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February 7, 2025

Nancy Marconi
Registrar
Ontario Energy Board
2300 Yonge Street, Suite 2700
Toronto, ON M4P 1E4

Dear Nancy Marconi,

Re: Enbridge Gas Inc. ("Enbridge Gas" or the "Company")
Ontario Energy Board ("OEB") File No. EB-2024-0200
St. Laurent Pipeline Replacement Project
Reply Submissions

In accordance with Procedural Order No. 6, please find attached Enbridge Gas's Reply Submissions in the above-noted proceeding.

Sincerely,

Patricia Squires

Patricia Squires
Manager, Regulatory Applications – Leave to Construct

Cc: Zora Crnojacki (OEB Staff)
Charles Keizer (Torys)
Arlen Sternberg (Torys)
Intervenors (EB-2024-0200)

ONTARIO ENERGY BOARD

IN THE MATTER OF the *Ontario Energy Board Act, 1998*, S.O. 1998, c. 15, Sched. B, as amended;

AND IN THE MATTER OF an Application by Enbridge Gas Inc. for an order granting leave to construct in the City of Ottawa under section 90 of the Act, and approving the forms of Working Area Agreement and Transfer of Easement agreement under section 97 of the Act.

ENBRIDGE GAS INC.

REPLY ARGUMENT

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APPENDIX 1

A. OVERVIEW

1. This is an application for leave to construct the St. Laurent Pipeline (SLP) Replacement Project in Ottawa (the Project). The SLP is a 65+ year old pipeline that is critical infrastructure as it provides natural gas service to the National Capital Region and surrounding areas, serving approximately 168,000 residential, commercial and institutional customers (e.g. hospitals, the Parliament building). The extensive evidence in the record establishes the need for this project, and that it is in the public interest to grant leave to construct.

2. Since the time of the prior OEB decision denying leave to construct the project (EB-2020-0293) – on the basis that Enbridge Gas had not sufficiently assessed the need for replacement or the potential remedial alternatives at that time -- Enbridge Gas implemented a targeted integrity program to comprehensively examine the condition of the SLP and a quantitative risk assessment (which was validated by a third party expert) to determine the need for remedial action.

3. These examinations and assessments showed that the condition of the SLP is significantly deteriorated, resulting in serious public safety and operability risks – risks, involving potentially disastrous consequences, that are heightened by the urban and dense location of the SLP in the City of Ottawa. Accordingly, there is urgent need for timely and permanent remedial action to be taken at this stage to ensure continued safe and reliable operation of the pipeline. The technical regulator in Ontario, the Technical Standards and Safety Authority (TSSA), also conducted a review of Enbridge Gas's project and concluded and directed that Enbridge Gas is required to take remedial action.

4. Enbridge Gas conducted an extensive, multi-faceted review of potential alternatives to address the need – a review that considered a number of factors, including public safety and residual risks, public disruption and nuisance, and financial assessment, among others. The review determined that replacement of the SLP is by far the best and most economical solution to mitigate the safety and operability risks associated with the current condition of the pipeline. It is in fact the *only* solution that will reliably

reduce the level of risk to an acceptable level to ensure continued safe pipeline operation now and into the future, and is also the most economic option for ratepayers. It is the preferable alternative on each of the key dimensions that were considered, in some cases by orders of magnitude.

5. Based on all the evidence in the record – which includes significant pre-filed evidence, interrogatories, 2.5 days of technical conference evidence (including a ½ day questioning of two of the external expert witnesses) and many undertaking responses -- there is now widespread acknowledgment among the other parties that Enbridge Gas has demonstrated the need for comprehensive remedial action to be taken to address the deteriorated condition of the SLP. There is also support or no objection from a number of other parties for the proposed pipeline replacement.

