gas planners must make in developing their business plans. **These choices see trade-offs between competing outcomes**, such as doing more to meet customer needs or reduce greenhouse gas (GHG) emissions, versus keeping bills down.

Enbridge Gas planners seek to ensure:

- ✓ that the natural gas system continues to **operate safely and reliably**; and
- ✓ to demonstrate continuous improvement in **productivity and cost performance** (which is also required by the OEB); and
- ✓ to prepare for the **future**.

All costs provided in this survey are preliminary estimates and are expressed as an additional cost each year to the average customer. However, as noted earlier, the actual rates you pay for your natural gas service are determined by a Cost-of-Service application to the Ontario Energy Board (OEB). This happens every five years and has already been submitted for the 2024–2028 period.

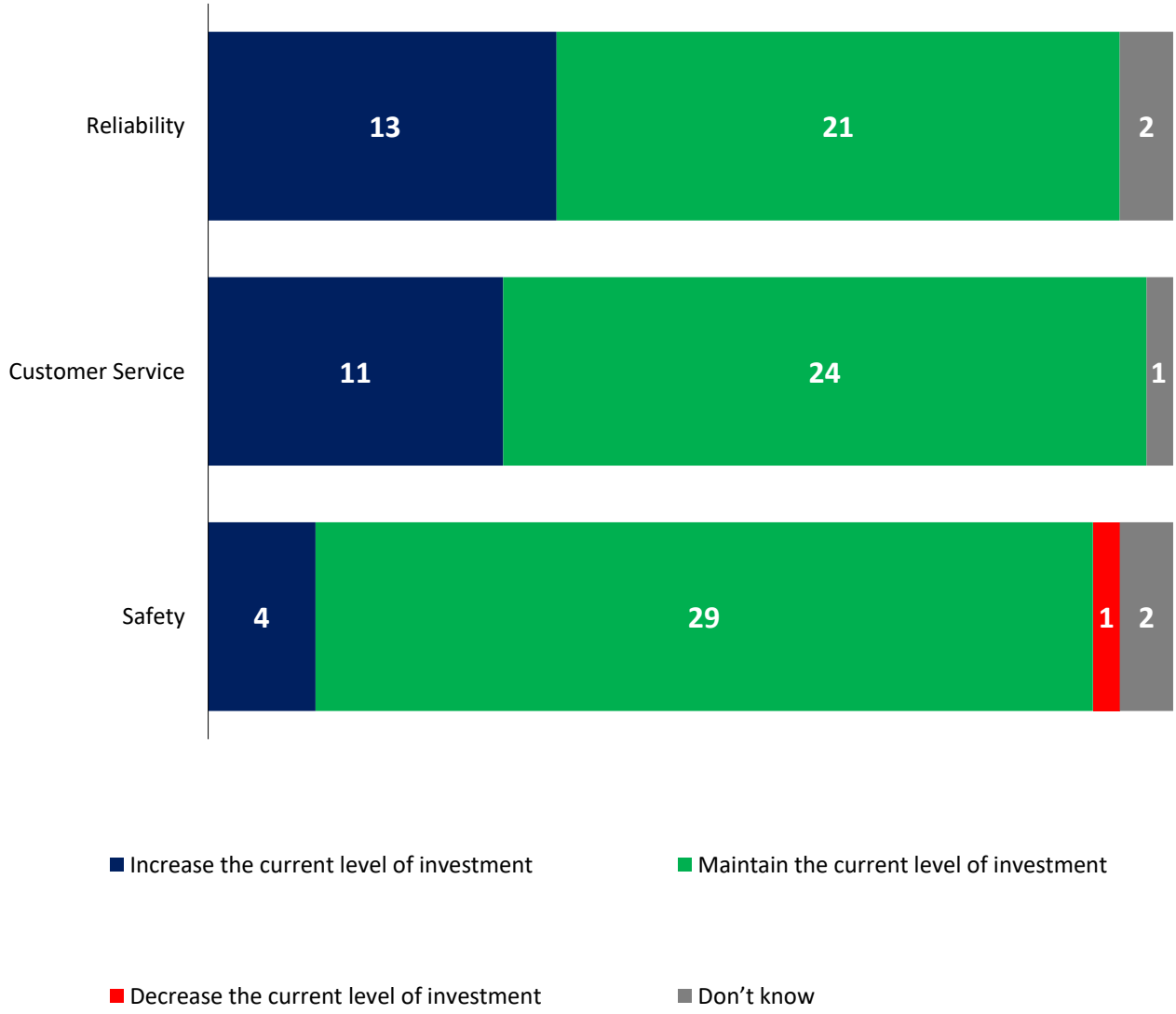
Even though your choices in this survey may not directly affect the rates for your natural gas service over this period, it will help Enbridge Gas business managers update its plans.

Asset Management

Investing in Service Quality

Q Thinking about the level of **safety**, **reliability**, and **customer service** you receive from Enbridge Gas, would you like to see the company invest in maintaining, invest in improving upon the current level, or invest less altogether? Please consider the items below. Should Enbridge Gas...

[asked of all respondents; n=36]



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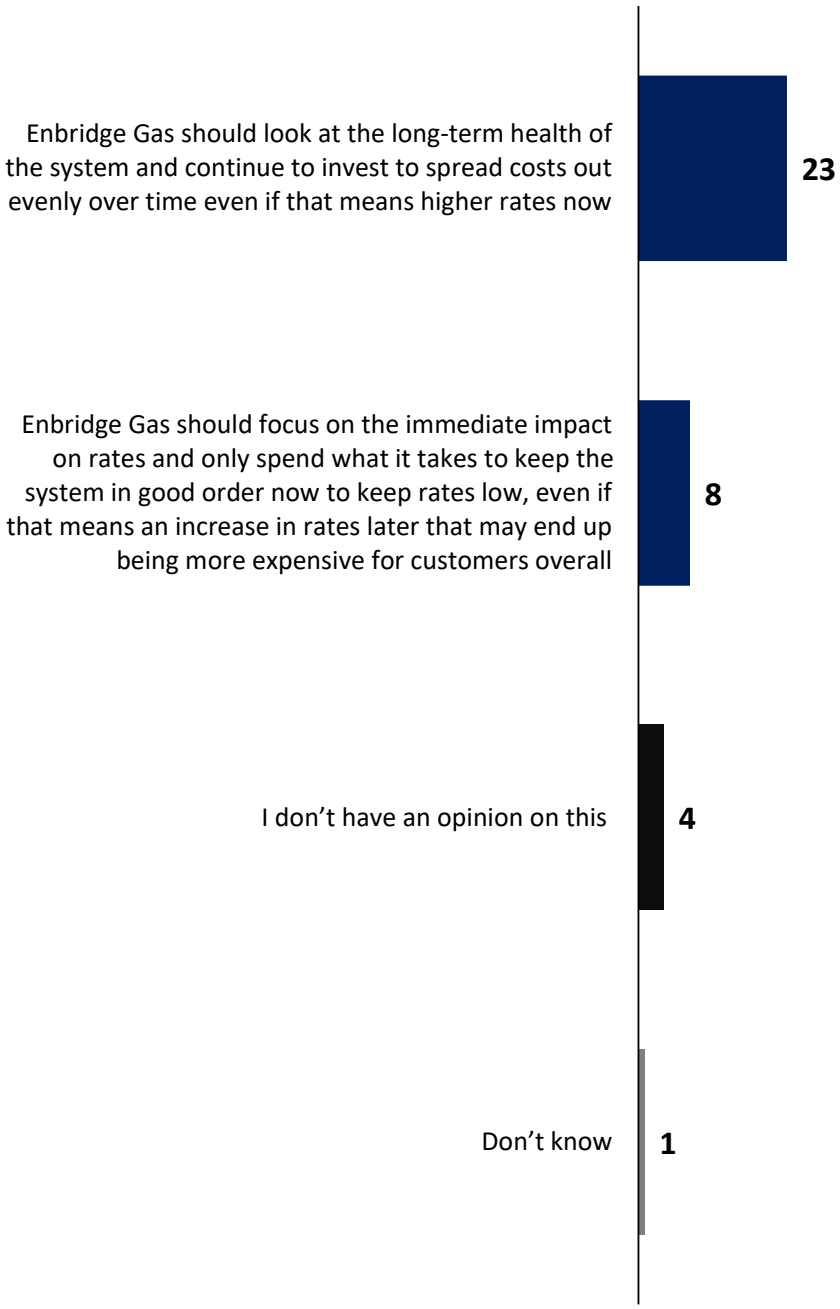
Asset Management
Budget Allocation

Q Thinking generally about Enbridge Gas' budget for replacing pipelines and equipment that deliver gas to your organization, which of the following statements best represents your point of view?

[asked of all respondents; n=36]



INNOVATIVE RESEARCH GROUP

Asset Management

Distribution Pipe – Preamble

As suggested in the previous question, in some cases, where alternative options may not exist, Enbridge Gas will have to make a choice to **spend more now**, or to **spend more later**.

One example is related to its steel pipelines.

- Enbridge Gas operates approximately 32,000 km of main distribution pipelines that are made of steel.
- Another 50,000 km of main distribution pipelines are made of plastic.
- **17,000 km of steel pipelines are 3 times more leak-prone** than newer pipes due to the materials and practices from the 1950s and 1960s when they were built.

Failure of distribution pipelines can lead to serious concerns including:

- ✓ increased greenhouse gas emissions (GHGs)
- ✓ property damage, and
- ✓ in the worst-case scenario, although the risk is low, injury to people.

Typical steel pipeline with protective coating

Steel pipeline with corrosion failure

Enbridge Gas uses a data driven approach to prioritize the replacement of pipe which is most likely to fail first or have the greatest consequence if it does fail. It also checks for leaks every one to four years (depending on the pipe categorization) to maintain the safety of the system. However, to fully understand the condition of the pipeline, visual inspection is required which can be of comparable cost to replacement.

Of the 17,000 km, Enbridge Gas has identified approximately **5,100 km as <u>most</u> important for replacement** due to its predicted risk. The majority of these are smaller in diameter and would be replaced with plastic pipelines, which will be cheaper to maintain.

Asset Management

Distribution Pipe – Preamble

Not addressing the aging pipeline infrastructure is expected to result in a gradual increase in leaks over time as shown in the table below:

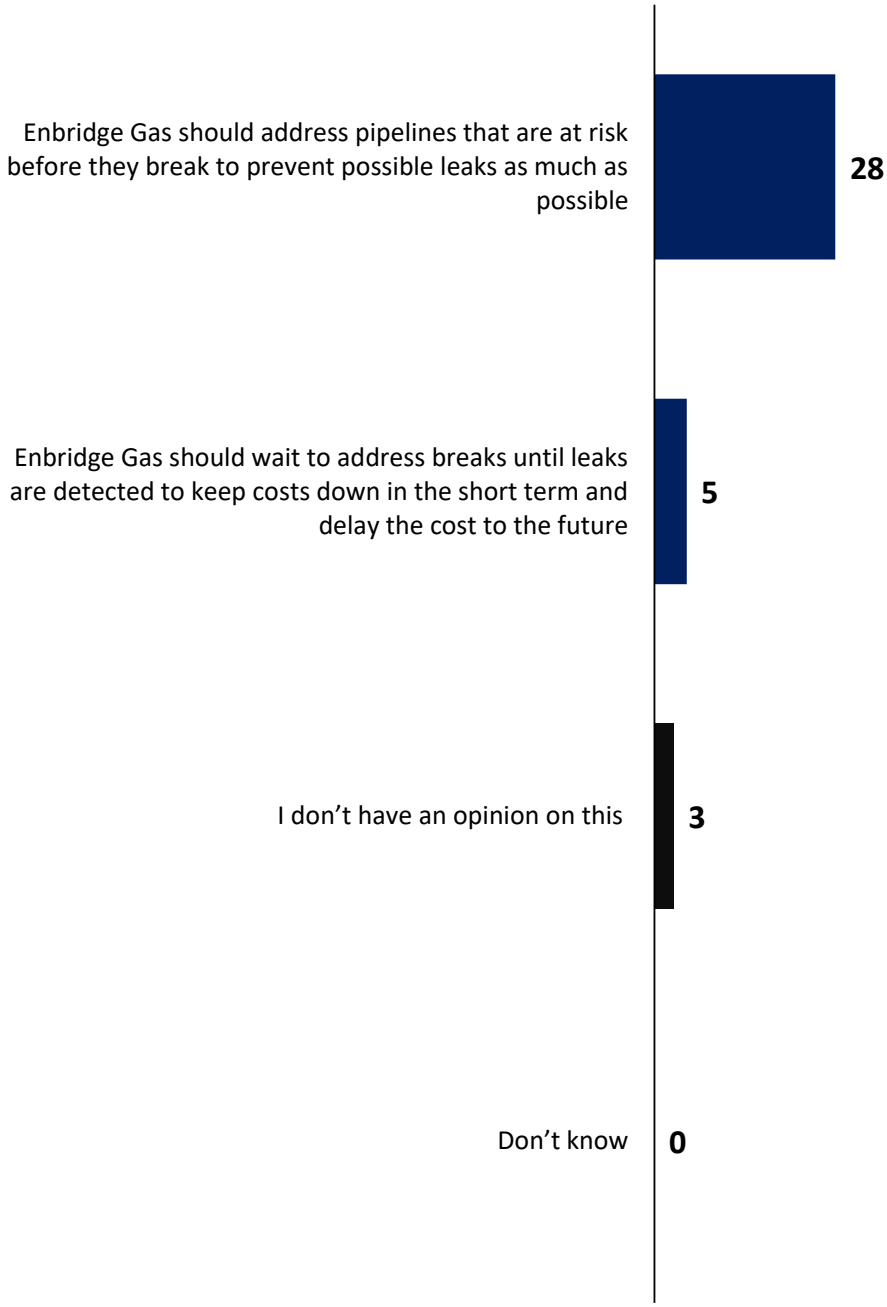
Potential number of leaks	**2023**	**2034**
Main pipelines	281	747
Smaller Service Pipelines	1920	3909

If Enbridge Gas waits, it can allocate its budget elsewhere, however it would increase the estimated number of leaks and extend the work into the future. The overall costs are expected to be higher with a delayed approach.