6. Notably, OEB staff – who itself retained an external expert technical and risk assessment consultant to assist with its consideration of the application -- has taken the position that the OEB should allow this application and grant leave to construct the replacement pipeline. Energy Probe also supports the replacement of the pipeline. And importantly, the City of Ottawa itself, who was an intervenor, has not raised any objection to or concern with the proposed project, and neither has the IESO.

7. The concerns raised by the remaining intervenors are mainly focused on the project alternatives topic, and principally raise questions or concerns about one factor in the assessment: the financial assessment. They question certain details of it to suggest that perhaps the extensive inspection and repair alternative could be appropriate or warrant further consideration. Their questions or concerns, however, have been fully answered by Enbridge Gas and are not supported by the evidence. And those intervenors largely ignore or gloss over other important factors in the assessment, which strongly demonstrate that replacement of the pipeline is warranted and needed. This includes the paramount factor of ensuring public safety and the continued reliable operation of the pipeline. Further, the financial assessment does not in fact favour any other alternative, nor could that factor displace the need for pipeline replacement in any event.

8. In the sections below, after providing context facts regarding the SLP system and prior applications, we first address the need for the project and then project alternatives (addressing Enbridge Gas's position and the main supporting reasons/evidence it relies on, and then responding specifically to intervenors' positions and arguments within each issue). After addressing those two main issues, we briefly address the remaining standard issues as need be.

9. We also note at the outset that, in their submissions, certain intervenors have addressed points that go beyond the scope of this LTC proceeding and are not germane to deciding the issues in this application. We have endeavoured to only respond to points that are relevant and helpful to the OEB in the analysis of the issues. Also, some intervenors, and in particular Pollution Probe (PP) and CAFES Ottawa (who are represented by the same consultant), have included in their submissions many factual errors or misleading statements not supported by the evidence and in some instances have attempted to include new facts or evidence not in the record. While we have not expressly responded to each such instance of this, Enbridge Gas does not agree with them and silence does not imply otherwise. Enbridge Gas has provided in Appendix 1 a sample of some of the factual errors or misleading statements included in PP and CAFES Ottawa's submissions for illustrative purposes. We ask the OEB to take this into account as it considers their submissions and whether to give them any weight on various points.

B. THE SLP SYSTEM

10. The SLP system is a critical component of Enbridge Gas's natural gas distribution network in the National Capital Region. It is an integral part of the network that supplies, directly or indirectly, natural gas to approximately 168,000 customers in the City of Ottawa and in Gatineau, Quebec, including homes, businesses, industries and institutions. The SLP system is part of the network that supplies energy to vital resources, including the RCMP, hospitals, Department of National Defense,

Parliament, and Cliff Street heating plant that are of importance to the economy and needs of the region.[1]

11. The SLP system is over 65 years old and operates at a pressure class designated by Enbridge Gas as extra high pressure (XHP). It was originally commissioned between 1958 and 1959. The SLP is supplied from a single source, the St. Laurent Control Station, and consists of steel mains primarily installed in 1958. It was originally commissioned at a pressure of 1,200 kPa (175 psi). Due to an increase in demand from new and existing customers fed by this pipeline, a pressure elevation was then completed in 1985 to significantly increase the pressure of the pipeline to 1,900 kPa (275 psi), which is its current operating pressure. The SLP system feeds ten district regulating stations, two large control stations, several private header stations, a natural gas fired electricity generation plant, besides the large population of residential, commercial and industrial customers.[2]

12. The SLP system, and specifically the section of pipeline that is the subject of this application, is located in an urban environment, in the City of Ottawa. The XHP pipeline Enbridge Gas seeks to replace is located along St. Laurent Boulevard, Sandridge Road and Tremblay Road – an environment with dense population, businesses and infrastructure. This includes residential areas, schools, hospitals and commercial establishments along St. Laurent Boulevard.[3]

13. This urban environment substantially elevates the risk of injury, property damage and disruption to the city if there were to be a leak incident, in comparison to other, rural pipeline settings. This is an important contextual point to keep in mind, that impacts the risk analysis.[4]

[1] Ex. A-2-2, para. 9, p. 6; Ex. B-1-1, para. 11, p. 5.
[2] Ex. A-2-2, para. 9, p. 6; Ex. B-1-1, para. 10, p. 4.
[3] Ex. B-1-1, paras. 1, 47(d), p. 1, 32.
[4] Ex. B-1-1, paras. 1, 47(d), p. 1, 32.