As a result, Enbridge Gas' program to replace these pipelines at an achievable pace is estimated to cost the average **business** customer an average of an additional **0.108%** each year as the program ramps up from 2027–2032.

Asset Management
Distribution Pipe

Q Which of the following is closest to your view?
[asked of all respondents; n=36]



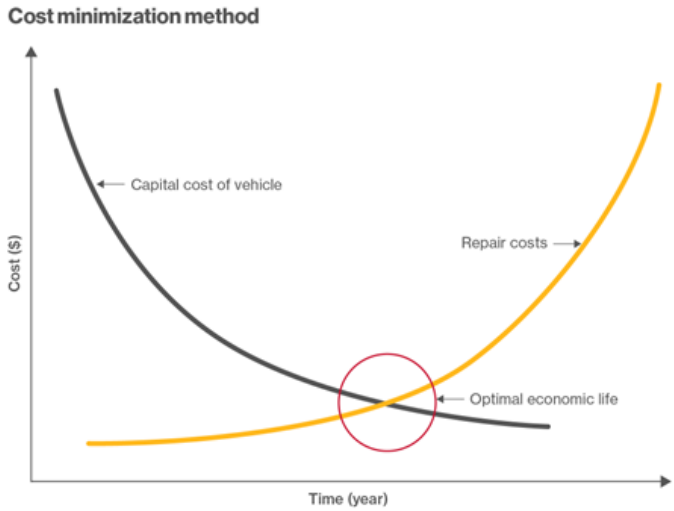
INNOVATIVE RESEARCH GROUP

Asset Management

Fleet and Equipment – Preamble

Enbridge Gas also plans to maintain its **fleet and equipment** for the safety of its employees as well as the efficiency and cost-effectiveness of its operations. The current fleet includes approximately 1,700 light and medium duty vehicles used by employees, as well as 36 pieces of heavy equipment and trailers.

Enbridge Gas analyzes a vehicle's cumulative maintenance cost against the average cost of all vehicles and the condition of the vehicle. A vehicle is considered for replacement when the average maintenance cost surpasses market value unless its maintenance costs much are unusually high (replaced sooner) or unusually low (replaced later). Other factors, such as age, mileage, hours of use, risk of failure and functional requirements are considered as well. With this approach, the average replacement age for light vehicles would be 72 months (or 6 years), and 144 months (or 12 years) for medium and heavy-duty vehicles. The general approach is shown in the cost minimization method figure below:

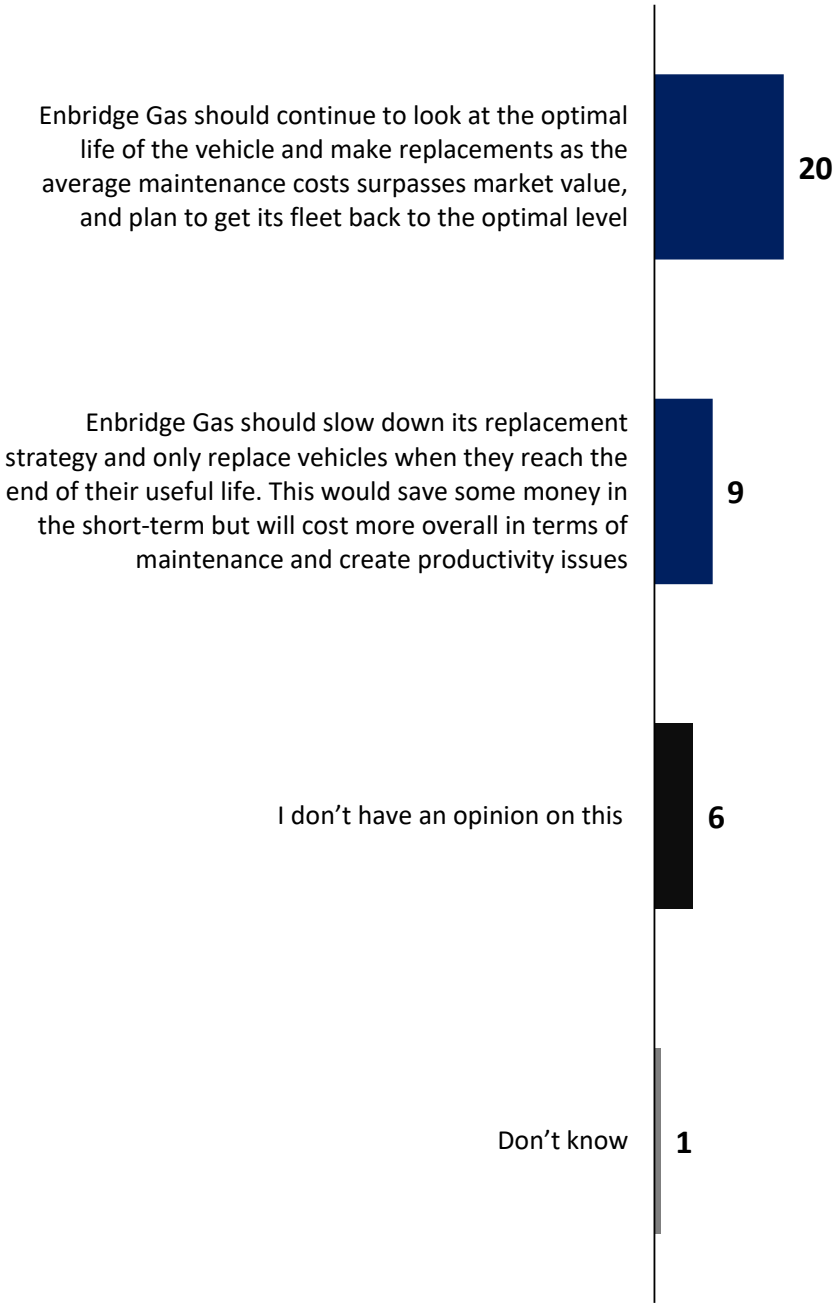


Currently, Enbridge Gas' fleet is older than the optimal level and has become more costly to maintain. Enbridge Gas would like to increase its investments over the coming years to get the fleet age back to the optimal level (returning to the approach described above). The fleet budget over the plan, which includes the budget to bring the fleet age back to the optimal level, would cost the average **business** customer an additional **0.008%** each year.

Enbridge Gas could also slow down its replacement strategy, which may reduce the immediate replacement costs, but this would increase the maintenance costs.

Asset Management
Fleet and Equipment

Q Which of the following is closest to your view?
[asked of all respondents; n=36]



Asset Management

Dashcams – Preamble

Enbridge Gas is committed to the safety of its employees and the public. While fleet vehicles are equipped with Global Positioning System (GPS)/Telematics tracking devices, which are managed by fleet management software (i.e., Geotab), they are currently not equipped with any dash cameras or dashcams. Enbridge Gas is considering **adding dashcams to its vehicles** to allow for the review of the driving behaviour of its employees, as well as the driving conditions experienced by them. This would help to improve the safety of both employees and the public.

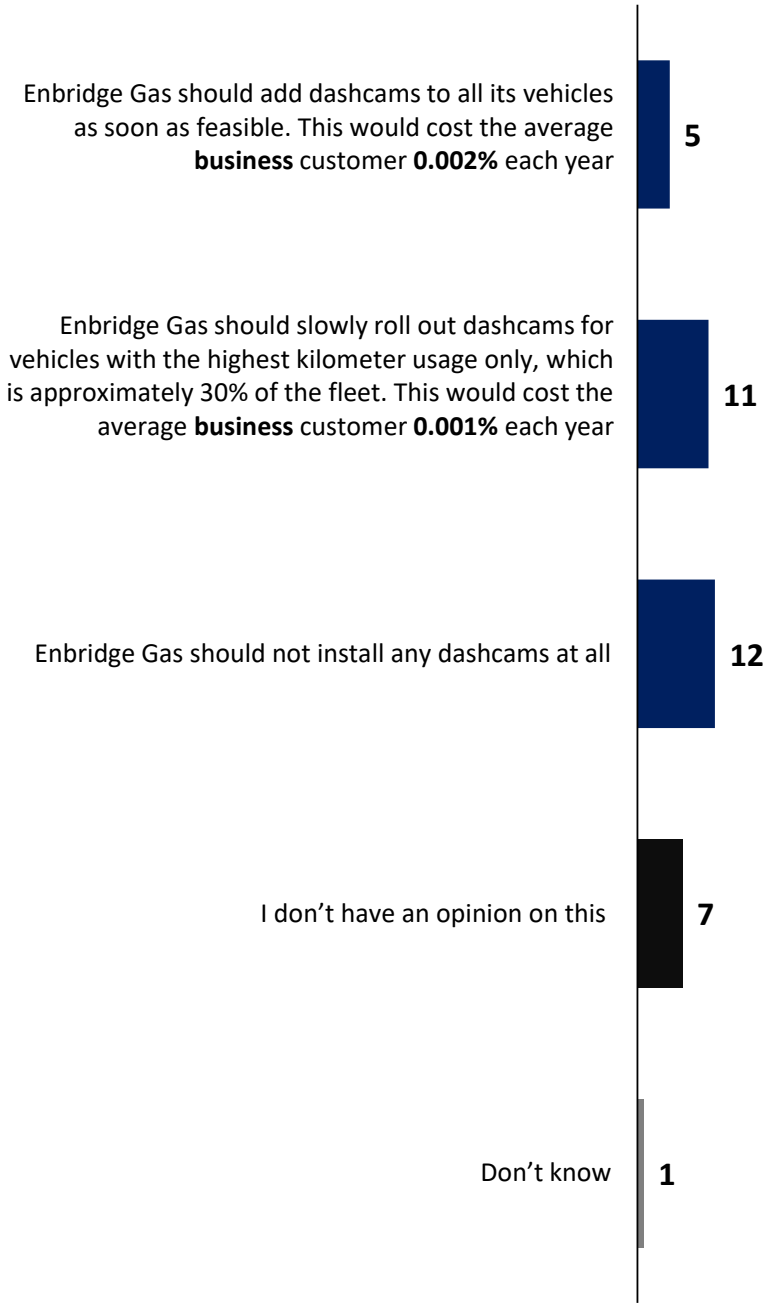
Adding dashcams to the entire fleet would require Enbridge Gas to purchase dashcams and the appropriate support systems for almost 1,800 road vehicles. For all vehicles, this would cost the average **business** customer **0.002%** each year.

Asset Management

Dashcams

Q Which of the following is closest to your view?

[asked of all respondents; n=36]



Asset Management

Technology and Information Systems (TIS) – Preamble

Enbridge Gas also has a budget for Technology and Information Systems (TIS), which pays for the technology and systems that keep the company operating. Enbridge Gas actively seeks out and has identified some opportunities available to **improve the efficiency of its business through technology**.

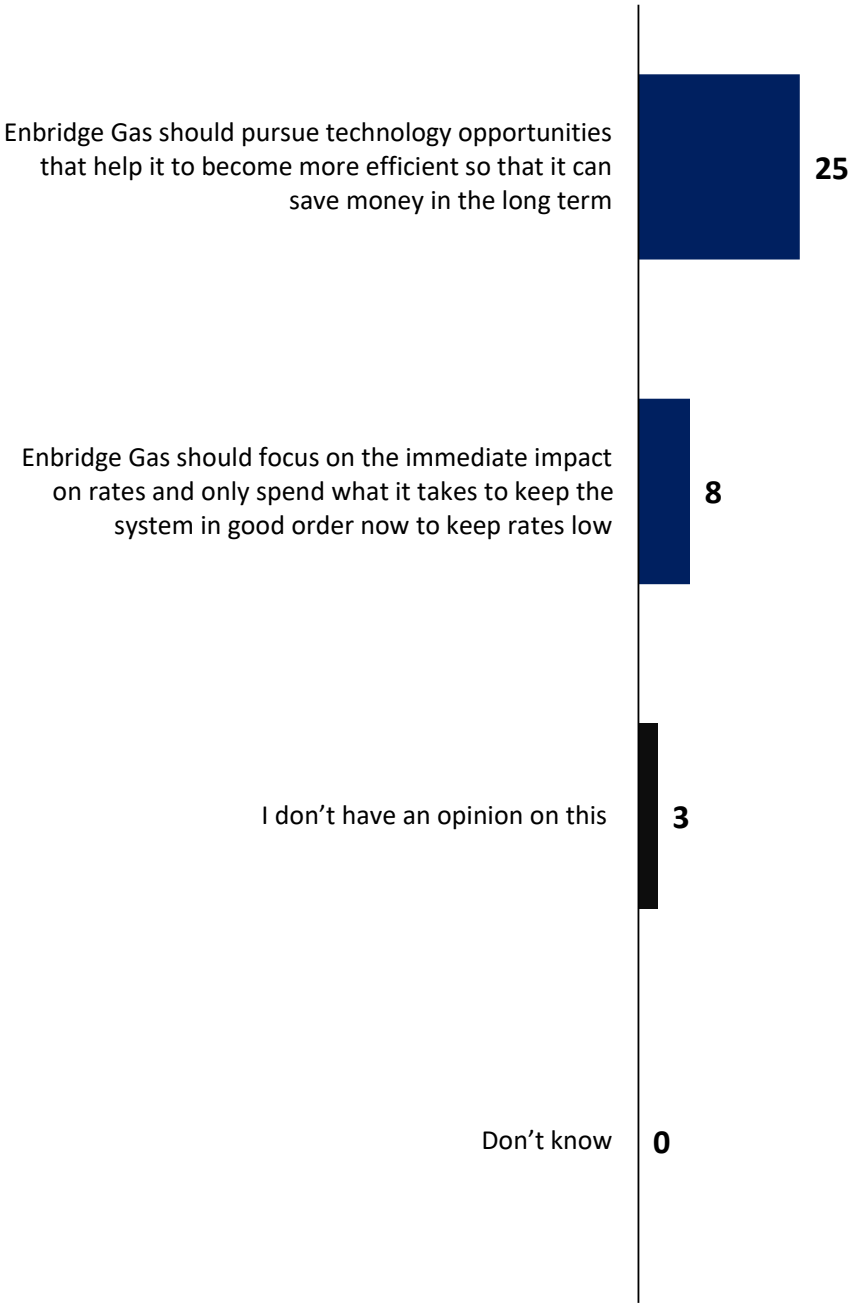
This includes an investment to improve business planning, work intake and scheduling for Enbridge's field operations, which includes meter exchanges, emergency calls and other jobs that require field service technicians. Improvements are intended to reduce administrative and manual work and will help achieve savings in the long-term, and improve customer and employee satisfaction. However, to implement these solutions some upfront investment is required. This project is estimated to cost the average **business** customer **0.0002%** more each year.