C. THE PRIOR APPLICATION IN RESPECT OF THE SLP SYSTEM

14. In 2021, Enbridge Gas filed a prior application in respect of the Project (EB-2020-0293). In its 2022 decision (the "Prior Decision"), the OEB denied the application on the basis that it was not satisfied, at that stage and based on the evidence filed at the time, that Enbridge Gas had sufficiently demonstrated that the need to replace the pipeline was urgent, or that it had sufficiently assessed the alternatives, and the OEB directed that further assessment should take place. The OEB stated:

> "…the need for the Project and the alternatives to the Project have not been appropriately assessed. Enbridge Gas has not demonstrated that the Pipeline integrity is compromised, and that pipeline replacement is required at this time. The OEB urges Enbridge Gas to thoroughly examine other alternatives such as the development and implementation of an in-line inspection and maintenance program using available modern technology, and propose appropriate action based on its finding as part of its next rebasing application."[5]

15. The OEB also stated: "The OEB suggests that Enbridge Gas take a proactive approach to inspecting and maintaining the subject pipeline until it can be demonstrated that pipeline replacement is necessary. This may include development and implementation of an in-line inspection and maintenance program using available modern technology…"[6]

16. Consistent with and responsive to the OEB's direction from the Prior Decision, Enbridge Gas subsequently conducted inspections and obtained extensive physical evidence to help assess the condition and operating risk of the SLP system to the public. These steps and the results of these assessments led to Enbridge Gas's decision to file this further application at this stage, and are described below.

D. PROJECT NEED

17. The extensive physical inspections and assessments carried out by Enbridge Gas since the time of the Prior Decision clearly demonstrate the need for this project. They show there is urgent need for significant remedial action to be taken to address the

[5] EB-2020-0293, OEB Decision and Order, May 3, 2022, p. 3.
[6] Supra, p. 15.

deteriorated condition of the SLP system from both a safety and operability perspective.[7]

18. Since the Prior Decision, Enbridge Gas has undertaken an extensive further examination of the condition of the existing SLP using the most current available technology and risk assessment techniques. Specifically, beginning in June 2022 a Targeted Integrity Program was implemented to assess the reliability and condition of the SLP. The assessment incorporated pipeline-specific data from in-line inspections and various field inspections, employed advanced reliability and risk models for a quantitative threat evaluation and assessed consequences using local factors like population and building densities. This approach provided a robust framework for determining the pipeline's current condition and risk levels, and determining the need for mitigation – much more so than the assessments that had been done in the past, which were largely based on opportunistic historical records. Enbridge Gas also then obtained a review and opinion from the technical regulator, TSSA (Technical Standards & Safety Authority), in respect of the need for remedial action to be taken.[8]

19. The above steps represent the most thorough asset condition and risk assessment completed on a distribution pipeline to date at Enbridge Gas[9]. Specifically, Enbridge Gas:

- utilized modern technology to in-line inspect many portions of the pipeline to detect and size measurable pipeline defects that exist on the SLP;
- supplemented the in-line inspection with in-field non-destructive examination (NDE), lab in-line inspection (ILI) validation testing, and lab evaluations of pipe material samples; and
- conducted a Quantitative Risk Assessment (QRA), which analyzed potential threats and consequence impacts on the pipeline system and the public to gauge the risk

[7] Ex. A-2-2, para. 3, p. 2.
[8] Ex. A-2-2, para. 2, p. 1; B-1-1, para. 2, p. 1; Ex. I-Staff-12.
[9] Ex. I.1-PP-6, part (a).