Asset Management

Technology and Information Systems (TIS)

Q Which of the following is closest to your view?

[asked of all respondents; n=36]



Energy Transition, IRP and GHG Emission Reductions

Preamble:

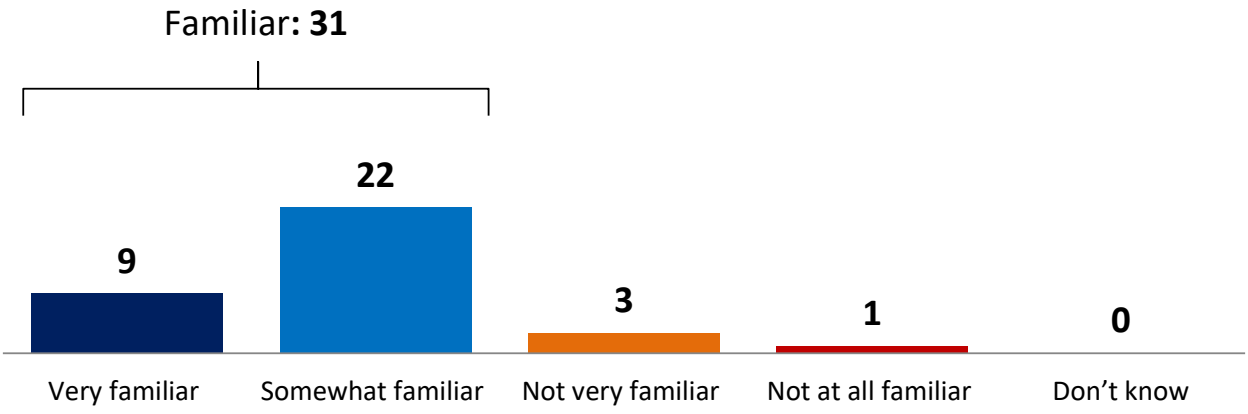
Energy transition in the broadest sense is a global shift away from using carbon-intense fossil fuels (like oil, gasoline, and coal) to a more sustainable, renewable energy future that includes more innovation and customer choice. When Enbridge Gas considers this, it focuses on reducing energy demand and reducing greenhouse gas (GHG) emissions to contribute to net zero goals.

Energy Transition, IRP & GHG Emission Reductions

Familiarity with Energy Transition

Q How familiar are you with the energy transition discussions in Ontario?

[asked of all respondents; n=36]



Not asked: 1

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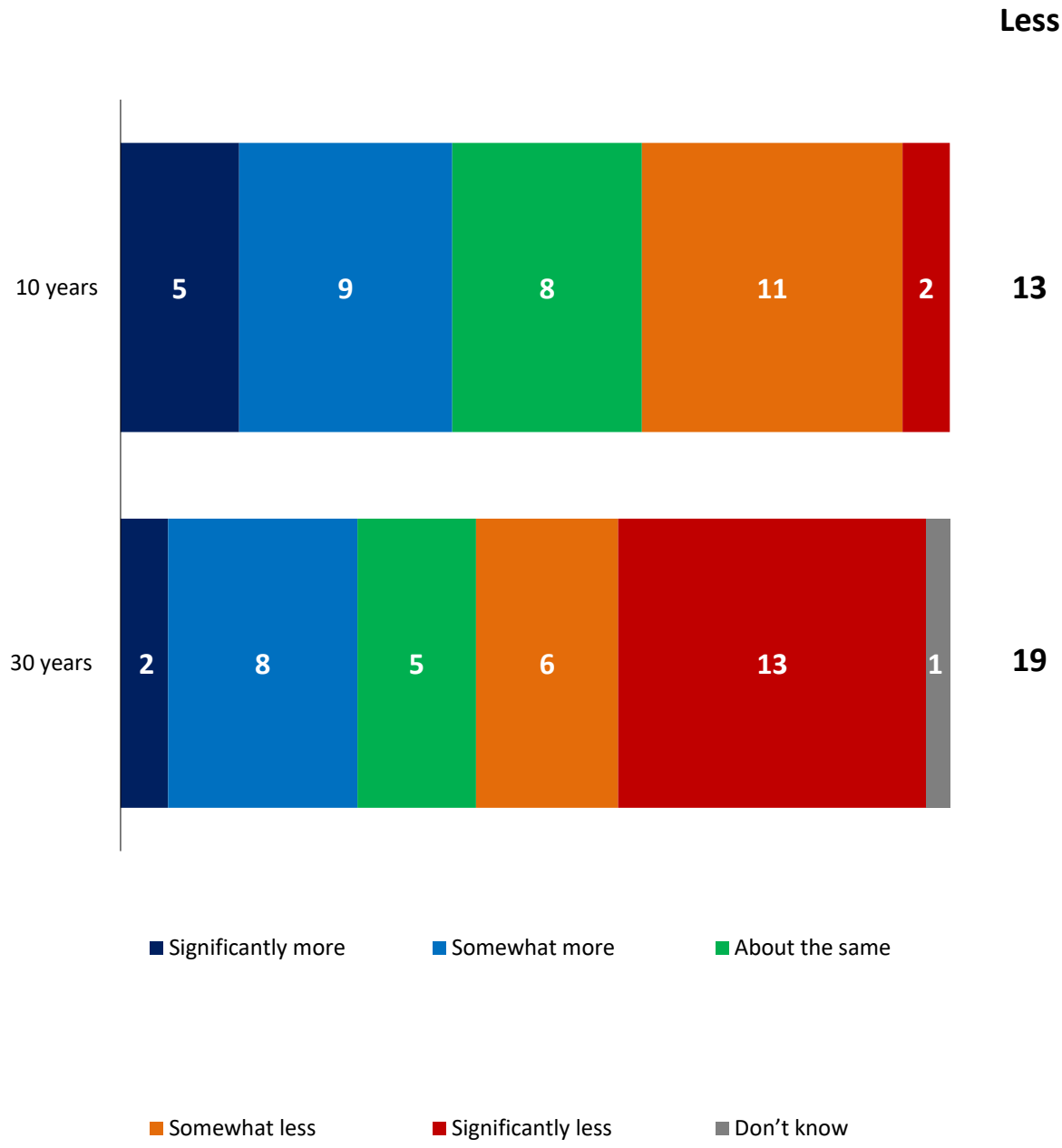
Energy Transition, IRP & GHG Emission Reductions

Natural Gas Consumption in 10 vs 30 Years

Q Thinking about everything you know today, and considering any changes that you might expect in the future as it relates to all the energy choices available to you, how much natural gas do you think someone like you will be using in...

[asked of all respondents; n=36]



Battery of questions not asked: 1

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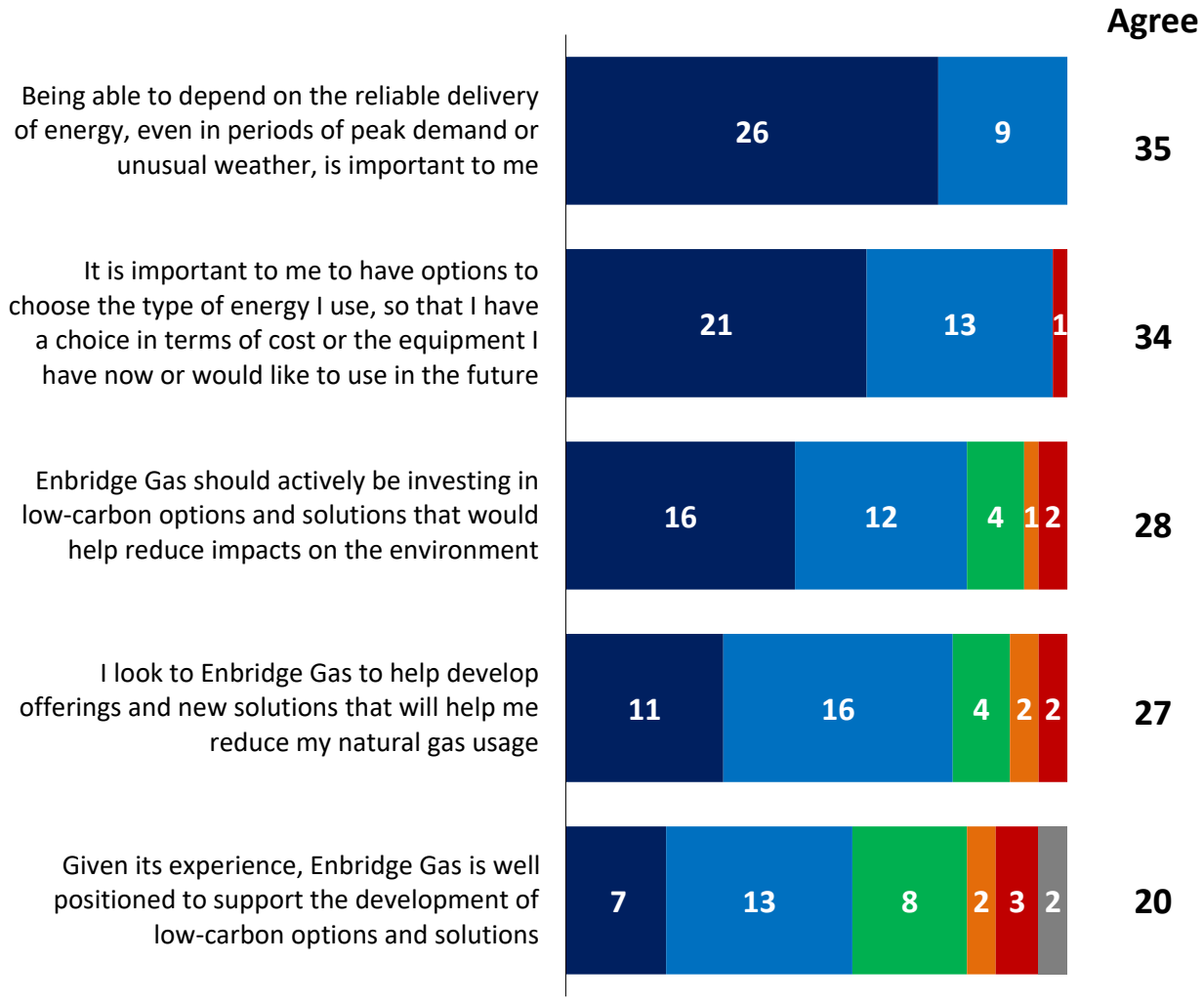
Energy Transition, IRP & GHG Emission Reductions

Reducing Impact on the Environment and Access to Energy

Q When you consider options and solutions to reduce impacts on the environment and access to energy, please tell me whether you agree or disagree with the following statements.

[asked of all respondents; n=36]



Battery of questions not asked: 1

INNOVATIVE RESEARCH GROUP

Energy Transition, IRP & GHG Emission Reductions

Pipeline Replacement and IRP – Preamble

When considering its **pipeline projects**, Enbridge Gas is required by the Ontario Energy Board to evaluate whether alternatives are available that would delay, reduce, or eliminate the need for the project. These alternatives are beneficial in working **towards a clean energy future**, by reducing overall energy use and potential greenhouse gas (GHG) emissions.

Examples of **alternatives** include:

- Helping customers reduce the amount of natural gas they use through conservation programs or other options.

  Examples could include:

  - Incentives for installing new windows and doors; and/or
  - Adding insulation; and/or
  - Upgrading equipment, such as a furnace or water heater.

- Delivering compressed natural gas by truck or train to locations where pipelines do not exist; and/or
- Other alternatives such as geothermal heating and cooling, or air source heat pumps.