levels against both company and industry standards. And to ensure accuracy and objectivity of the assessment, Enbridge Gas took the further step of having an independent third-party expert conduct a review and validation of the assessment.[10]

In-Line Inspection Results

20. Six separate robotic crawler ILIs were completed at various locations along the SLP, capturing detailed condition data on 4.5 kms (40%) of the total pipeline system. The inspection areas were chosen to provide sufficient coverage of the pipeline to provide a statistically significant sample size to assess the condition of the pipeline, and these sections were determined to represent the overall condition of the line based on design and historical evidence.[11]

21. These inspections identified a total of 611 metal loss features in these sections of the pipeline. The ILI analysis indicated an average corrosion density of 138 features/km, or over one active corrosion feature for every 10 metres of pipe, with many features reported with depths of 40% or more of the wall thickness. And a total of 386 dent features were identified, with several likely due to unreported previous third-party damage. The calculated third-party interference hazard rate is within the highest 17% of hazard rates for mains within the Enbridge Gas distribution system. Further details of the ILI inspection results are contained in Exhibit B-1-1.[12]

22. The above is a summary of features the ILI crawler tool detected, but it is important to note that this technology is unable to detect certain types of features or measure the full extent of wall loss beyond a certain threshold, so the above results under-represent the actual number and extent of all features potentially present in the pipeline. In fact, we know the actual corrosion density is much higher, as the tool could not identify more than half of the features identified through subsequent field inspections. And some of those unidentified features included deep gouges on the pipeline involving significant metal loss. Due to the axial orientation of the tool, it is

[10] Ex. B-1-1, paras. 4-6, p. 2; Ex. I-Staff-1.
[11] Ex. B-1-1, para. 16, p. 8, and Figure 2, p. 9.
[12] Ex. A-2-2, para. 3, p. 2; B-1-1, paras. 18-21, p. 9-11; Ex. I.1-FRPO-7.

generally unable to detect and size axially oriented features, such as corrosion that is preferential to the long seam (i.e. selective seam weld corrosion). This type of corrosion is of particular concern in pipelines of a similar vintage to the SLP due to the applicable pipe manufacturing processes.[13]

Field Excavations and Additional Examinations Results

23. The results of the field excavations and additional examinations enhanced Enbridge Gas's understanding of the condition of the pipeline.

24. A direct field evaluation of the pipeline was performed by an NDE vendor at 13 specific, accessible locations. During these field inspections, and although they only involved a limited span of pipeline segments, a large number of features were identified. These results highlight the prevalence of corrosion, dent damage or other anomalies within the SLP.[14]

25. In particular, during these field inspections (in just these limited portions of the pipeline), 212 anomalies were identified, including corrosion, gouging, arc burns, and welding defects. Over 100 of these were considered significant and necessitated pipeline repairs, including an emergency repair that was required involving abandoning and replacing a 162-metre pipeline section at one site due to detected metal loss equal to or exceeding 80% of the wall thickness (beneath the on-ramp to King's Highway 417 adjacent to Tremblay Road). These findings are detailed in Exhibit B-1-1. [15]

26. These inspections demonstrate the deteriorated and compromised condition of the SLP, and the existence of many types of anomalies that could potentially lead to pipeline failure.[16]

[13] Ex. B-1-1, paras. 24-25, 28 p. 13-15; and Transcript, October 31, 2024, p. 152-153.
[14] Ex. B-1-1, paras.32, 34-35, p. 16, 18.
[15] Ex. B-1-1, paras. 31-35, p. 16-18.
[16] Supra note immediately above.