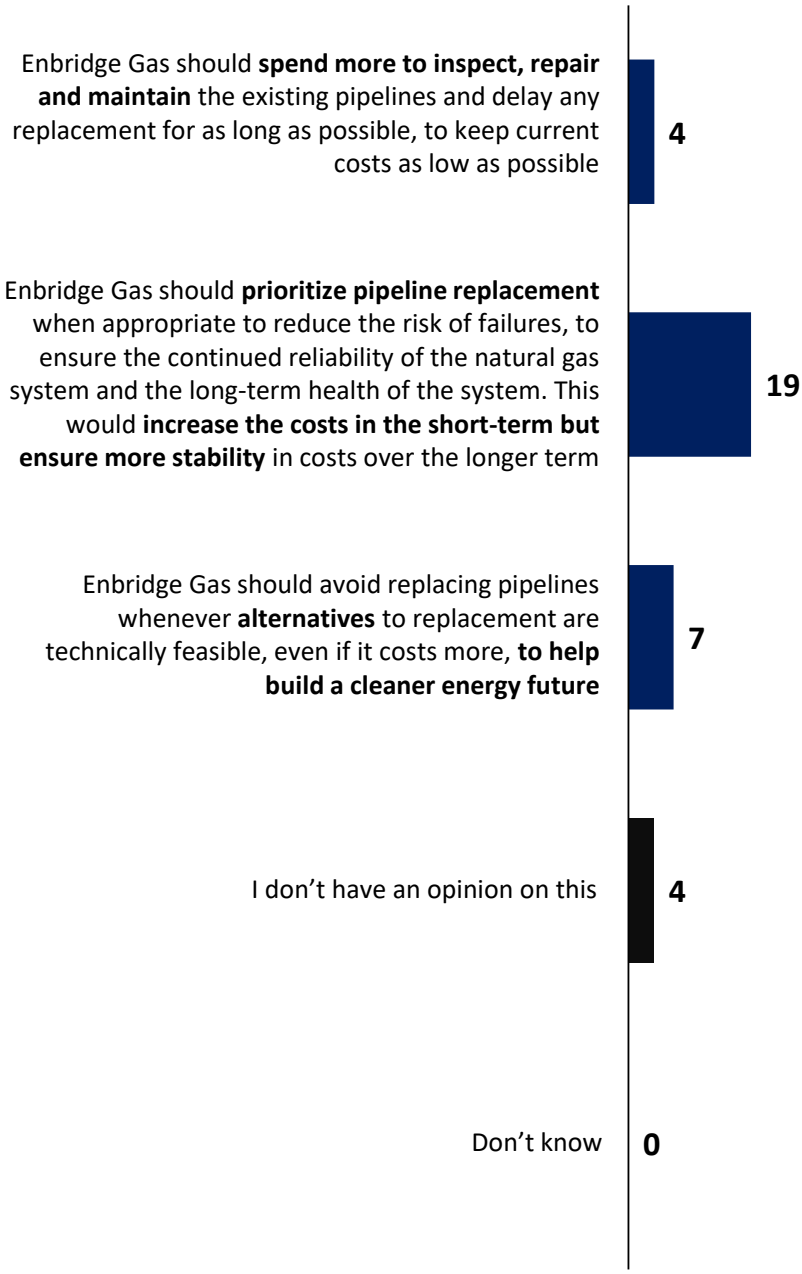
For each pipeline project, alternatives are evaluated from a technical and economic perspective, and as a result some alternatives to the pipeline project may be considered inappropriate according to criteria agreed upon with the Ontario Energy Board.

Energy Transition, IRP & GHG Emission Reductions

Pipeline Replacement and IRP

Q Let's now think about **existing pipelines and supporting infrastructure**. Assuming today's natural gas demands, which of the following statements best represents your point of view on how Enbridge Gas should manage its pipelines?

[asked of all respondents; n=36]



Not asked: 2

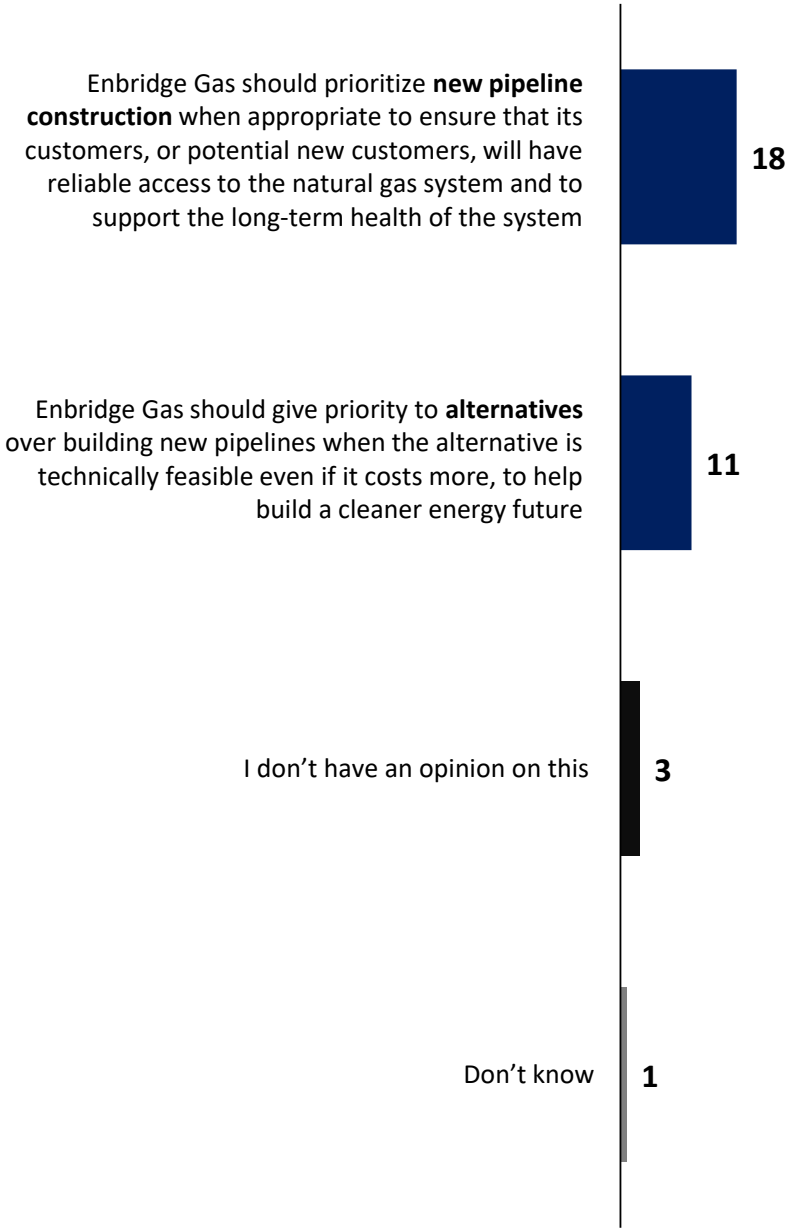
INNOVATIVE RESEARCH GROUP

Energy Transition, IRP & GHG Emission Reductions

New Pipelines and IRP

Q Now think only about **new pipeline expansion or capacity building**. Still assuming today's natural gas demands, which of the following statements best represents your point of view of how Enbridge Gas should manage the request for new pipelines (i.e., pipeline expansion, as in new pipes or bigger pipes)?

[asked of all respondents; n=36]



Not asked: 3

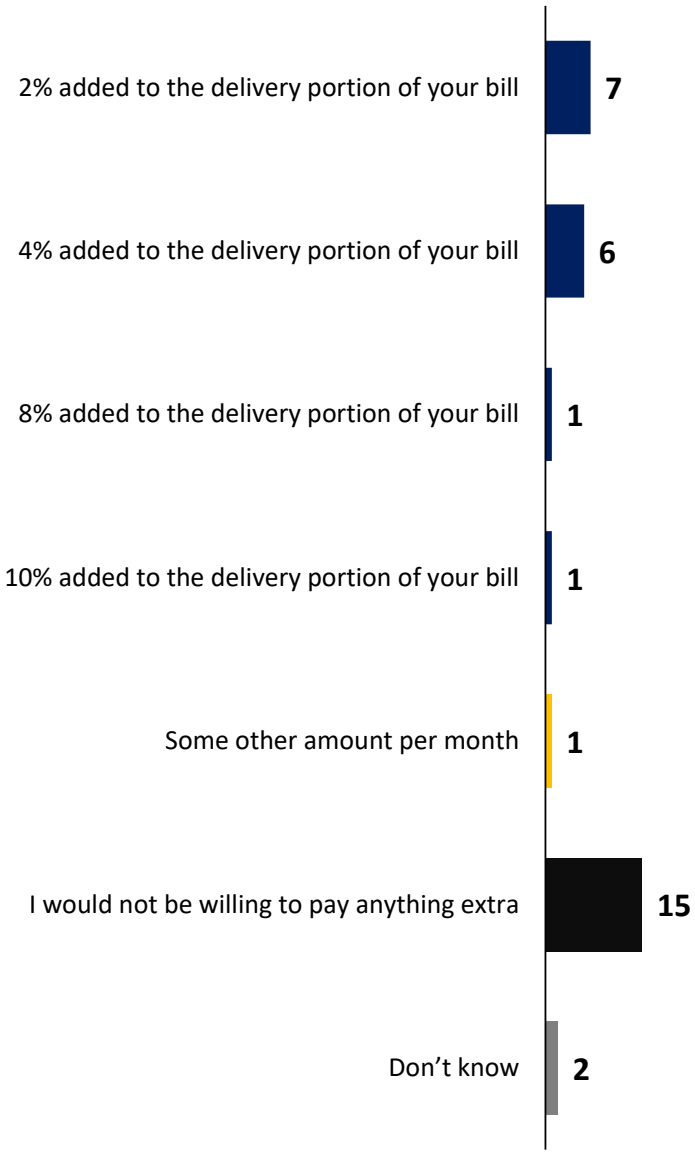
INNOVATIVE RESEARCH GROUP

Energy Transition, IRP & GHG Emission Reductions

New Pipelines and IRP

Q When Enbridge Gas has a choice between pipeline or non-pipeline alternatives, if the cost is the same it will implement the non-pipeline alternative. When the cost for the non-pipeline alternative is higher, it will have a choice of which solution to implement. In this case, the alternative would cost more. How much, if anything, would you be willing to pay per year for Enbridge Gas to implement these alternative solutions instead of pipeline solutions?

[asked of all respondents; n=36]



Not asked: 3

Energy Transition, IRP & GHG Emission Reductions

GHG Emission Reductions | Introduction – Preamble

Enbridge Gas' plans continue to place more emphasis on preparing for the future. This means that Enbridge Gas is looking at ways in which it can **support federal, provincial, and municipal goals**, as well as its **own organization goals**, to reduce greenhouse gas (GHG) emissions and achieve Net-Zero targets.

- Federal targets are to reduce GHG emissions by 40-45% by 2030 over 2005 levels, and to reach Net-Zero GHG emissions by 2050.
- Provincial target is to reduce GHG emissions by 30% by 2030 over 2005 levels.
- Various municipalities have set interim and Net-Zero GHG targets.
- Enbridge Inc. targets:
    - Reduce GHG emissions intensity from its own operations, by 35% by 2030 over 2018 levels;
    - Reach Net-Zero GHG emissions by 2050.

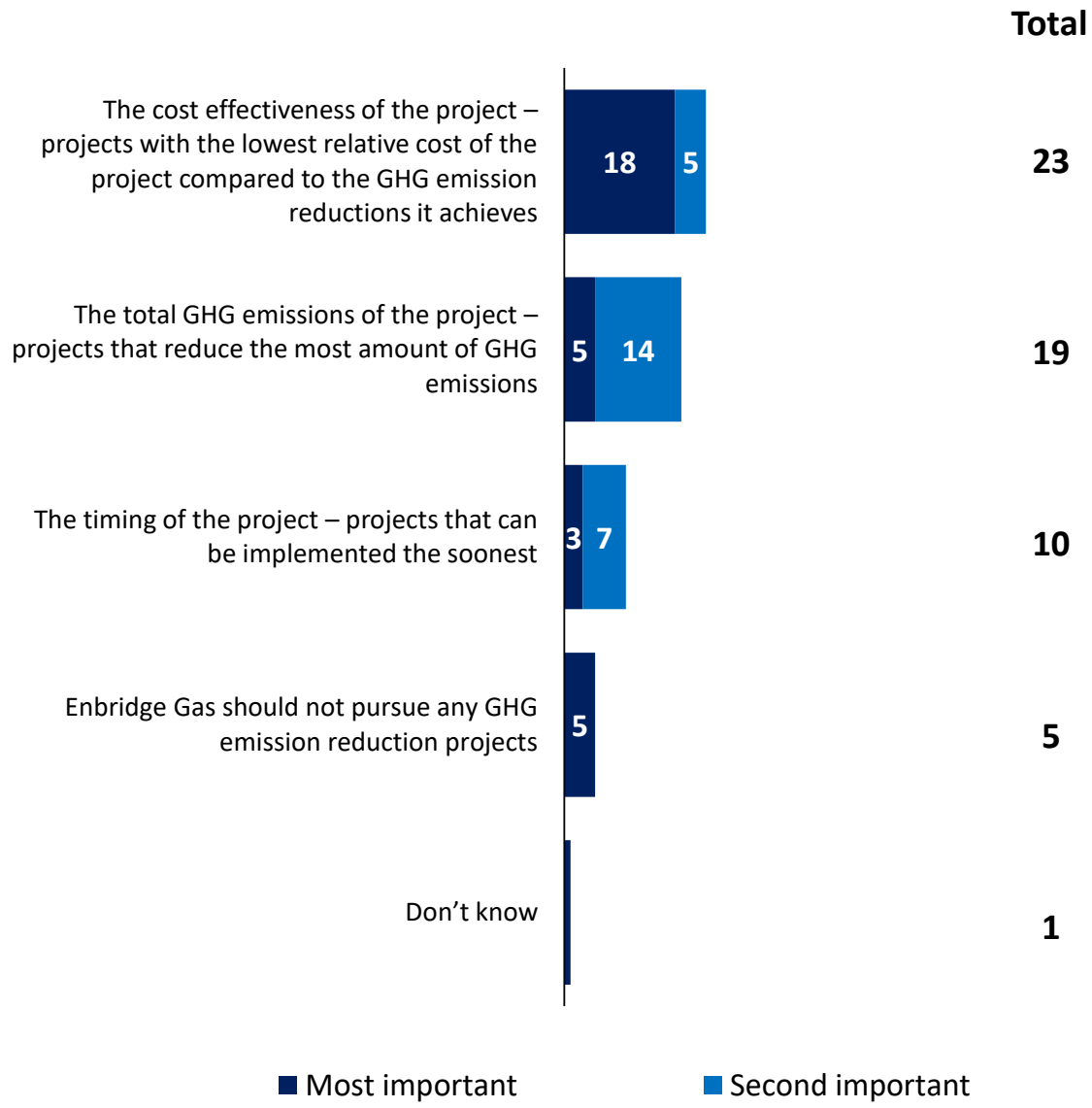
Enbridge Gas must therefore consider GHG emissions from its own operations and would like to ask you some questions about this.

Energy Transition, IRP & GHG Emission Reductions

Importance of GHG Emission Reductions

Q As Enbridge Gas considers different projects and opportunities for GHG emissions reductions, it will have to consider several different things, such as costs, emissions reduction potential, timing, and technical feasibility. When Enbridge Gas has to decide which projects to implement, which of the following is the **most important** to you? And what is the **second most important**?

[asked of all respondents; n=36]



Note: Respondents who say 'Don't know' or "Enbridge Gas should not pursue any GHG emission reduction projects" do not get asked for further priorities.
'No response' not shown. Not asked: Most important (4), Second important (5)

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Energy Transition, IRP & GHG Emission Reductions

Compressor Stations | Fuel Costs Only – Preamble

Enbridge Gas has 50 compressors and supporting equipment. These are required to move gas along the transmission system and inject it into and out of storage.

Compressors need energy to operate. Enbridge Gas has the opportunity to **reduce its greenhouse gas (GHG) emissions by using renewable natural gas (RNG) to operate its compressors** in the place of conventional natural gas. This is currently the largest opportunity for Enbridge Gas to reduce its own GHG emissions.

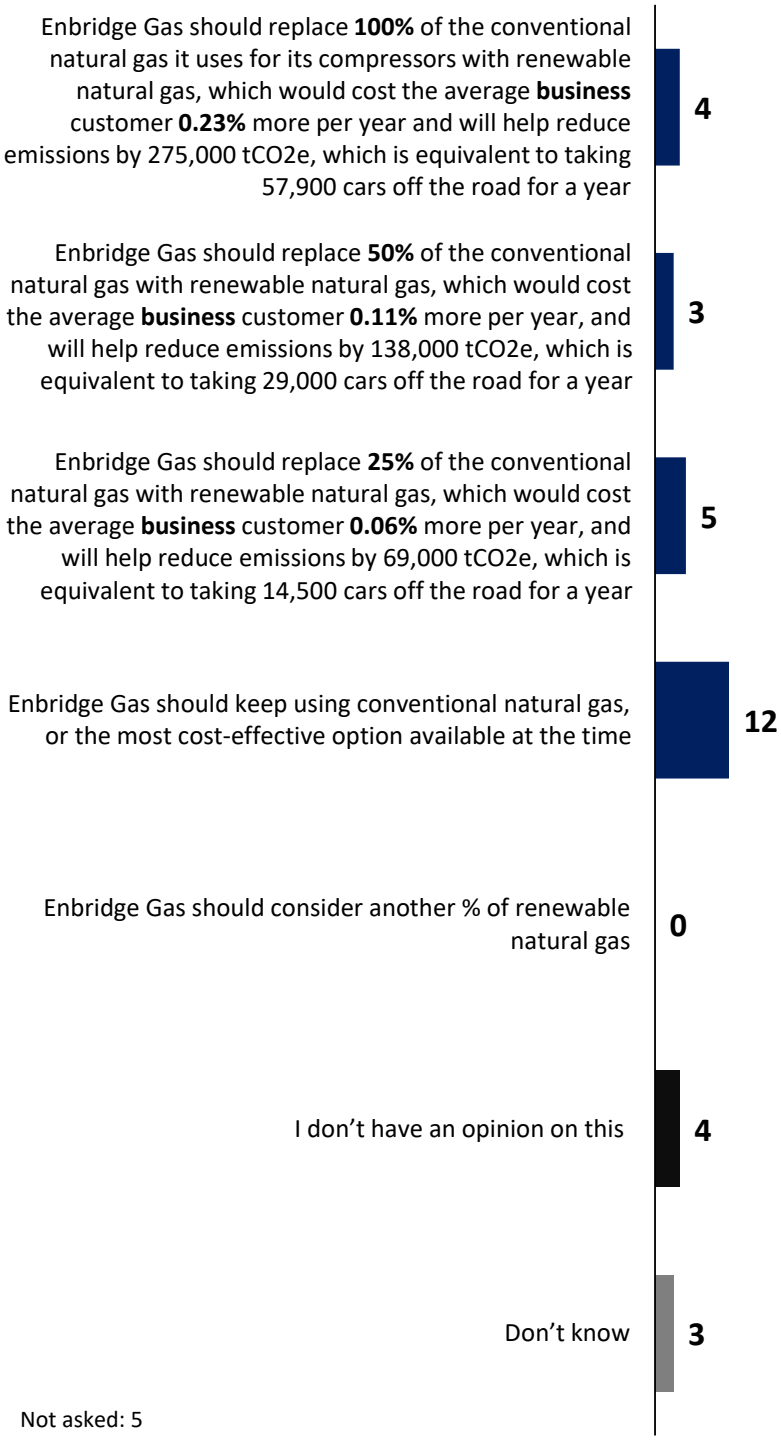
RNG is derived from organic waste from farms, landfills, and water treatment plants and is considered to be carbon neutral. Using it instead of conventional natural gas would reduce GHG emissions and help meet climate change targets, however, it will also increase Enbridge Gas' operational costs because RNG is more expensive than conventional natural gas.

Energy Transition, IRP & GHG Emission Reductions

Compressor Stations | Fuel Costs Only

Q Which of the following is closest to your point of view?

[asked of all respondents; n=36]



Not asked: 5

Energy Transition, IRP & GHG Emission Reductions

Real Estate and Workplace Services | Net Zero Buildings – Preamble

Another opportunity for GHG emissions reductions is from **Enbridge Gas' buildings**.

Enbridge Gas uses more than 80 facilities (administration and operations centres as well as depots) across Ontario ranging in both age and size to support its work and operations.

Enbridge Gas is considering some major building projects, and it has to make the choice of whether to build to the current Ontario Building Code (OBC) and energy standards or to exceed them in an effort to further reduce energy use and GHG emissions.

This includes the new build of one of Enbridge Gas' operations centres (which is currently too small and inefficient and does not meet the needs of the business). Estimates for this **new build project** show that upgrading the conventional design option to a Net-Zero design option would cost the average **business** customer **0.0004%** each year.

Note that these new buildings are necessary and not building is not a cost-effective option.

Energy Transition, IRP & GHG Emission Reductions

Real Estate and Workplace Services – Net Zero Buildings

Q Which of the following is closest to your point of view?

[asked of all respondents; n=36]

Not asked: 6

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Energy Transition, IRP & GHG Emission Reductions

GHG Emissions Reductions | Other – Preamble

Enbridge Gas has provided some specific examples of GHG emission reduction opportunities earlier in this survey. There are **other opportunities** available as well, however, in most cases this might incur more costs compared with doing business as usual.

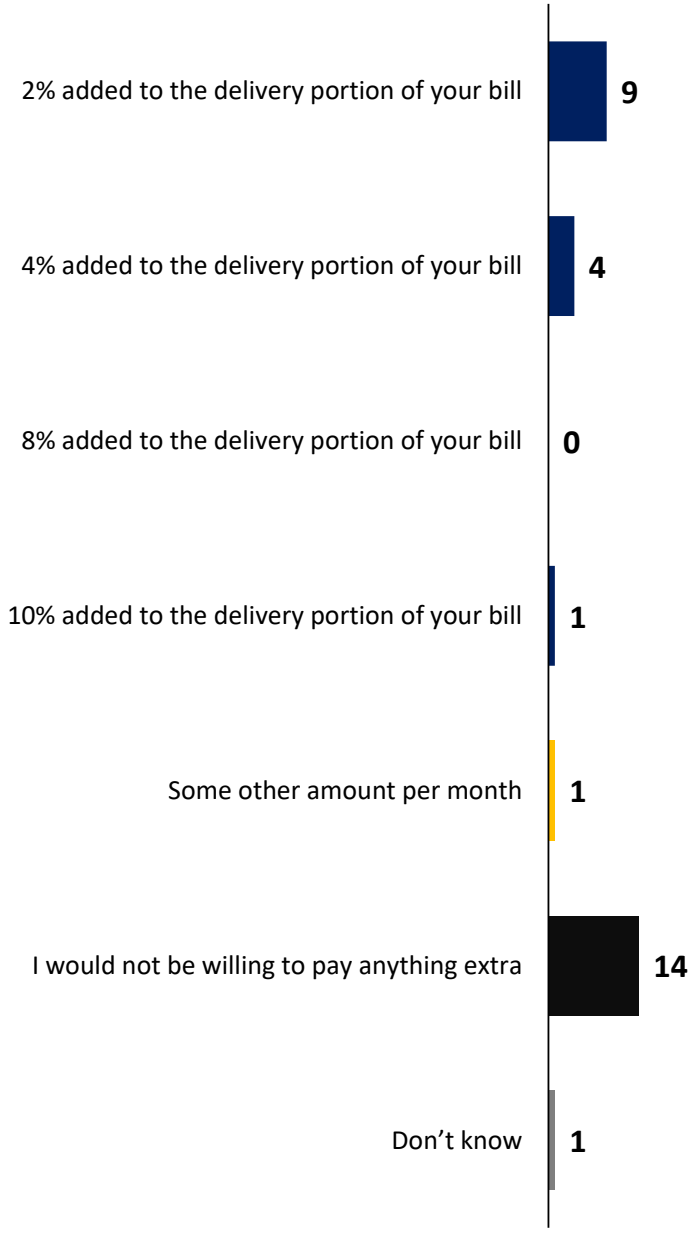
Examples of further emission reduction opportunities include reducing vented gas (such as gas released to the atmosphere during maintenance activities), reducing the amount of natural gas that is burned as part of its operations, and electrification.

Energy Transition, IRP & GHG Emission Reductions

GHG Emissions Reductions | Other

Q Generally, how much more, if anything, would you be willing to pay for Enbridge Gas to invest in further GHG emission reduction opportunities across its operations?

[asked of all respondents; n=36]



Not asked: 6

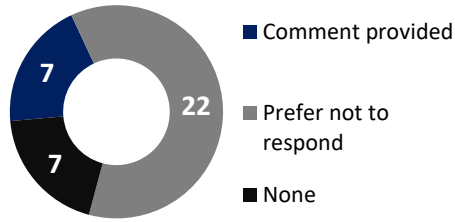
Final Thoughts

Final Thoughts

Additional Comments

Q Is there anything that you would like to share with Enbridge Gas as it works on building its business plan?

[asked of all respondents; n=36]



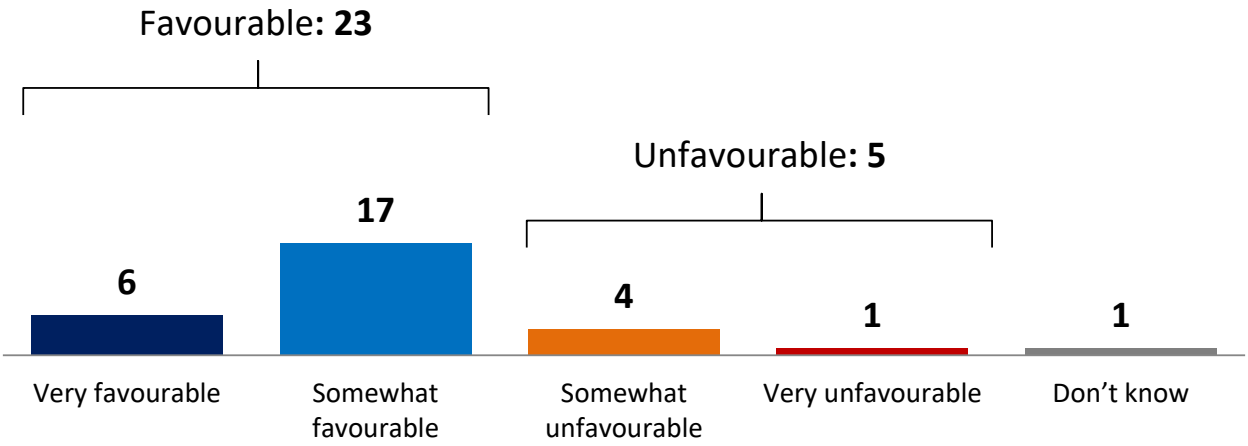
Verbatim
"1. Social responsibility is your responsibility as prudent managers of a business. Should not be an option on a survey for your customer. 2. The fact you have over 5000km of pipeline with leaks tells me you should focus more on the construction/fabrication/install of the pipes and perhaps detection of issues prior to getting that high. OR it would appear your previous audits were either ineffective or infrequent."
"As a business I working on my own carbon reduction projects so not looking for Enbridge to do it for me."
"Communicate milestones to the public so that we can make our plans."
"Continue to work with municipalities to understand opportunities and available at the municipal level for decarbonizing the natural gas grid through leveraging of available renewable energy sources such as wastewater and organics waste generated biogas to turn into RNG. Enbridge has noted the intention of offering system gas customers the ability to opt into RNG program for % of content (goes beyond smaller scale RNG program in place now) so any opportunity to allow DPA customers to also directly secure RNG volumes."
"Does Enbridge not receive funding from the Federal Government from the federal carbon charge in order to implement these types of changes without increasing the bill? A huge portion of the bill is going to the carbon charge and there is very little transparency on where that money is going."
"I would like to see Enbridge invest more heavily in pressurized hot water district energy networks, particularly in new subdivisions where DE is a viable alternative to gas lines to every building."
"Our [REDACTED], and we would like to expand our capacity from 2 gas-fired microturbines to 3. The carbon tax is hurting us. We would very much like to see more RNG in the gas supply as soon as possible to mitigate the impact of this tax."

Final Thoughts

Survey Impression

Q Overall, did you have a favourable or unfavourable impression of the survey you just completed?

[asked of all respondents; n=36]



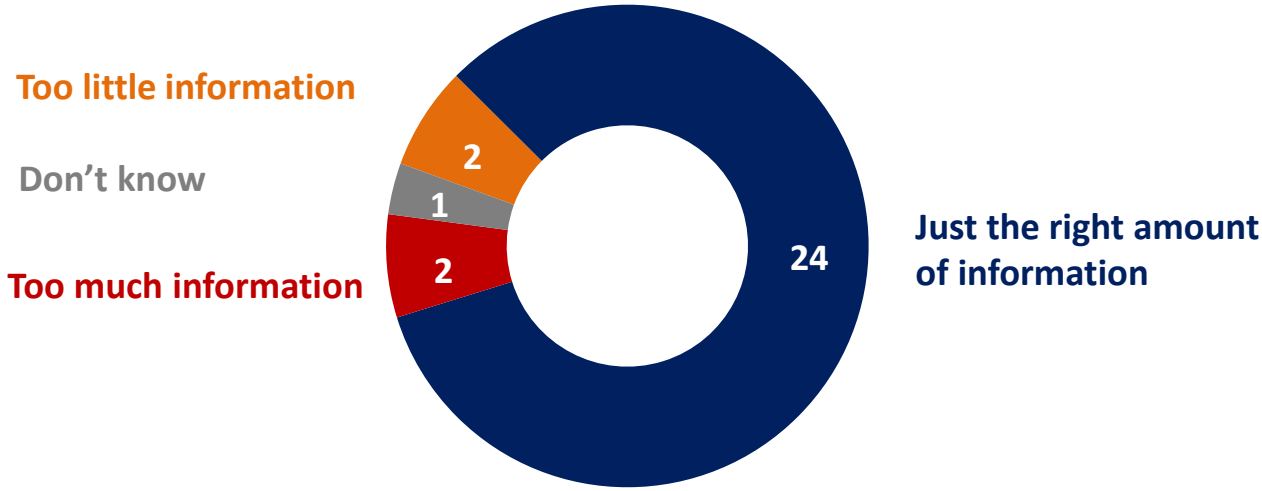
Not asked: 7

Final Thoughts

Amount of Information

Q In this survey, do you feel that Enbridge Gas provided too much information, not enough, or just the right amount?

[asked of all respondents; n=36]



Not asked: 7

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Report Contributors:

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2025-2034 Asset Management Plan Customer Engagement

Online Survey

General Service Customers

Enbridge Gas Inc.

Survey Design

Method: Online only
Language: English
Sample Size: See table below
Sample Frame: Residential Customers who are responsible for paying the bill and Commercial Customers who are responsible for decisions regarding their natural gas account

Sample Design

Customer Segments	Methodology	Sample Size
Residential	Online	3600 (to be finalized)
Commercial (Small, Billed)	Online	1200 (to be finalized)
Commercial (Medium/Large, Billed)	Online	

Sample Variables

1. **Type of customer (CUSTOMER) (Residential (CUSTOMER=1) vs Commercial (CUSTOMER=2))**
2. **Type of Commercial customer (Small vs Medium/Large)**
3. **For Residential customers – E-billing (Y/N)**
4. **Consumption**
5. **Legacy Utility**
6. **Region**

Notes:

- This document contains the survey questions asked of both residential and commercial customers. There are some minor differences in wording and in the actual questions, as noted herein.
- Instructions or titles in **[TEXT]** will not be shown to the customer.

EMAIL INVITATIONS

Email Invitation Sent by Enbridge Gas – Residential

Subject: Enbridge Gas is planning! Your Opinion Matters!

Dear [FULL NAME FROM SAMPLE],

Enbridge Gas wants to hear from customers like you as it develops its business plans for 2025 and beyond. Your natural gas rates pay for the execution of this plan, so your views must be considered. The goal of this survey is to understand what is valued by customers like you so it can be considered when making key business decisions.

For this survey, we would like to hear from someone in your household who is responsible or jointly responsible for decisions regarding natural gas such as viewing and paying your natural gas bill. If that is not you, please forward this email to the appropriate person.

This survey will take approximately 15-20 minutes to complete, and if you're unable to complete it in one session, you can pick up where you left off by clicking the survey link again – your progress will be saved. We kindly ask that you complete the survey prior to XXXX by clicking the link below.

Start Survey

To ensure all responses are kept anonymous and confidential, all survey responses will be collected by INNOVATIVE Research Group, an independent market research company. If you would like to verify the authenticity of this survey or would like more information about the survey, you can contact marketresearch@enbridge.com.

If you have any problems with the above link, please copy and paste the following address into your web browser.

Survey Link: >>>>

Thank you for your time and input into this planning process.

Enbridge Gas Inc.

Contact Us | Privacy Policy

Any feedback you provide will be kept strictly confidential. If you experience technical issues with this survey, please reply directly to this email. For all other inquiries, please use the Contact Us link.

If you do not wish to receive further survey invitations from Enbridge Gas, please click here to unsubscribe.

Enbridge Gas Inc. | www.enbridgegas.com | 500 Consumers Road, North York, ON, M2J 1P8

Email Invitation Sent by Enbridge Gas – Commercial

Dear [FULL NAME FROM SAMPLE],

Enbridge Gas wants to hear from customers like you as it develops its business plans for 2025 and beyond. Your natural gas rates pay for the execution of this plan, so your views must be considered. The goal of this survey is to understand what is valued by customers like you so it can be considered when making key business decisions.

For this survey, we would like to hear from the person in your organization who is responsible or jointly responsible for decisions regarding your natural gas account. If that is not you, please forward this email to the appropriate person. This survey will take approximately 15-20 minutes to complete, and if you're unable to complete it in one session, you can pick up where you left off by clicking the survey link again – your progress will be saved. In appreciation of your time and input, once you have completed the survey, you will be entered into a draw for one of two XXX cash prizes. We kindly ask that you complete the survey prior to XXXX by clicking the link below.

Start Survey

In appreciation of your time and input, once you have completed the survey, you will be entered into a draw for one of two $500 cash prizes. To ensure all responses are kept anonymous and confidential, all survey responses will be collected by INNOVATIVE Research Group, an independent market research company. If you would like to verify the authenticity of this survey or would like more information about the survey, you can contact marketresearch@enbridge.com.

If you have any problems with the above link, please copy and paste the following address into your web browser.

Survey Link: >>>>

Thank you for your time and input into this planning process.

Enbridge Gas Inc.

Contact Us | Privacy Policy

Any feedback you provide will be kept strictly confidential. If you experience technical issues with this survey, please reply directly to this email. For all other inquiries, please use the Contact Us link.

If you do not wish to receive further survey invitations from Enbridge Gas, please click here to unsubscribe.

Enbridge Gas Inc. | www.enbridgegas.com | 500 Consumers Road, North York, ON, M2J 1P8

A. INTRODUCTION

New Page: Introduction

Enbridge Gas is preparing its business plan for its assets for 2025-2034 and would like to hear your feedback on the things that it is considering in this plan. **Assets include** anything from **pipelines** to **distribution stations**, **meters**, **buildings**, **vehicles**, **equipment**, and **information technology systems**. Your natural gas rates pay for the execution of this plan, so your views must be considered and reflected in the plan.

Enbridge Gas regularly conducts consumer interviews to inform its plans. Every five years Enbridge Gas develops a plan that determines the rates you pay, which is currently being considered by the Ontario Energy Board, the regulatory agency that oversees natural gas rates. However, the plans for its assets are updated more frequently, so Enbridge Gas conducts surveys to understand current consumer preferences and adjusts the plan if needed.

Even though your choices in this survey may not directly affect the rates for your natural gas service over this period, it will help Enbridge Gas business planners to understand your preferences and consider this in its business plans, which are updated every two years.

Near the end of this survey, you will have the opportunity to provide any additional feedback that you would like to share with Enbridge Gas.

Throughout this survey, if you aren't sure what your response is, please indicate this. Thank you in advance for your feedback and participation!

B. SCREENER

Screening for qualified respondents

[ONLY ASK Q1-Q3 IF RESIDENTIAL CUSTOMER (CUSTOMER=1)]

Q1. In what year were you born?

	[RANGE 1850-2023]	**[SKIP NEXT QUESTION]**
99	Prefer not to answer	**[ASK Q2 IF SELECTED]**

[ASK Q2 IF Q1=99]

Q2. Which of the following age categories do you fall into?

96	Under 18	**[THANK & TERMINATE]** Thank you for your interest, but this survey is for customers who are 18 years of age or older
01	18 to 24	
02	25 to 44	
03	45 to 64	
04	65 to 74	
05	75 or older	
99	Prefer not to answer	

Q3. Do you, or does anyone else in your immediate family work in any of the following areas?

01	Market research	**[TERMINATE]**
02	Energy providers, such as natural gas, oil, electricity, propane	**[FLAG AS SECTOR PARTICIPANT]**
03	A gas equipment or appliance contractor or retailer	
04	Energy sector regulator or intervener	
97	None of the above	**[MUTUALLY EXCLUSIVE]**

[ONLY ASK Q4-Q5 IF COMMERCIAL CUSTOMER (CUSTOMER=2)]

Q4. To confirm, does your organization receive a natural gas bill from Enbridge Gas?

01	Yes	
02	No	**[THANK & TERMINATE:** Thank you for your interest, but this survey is for customers who receive and pay their natural gas bill
98	Don't know	

Q5. Are you responsible or partially responsible for decisions regarding your natural gas account for your organization?

01	Yes	
02	No	**[THANK & TERMINATE:** Thank you for your interest, but this survey is best completed by those who receive and pay the natural gas bill
98	Don't know	

C. SATISFACTION

New Page: Satisfaction

Let's first talk about your overall experience with Enbridge Gas.

Q6. Taking into consideration all aspects of your utility service experience, how satisfied are you with your Enbridge Gas service?

01	Very satisfied
02	Somewhat satisfied
03	Neither satisfied nor dissatisfied
04	Somewhat dissatisfied
05	Very dissatisfied
98	I Don’t know

Q7. Is there anything in particular Enbridge Gas can do to improve their service to you?

[OPEN-ENDED]

01	OPEN
99	Prefer not to respond

D. CUSTOMER OUTCOMES

New Page: Customer Outcomes

In considering its business plans, including its plan to manage its assets from 2025 to 2034, Enbridge Gas must make many decisions. We would like your feedback on the outcomes you would like Enbridge Gas to focus on in its plan. Outcomes are the goals and priorities that matter to you.

There is a list of broad outcomes that Enbridge Gas will need to consider. Please indicate how important the following outcomes are to you. Please rate each outcome using the scales below, from 0 to 10 in terms of ***how important it is to you*** – where ***0 means "not important at all"*** and ***10 means "extremely important".***

[RANDOMIZE]

Q8. Reliably delivering natural gas
Q9. Safely delivering natural gas
Q10. Making good use of the money customers pay
Q11. Providing affordable pricing
Q12. Providing predictable pricing
Q13. Providing dependable customer service
Q14. Minimizing any impacts on the environment
Q15. Being socially responsible
Q16. Supporting the growth of Ontario's economy

00	Not at all important	
01-09		
10	Extremely important	
98	Don't know	

Q17. Sometimes Enbridge Gas needs to choose between priorities that are all considered important. Thinking about these outcomes, which one would you say is most important to you as a customer?

[USE THE SAME RANDOMIZATION ORDER AT Q8-Q16]

01 Reliably delivering natural gas
02 Safely delivering natural gas
03 Making good use of the money customers pay
04 Providing affordable pricing
05 Providing predictable pricing
06 Providing dependable customer service
07 Minimizing any impacts on the environment
08 Being socially responsible
09 Supporting the growth of Ontario's economy
98 Don't know **[SKIP TO NEXT SECTION]**

Q18. And which one is second most important to you?

[INSERT LIST, REMOVE ITEM SELECTED AT Q17]

Q19. And, finally, which one is third most important to you?

[INSERT LIST, REMOVE ITEM SELECTED AT Q17 and Q18]

E. ASSET MANAGEMENT

New Page: Asset Management

Now we will ask you about some of the choices that Enbridge Gas planners must make in developing their business plans. **These choices see trade-offs between competing outcomes**, such as doing more to meet customer needs or reduce greenhouse gas (GHG) emissions, versus keeping bills down.

Enbridge Gas planners seek to ensure:

- ✓ that the natural gas system continues to **operate safely and reliably**; and
- ✓ to demonstrate continuous improvement in **productivity and cost performance** (which is also required by the OEB); and
- ✓ to prepare for the **future**.

All costs provided in this survey are preliminary estimates and are expressed as an additional cost each year to the average customer. However, as noted earlier, the actual rates you pay for your natural gas service are determined by a Cost-of-Service application to the Ontario Energy Board (OEB). This happens every 5 years and has already been submitted for the 2024-2028 period.

Even though this survey may not directly affect the rates for your natural gas service over this period, it will help Enbridge Gas business managers update its plans.

[NEW SCREEN]

Thinking about the level of safety, reliability, and customer service you receive from Enbridge Gas would you like to see the company invest in maintaining, invest in improving upon the current level, or invest less altogether? Please consider the items below. Should Enbridge Gas...

[ROTATE 01 AND 03]

01	Increase the current level of investment
02	Maintain the current level of investment
03	Decrease the current level of investment
99	Don’t know

[RANDOMIZE QUESTIONS]

Q20. Safety
Q21. Reliability
Q22. Customer service

Q23. Thinking generally about Enbridge Gas’ budget for replacing pipelines and equipment that deliver gas to your [home/organization], which of the following statements best represents

your point of view?

[RANDOMIZE]

01	Enbridge Gas should look at the long-term health of the system and continue to invest to spread costs out evenly over time even if that means higher rates now.
02	Enbridge Gas should focus on the immediate impact on rates and only spend what it takes to keep the system in good order now to keep rates low, even if that means an increase in rates later that may end up being more expensive for customers overall.
97	I don’t have an opinion on this
98	Don’t know

New Page: [Distribution Pipe – general]

As suggested in the previous question, in some cases, where alternative options may not exist, Enbridge Gas will have to make a choice to **spend more now**, or to **spend more later**.

One example is related to its steel pipelines.

- Enbridge Gas operates approximately 32,000 km of main distribution pipelines that are made of steel.
- Another 50,000 km of main distribution pipelines are made of plastic.
- **17,000 km of steel pipelines are 3 times more leak-prone** than newer pipes due to the materials and practices from the 1950s and 1960s when they were built.

Failure of distribution pipelines can lead to serious concerns including:

- ✓ increased greenhouse gas emissions (GHGs)
- ✓ property damage, and
- ✓ in the worst-case scenario, although the risk is low, injury to people.

Typical steel pipeline with protective coating

Steel pipeline with corrosion failure

Enbridge Gas uses a data driven approach to prioritize the replacement of pipe which is most likely to fail first or have the greatest consequence if it does fail. It also checks for leaks every 1 to 4 years (depending on the pipe categorization) to maintain the safety of the system. However, to fully understand the condition of the pipeline, visual inspection is required which can be of comparable cost to replacement.

Of the 17,000 km, Enbridge Gas has identified approximately **5,100 km as most important for replacement** due to its predicted risk. The majority of these are smaller in diameter and would be replaced with plastic pipelines, which will be cheaper to maintain.

Not addressing the aging pipeline infrastructure is expected to result in a gradual increase in leaks over time as shown in table below:

Potential number of leaks	2023	2034
Main pipelines	281	747
Smaller Service Pipelines	1920	3909

If Enbridge Gas waits it can allocate its budget elsewhere, however it would increase the estimated number of leaks and extend the work into the future. The overall costs are expected to be higher with a delayed approach.

As a result, Enbridge Gas' program to replace these pipelines at an achievable pace is estimated to cost the average **residential/business** customer an average of an additional **$2.02 / 0.108%** each year as the program ramps up from 2027 to 2032.

Q24. Which of the following is closest to your view?

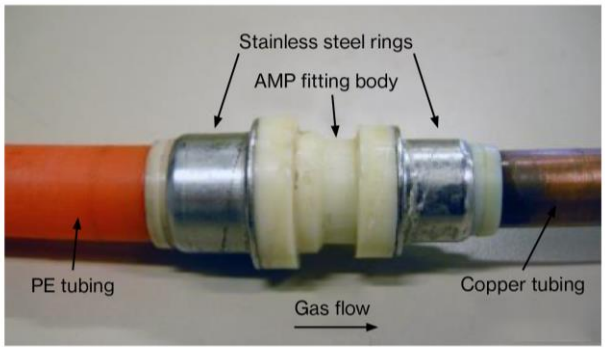
[RANDOMIZE 01 AND 02]

01	Enbridge Gas should address pipelines that are at risk before they break to prevent possible leaks as much as possible.
02	Enbridge Gas should wait to address breaks until leaks are detected to keep costs down in the short-term and delay the cost to the future.
97	I don't have an opinion on this
98	Don't know

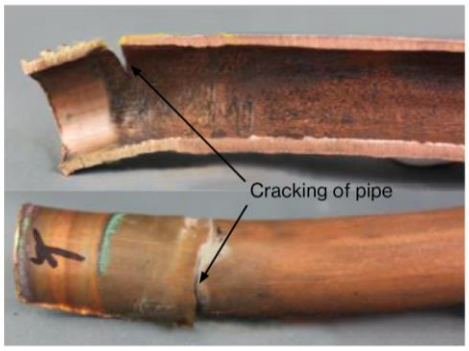
New Page: [AMP Fittings]

Another example is related to AMP fittings.

AMP fittings are used to connect two different types of natural gas pipelines. Enbridge Gas has 240,000 AMP fittings in its system, near customer meters. AMP fittings cause a disturbance in the flow of gas, and a low-pressure zone after the fitting is created. This causes corrosion over time and eventually would create a crack. Based on Enbridge Gas' sampling and modelling, it is expected that all copper pipes will corrode, and cause a leak over time, which based on modelling estimates could result in property damage and injury.



Typical AMP fitting installation



Localized corrosion failure at AMP fitting

To address this issue Enbridge Gas established a proactive replacement program in 2019 to remove the AMP fittings from the system. This program gradually ramps up the replacement of AMP fittings to a maximum of 14,000 per year and then ramps down until it ends in 2043. **It aims to reduce emergency repairs, although some will still be needed**.. The expected cost of an emergency repair compared to a proactive replacement is an additional $400 per fitting.

In terms of number of emergency replacements:

- ✓ Enbridge Gas has repaired about 1,200 per year so far.
- ✓ Enbridge Gas is expecting to repair about **2,000** per year **with the renewed proactive replacement program**.
- ✓ Enbridge Gas is expecting to repair up to **7,000** per year **without the renewed proactive replacement program**.

The renewed program is expected to reduce the total number of future leaks by 196,000.

Enbridge Gas would like to renew this program, so that over the next 20 years, it would be able to reduce risks related to leaks and be able to save $346 million in total by proactively replacing AMP fittings, rather than reactively repairing leaks. The proposed program would slowly ramp up and at the height of the program in 2038 cost the average **residential/business** customer an additional **$0.74/ 0.008%** each year but would save customers **$0.26 / 0.0006**% more each year over the program term compared to only completing emergency replacements over the longer term.

Q25. Which of the following is closest to your point of view?

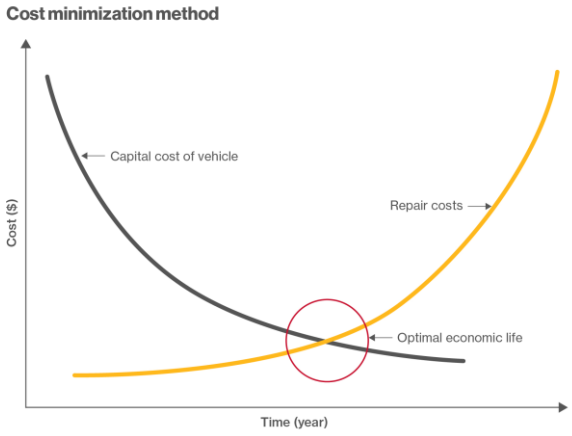
[RANDOMIZE 01 AND 02]

01	Enbridge Gas should increase spending in the short run to replace the AMP fittings to reduce the total long-term cost to customers.
02	Enbridge Gas should only replace the AMP fittings when leaks occur in order to keep current costs as low as possible, even though this will cost the most in the long term.
97	I don't have an opinion on this
98	Don't know

New Page: [Fleet and Equipment]

Enbridge Gas also plans to maintain its **fleet and equipment** for the safety of its employees as well as the efficiency and cost effectiveness of its operations. The current fleet includes approximately 1,700 light and medium duty vehicles used by employees, as well as 1,200 pieces of heavy equipment and trailers.

Enbridge Gas analyzes a vehicle's cumulative maintenance cost against the average cost of all vehicles and the condition of the vehicle. A vehicle is considered for replacement when the average maintenance cost surpasses market value unless its maintenance costs much are unusually high (replaced sooner) or unusually low (replaced later). Other factors, such as age, mileage, hours of use, risk of failure and functional requirements are considered as well. With this approach, the average replacement age for light vehicles would be 72 months (or 6 years), and 144 months (or 12 years) for medium and heavy-duty vehicles. The general approach is shown in the cost minimization method figure below.



Currently, Enbridge Gas' fleet is older than the optimal level and has become more costly to maintain. Enbridge Gas would like to increase its investments over the coming years to get the fleet age back to the optimal level (returning to the approach described above). The fleet budget over the plan, which includes the budget to bring the fleet age back to the optimal level, would cost the average **residential/business** customer an additional **$0.75 / 0.008%** each year.

Enbridge Gas could also slow down its replacement strategy, which may reduce the immediate replacement costs, but this would increase the maintenance costs.

Q26. Which of the following is closest to your point of view?

[RANDOMIZE 01 AND 02]

01	Enbridge Gas should continue to look at the optimal life of the vehicle and make replacements as the average maintenance costs surpasses market value, and plan to get its fleet back to the optimal level.

02	Enbridge Gas should slow down its replacement strategy and only replace vehicles when they reach the end of their useful life. This would save some money in the short-term but will cost more overall in terms of maintenance and create productivity issues.
97	I don't have an opinion on this
98	Don't know

New Page: [Dashcams]

Enbridge Gas is committed to the safety of its employees and the public. While fleet vehicles are equipped with Global Positioning System (GPS) / Telematics tracking devices, which are managed by fleet management software (i.e., Geotab), they are currently not equipped with any dash cameras, or dashcams. Enbridge Gas is considering **adding dashcams to its vehicles** to allow for the review of the driving behaviour of its employees, as well as the driving conditions experienced by them. This would help to improve the safety of both employees and the public.

Adding dashcams to the entire fleet would require Enbridge Gas to purchase dashcams and the appropriate support systems for almost 1,800 road vehicles. For all vehicles, this would cost the average **residential/business** customer **$0.18 / 0.002%** each year.

Q27. Which of the following is closest to your point of view?

[RANDOMIZE 01 AND 02]

01	Enbridge Gas should add dashcams to all its vehicles as soon as feasible. This would cost the average **residential/business** customer **$0.18 / 0.002%** each year.
02	Enbridge Gas should slowly roll out dashcams for vehicles with the highest kilometer usage only, which is approximately 30% of the fleet. This would cost the average **residential/business** customer **$0.06 / 0.001%** each year.
03	Enbridge Gas should not install any dashcams at all.
97	I don't have an opinion on this
98	Don't know

New Page: [TIS]

Enbridge Gas also has a budget for Technology and Information Systems (TIS), which pays for the technology and systems that keep the company operating. Enbridge Gas actively seeks out and has identified some opportunities available to **improve the efficiency of its business through technology**.

This includes an investment to improve business planning, work intake and scheduling for Enbridge's field operations, which includes meter exchanges, emergency calls and other jobs that required field service technicians. Improvements are intended to reduce administrative and manual work, and will help achieve savings in the long-term, and improve customer and employee satisfaction. However, to

implement these solutions some upfront investment is required. This project is estimated to cost the average **residential/business** customer **$0.02/0.0002%** more each year.

Q28. Which of the following is closest to your point of view?

[RANDOMIZE 01 AND 02]

01	Enbridge Gas should pursue technology opportunities that help it to become more efficient so that it can save money in the longer term.
02	Enbridge Gas should focus on the immediate impact on rates and only spend what it takes to keep the system in good order now to keep rates low.
97	I don't have an opinion on this
98	Don't know

F. ENERGY TRANSITION, IRP AND GHG EMISSION REDUCTIONS

New Page: [Energy Transition, IRP and GHG Emission Reductions]

Energy transition in the broadest sense is a global shift away from using carbon-intense fossil fuels (like oil, gasoline, and coal) to a more sustainable, renewable energy future that includes more innovation and customer choice. When Enbridge Gas considers this, it focuses on reducing energy demand and reducing greenhouse gas (GHG) emissions to contribute to net zero goals.

Q29. How familiar are you with the energy transition discussions in Ontario?

01	Very familiar
02	Somewhat familiar
03	Not very familiar
04	Not at all familiar
98	Don't know

Let's now look ahead and think about the future.

Thinking about everything you know today, and considering any changes that you might expect in the future as it relates to all the energy choices available to you, how much natural gas do you think someone like you will be using in...

01	Significantly less
02	Somewhat less
03	About the same
04	Somewhat more
05	Significantly more
98	Don't know

[DO NOT RANDOMIZE]

Q30. 10 years
Q31. 30 years

When you consider options and solutions to reduce impacts on the environment and access to energy, please tell me whether you agree or disagree with the following statements.

01	Completely agree
02	Somewhat agree
03	Neither agree nor disagree
04	Somewhat disagree
05	Completely disagree
98	Don't know

[RANDOMIZE]

Q32. Enbridge Gas should actively be investing in low-carbon options and solutions that would help reduce impacts on the environment.

Q33. Given its experience, Enbridge Gas is well positioned to support the development of low-carbon options and solutions.

Q34. **[DSM]** I look to Enbridge Gas to help develop offerings and new solutions that will help me reduce my natural gas usage.

Q35. **[CUSTOMER CHOICE]** It is important to me to have options to choose the type of energy I use, so that I have choice in terms of cost or the appliances I have now or would like to use in the future.

Q36. **[RESILIENCY]** Being able to depend on the reliable delivery of energy, even in periods of peak demand or unusual weather, is important to me.

[END BATTERY]

New Page: [Pipeline Replacement and IRP]

When considering its **pipeline projects**, Enbridge Gas is required by the Ontario Energy Board to evaluate whether **alternatives** are available that would delay, reduce, or eliminate the need for the project. These alternatives are beneficial in working **towards a clean energy future**, by reducing overall energy use and potential greenhouse gas (GHG) emissions.

Examples of **alternatives** include:

- Helping customers reduce the amount of natural gas they use through conservation programs or other options. Examples could include:
  - Incentives for installing new windows and doors; and/or
  - Adding insulation; and/or
  - Upgrading equipment, such as a furnace or water heater.
- Delivering compressed natural gas by truck or train to locations where pipelines do not exist; and/or
- Other alternatives such as geothermal heating and cooling, or air source heat pumps.

For each pipeline project, alternatives are evaluated from a technical and economic perspective, and as a result some alternatives to the pipeline project may be considered inappropriate according to criteria agreed upon with the Ontario Energy Board.

Q37. Let's now think about **existing pipelines and supporting infrastructure**. Assuming today's natural gas demands, which of the following statements best represents your point of view on how Enbridge Gas should manage its pipelines?

[RANDOMIZE 01 TO 03]

01	Enbridge Gas should **spend more to inspect, repair and maintain** the existing pipelines and delay any replacement for as long as possible, **to keep current costs as low as possible**.
02	Enbridge Gas should **prioritize pipeline replacement** when appropriate to reduce the risk of failures, to ensure the continued reliability of the natural gas system and the long-term health of the system. This would **increase the costs in the short-term but ensure more stability** in costs over the longer term.
03	Enbridge Gas should avoid replacing pipelines whenever **alternatives** to replacement are technically feasible, even if it costs more, **to help build a cleaner energy future**.
97	I don't have an opinion on this
98	Don't know

New Page: [New pipelines and IRP]

Q38. Now think only about **new pipeline expansion or capacity building**. Still assuming today's natural gas demands, which of the following statements best represents your point of view of how Enbridge Gas should manage the request for new pipelines (i.e., pipeline expansion, as in new pipes or bigger pipes)?

[RANDOMIZE 01 TO 02]

01	Enbridge Gas should prioritize **new pipeline construction** when appropriate to ensure that its customers, or potential new customers, will have reliable access to the natural gas system and to support the long-term health of the system.
02	Enbridge Gas should give priority to **alternatives** over building new pipelines when the alternative is technically feasible even if it costs more, to help build a cleaner energy future.
97	I don't have an opinion on this
98	Don't know

Q39. When Enbridge Gas has a choice between pipeline or non-pipeline alternatives, if the cost is the same it will implement the non-pipeline alternative. When the cost for the non-pipeline alternative is higher, it will have a choice of which solution to implement. In this case, the alternative would cost more. How much, if anything, would you be willing to pay per year for Enbridge Gas to implement these alternative solutions instead of pipeline solutions?

[RANDOMIZE SCALE IN ASCENDING VS DESCENDING ORDER] Residential response choices are in blue / Commercial response choices are in red

01	$1.00/month or $12.00 extra per year / 2% added to the delivery portion of your bill
02	$2.00/month or $24.00 extra per year / 4% added to the delivery portion of your bill

03	$4.00/month or $48.00 extra per year / 8% added to the delivery portion of your bill
04	$10.00/month or $120.00 extra per year / 10% added to the delivery portion of your bill
88	Some other amount per month [ON-SCREEN INSTRUCTION: [RES] Please enter a numeric response in the space below. You may use a decimal point, but do not include a dollar sign. [BUS] Please enter a numeric response in the space below. Do not include the % sign.]
97	I would not be willing to pay anything extra
98	Don't know

New Page: [GHG Emission Reductions – Introduction]

Enbridge Gas' plans continue to place more emphasis on preparing for the future. This means that Enbridge Gas is looking at ways in which it can **support federal, provincial, and municipal goals**, as well as its **own organization goals**, to reduce greenhouse gas (GHG) emissions and achieve net zero targets.

- Federal targets are to reduce GHG emissions by 40-45% by 2030 over 2005 levels and to reach Net Zero GHG emissions by 2050.
- Provincial target is to reduce GHG emissions by 30% by 2030 over 2005 levels.
- Various municipalities have set interim and Net Zero GHG targets.
- Enbridge Inc. targets:
  - Reduce GHG emission intensity from its own operations, by 35% by 2030 over 2018 levels;
  - Reach Net Zero GHG emissions by 2050.

Enbridge Gas must therefore consider GHG emissions from its own operations and would like to ask you some questions about this.

Q40. As Enbridge Gas considers different projects and opportunities for GHG emissions reductions, it will have to consider several different things, such as costs, emissions reduction potential, timing, and technical feasibility. When Enbridge Gas has to decide which projects to implement, which of the following is the **most important** to you?

[USE THE SAME RANDOMIZATION ORDER AT Q41]

01	The cost effectiveness of the project – projects with the lowest relative cost of the project compared to the GHG emission reductions it achieves (i.e., the lowest cost per tonne of reductions).	
02	The timing of the project – projects that can be implemented the soonest.	
03	The total GHG emissions of the project – projects that reduce the most amount of GHG emissions.	

04	**(ANCHOR)** Enbridge Gas should not pursue any GHG emission reduction projects.	**[SKIP TO NEXT SECTION]**
98	Don't know	**[SKIP TO NEXT SECTION]**

Q41. **Second most important**?

[INSERT LIST, REMOVE ITEM SELECTED AT Q40 AN04]

New Page: [Compressor Stations – fuel costs only]

Enbridge Gas has 50 compressors and supporting equipment. These are required to move gas along the transmission system and inject it into and out of storage.

Compressors need energy to operate. Enbridge Gas has the opportunity to **reduce its greenhouse gas (GHG) emissions by using renewable natural gas (RNG) to operate its compressors** in the place of conventional natural gas. This is currently the largest opportunity for Enbridge Gas to reduce its own GHG emissions.

RNG is derived from organic waste from farms, landfills, and water treatment plants and is considered to be carbon neutral. Using it instead of conventional natural gas would reduce GHG emissions and help meet climate change targets, however, it will also increase Enbridge Gas' operational costs because RNG is more expensive than conventional natural gas.

Q42. Which of the following is closest to your point of view?

[ROTATE 01 AND 03]

01	Enbridge Gas should replace **100%** of the conventional natural gas it uses for its compressors with renewable natural gas, which would cost the average **residential/business** customer **$22.30 / 0.23%** more per year and will help reduce emissions by 275,000 tCO2e, which is equivalent to taking 57,900 cars off the road for a year.
02	Enbridge Gas should replace **50%** of the conventional natural gas with renewable natural gas, which would cost the average **residential/business** customer **$11.15 / 0.11%** more per year, and will help reduce emissions by 138,000 tCO2e, which is equivalent to taking 29,000 cars off the road for a year.
03	Enbridge Gas should replace **25%** of the conventional natural gas with renewable natural gas, which would cost the average **residential/business** customer **$5.59 / 0.06%** more per year, and will help reduce emissions by 69,000 tCO2e, which is equivalent to taking 14,500 cars off the road for a year.
04	Enbridge Gas should keep using conventional natural gas, or the most cost-effective option available at the time.

05	Enbridge Gas should consider another % of renewable natural gas, such as: _____%
97	I don't have an opinion on this
98	Don't know

New Page: [Real Estate and Workplace Services – Net Zero Buildings]

Another opportunity for GHG emissions reductions is from **Enbridge Gas' buildings**.

Enbridge Gas uses more than 80 facilities (administration and operations centres as well as depots) across Ontario ranging in both age and size to support its work and operations.

Enbridge Gas is considering some major building projects, and it has to make the choice of whether to build to current Ontario Building Code (OBC) and energy standards or to exceed them in an effort to further reduce energy use and GHG emissions.

This includes the new build of one of Enbridge Gas' operations centres (which is currently too small and inefficient and does not meet the needs of the business). Estimates for this **new build project** shows that upgrading the conventional design option to a Net-Zero design option would cost the average **residential/business** customer **$0.04 / 0.0004%** each year.

Note that these new buildings are necessary and not building is not a cost-effective option.

Q43. Which of the following is closest to your point of view?

[RANDOMIZE 01 AND 02]

01	Enbridge Gas should build only to current standards and requirements, and not spend anything extra to reduce GHG emissions.
02	Enbridge Gas should seek to exceed current standards and build to Net Zero standards, and thereby improve the energy efficiency and increase GHG reductions. This would cost the average **residential/business** customer **$0.04 / 0.0004%** each year.
97	I don't have an opinion on this
98	Don't know

New Page: [GHG Emissions Reductions – Other]

Enbridge Gas has provided some specific examples of GHG emission reduction opportunities earlier in this survey. There are **other opportunities** available as well, however, in most cases this might incur more costs compared with doing business as usual.

Examples of further emission reduction opportunities include reducing vented gas (such as gas released to the atmosphere during maintenance activities), reducing the amount of natural gas that is burned as part of its operations, and electrification.

Q44. Generally, how much more, if anything, would you be willing to pay for Enbridge Gas to invest in further GHG emission reduction opportunities across its operations?

[RANDOMIZE SCALE IN ASCENDING VS DESCENDING ORDER] Residential response choices are in blue / Commercial response choices are in red

01	$1.00/month or $12.00 extra per year / 2% added to the delivery portion of your bill
02	$2.00/month or $24.00 extra per year / 4% added to the delivery portion of your bill
03	$4.00/month or $48.00 extra per year / 8% added to the delivery portion of your bill
04	$10.00/month or $120.00 extra per year / 10% added to the delivery portion of your bill
88	Some other amount per month [**ON-SCREEN INSTRUCTION: [RES]** Please enter a numeric response in the space below. You may use a decimal point, but do not include a dollar sign. **[BUS]** Please enter a numeric response in the space below. Do not include the % sign.]
05	I would not be willing to pay anything extra
98	Don't know

G. ADDITIONAL COMMENTS

New Page: Additional Comments

Q45. Is there anything that you would like to share with Enbridge Gas as it works on building its business plan?

[OPEN-ENDED]

01	OPEN
99	Prefer not to respond

H. RESIDENTIAL DEMOGRAPHICS

New Page: Residential Demographics

[ASK ONLY IF CUSTOMER=1 (RESIDENTIAL)]

These last few questions are for statistical purposes only, and all of your responses are confidential.

To what extent do you agree or disagree with the following statements?

01	Completely agree
02	Somewhat agree
03	Neither agree nor disagree
04	Somewhat disagree
05	Completely disagree
98	Don't know

Q46. The cost of my Enbridge Gas bill has a major impact on my finances and requires I do without some other important priorities.

Q47. Customers are well served by the energy system in Ontario.

[END BATTERY]

Q48. Including yourself, how many people in total live in your household?

	[RANGE 1 TO 100]
99	Prefer not to answer

Q49. Which of the following best describes your total annual household income (after taxes)?

01	$28,000 or less	**[COMBINE WITH HHSIZE TO DETERMINE LEAP QUALIFICATION]**
02	Between $28,001 and $39,000	
03	Between $39,001 and $48,000	
04	Between $48,001 and $52,000	
05	Between $52,001 and $72,000	
06	Between $72,001 and $81,300	
07	Between $81,301 and $90,500	
08	Over $90,500	
99	Prefer not to answer	

Q50. Are you an Indigenous person, that is First Nations (North American Indian), Métis or Inuk (Inuit)? Please select all that apply.

01	No, not an Indigenous person	**M.E**
02	Yes, First Nations	
03	Yes, Métis	

04	Yes, Inuk (Inuit)	
98	Don’t know	**M.E**
99	Prefer not to answer	

I. FIRMOGRAPHICS

New Page: Firmographics

[ASK ONLY IF CUSTOMER=2 (COMMERCIAL)]

To what extent do you agree or disagree with the following statements?

01	Completely agree
02	Somewhat agree
03	Neither agree nor disagree
04	Somewhat disagree
05	Completely disagree
98	Don't know

Q51. The cost of my Enbridge Gas bill has a major impact on my business' finances and requires the business do without some other important priorities.

Q52. Customers are well served by the energy system in Ontario.

[END BATTERY]

Q53. Approximately how many employees, including yourself, does your company presently employ at this location?

[RANGE 1-999999]

98	Don't know

Q54. How do you use natural gas at your organization? Please select all that apply..

01	Natural gas is used in production process
02	Natural gas is used as feedstock
03	Natural gas is used for heating or space conditioning
04	Natural gas is used for water heating
88	Other (Please specify)
98	Don't know

J. DIAGNOSTICS

New Page: Diagnostics

Q55. Overall, did you have a favourable or unfavourable impression of the survey you just completed?

01	Very favourable
02	Somewhat favourable
03	Somewhat unfavourable
04	Very unfavourable
98	Don't know

Q56. In this survey, do you feel that Enbridge Gas provided too much information, not enough, or just the right amount?

[ROTATE 1 AND 3]

01	Too little information
02	Just the right amount of information
03	Too much information
98	Don't know

K. THE END

New Page: The End

Those are all the questions we have for you. It is greatly appreciated and very helpful that you took the time to help us serve you better. On behalf of Enbridge Gas, thank you.

[ASK ONLY IF CUSTOMER=2 (COMMERCIAL)]

In order to make sure we are entering the correct person in the prize draw, may I please get your full name and mailing address?

FIRST NAME
LAST NAME
STREET ADDRESS
CITY
POSTAL CODE
PHONE NUMBER
[PROVIDE OPTION TO REFUSE INCENTIVE]