27. Any leak in a pipeline, especially a high-pressure pipeline in an urban area, like the SLP, poses a risk of catastrophic consequences. From a corrosion threat perspective, the primary safety concern is the potential for gas migration into nearby buildings, followed by ignition, which could potentially result in a building explosion. In respect of third-party damage to the pipeline, the main safety risk is the possibility of direct ignition at the damage site, resulting in a jet fire. The potential explosion rate or jet fire rate associated with the SLP, based on the Targeted Integrity Program findings, have been deemed unacceptable compared to both Enbridge Gas and industry standards, especially when taking into account that those types of events can typically result in fatalities:

> Enbridge Gas has calculated the frequency of catastrophic incidents, such as building explosions due to gas migration (5.0E-4 events per year) and ignited jet fires (7.6E-4 events per year), for the SLP as part of its Quantitative Risk Assessment (Exhibit B, Tab 1, Schedule 1, Attachment 2). While these frequencies may seem low, the high consequences and public safety impacts make them significant. To provide further context, if Enbridge Gas were to operate its entire distribution steel main pipeline network (approximately 30,000 km) at these same risk levels as the SLP, it could expect approximately 1.34 building explosions and 2 ignited jet fires annually.[17]

Integrity Issues are of Heightened Concern in this Context

28. The location and operating parameters of this pipeline heighten the integrity concerns and risks, especially compared to a lower pressure distribution line in a different location. These factors include, but are not limited to, the following:

- operating pressure – the operating pressure of the SLP greatly exceeds that of typical lower pressure lines, which significantly increases the energy released during a leak and thus the risk of material damage and risk to public safety;

- urban location – the location of the SLP (in particular along the St. Laurent Boulevard) means that the consequences of a pipeline leak can be far reaching, with elevated risk of serious injury and property damage;

[17] Ex. I.1-Staff-8.

- hard surfaces/ice build-up/migration of gas to ignition sources – the location of the SLP features extensive hard surfaces (roads, sidewalks, buildings) meaning that, in the event of a leak, escaping gas can more easily migrate to confined spaces between hard surfaces, resulting in increased risk of gas buildup to explosive levels – and Ottawa's cold climate, with likelihood of ice build-up, exacerbates these concerns, as does the close proximity of more ignition sources in this context (pilot lights, electrical equipment, vehicles); and

- operational impacts and disruption to public – if emergency repairs force an unplanned outage, customer losses could be in the order of tens of thousands, including key critical infrastructure customers in the City of Ottawa such as hospitals, Parliament, University of Ottawa or others. Emergency repair activities have the potential to disrupt traffic along significant motorways such as Highway 417 and St. Laurent Boulevard.[18]

The Quantitative Risk Assessment (QRA) and Expert Validation

29. Using the gathered condition data, a QRA was completed to assess the level of risk of the SLP system. The QRA utilized industry-standard reliability methods and published failure rates to comprehensively assess all threats to the pipeline.[19]

30. This assessment concluded that 8.8 km of the 11.2 km pipeline (79%) fail the acceptable CSA Z662-Annex O reliability thresholds. OEB staff indicates that these targets "can serve as a crucial benchmark for assessing the pipeline's reliability under these conditions."[20] Several segments fail these thresholds by orders of magnitude, and the segments that fail the Leakage Limit State target threshold defined by CSA Z662-Annex O are distributed along the pipeline length. Also, the rate of estimated significant incidents on the SLP is over 2,500 times higher than the historical average observed in the industry for similar pipelines. Thus, the risk associated with the current operation of the SLP significantly exceeds industry benchmarks in this regard.[21]

[18] Ex. B-1-1, para. 47, p. 29-32.
[19] Ex. B-1-1, para. 49, p. 33.
[20] OEB staff Argument, p. 17.
[21] Ex. B-1-1, para. 50-59, p. 33-39; QRA Report, Ex. B-1-1 Attachment 2, p.1-91.

31. Further, the pipeline risks plotted on the Enbridge Inc. Standard Operational Risk Assessment Matrix show that many of the operational disruption, health and safety, and financial scenarios meet the definition of "high risk" or "very high risk". The findings of the QRA point decisively to the conclusion that urgent, significant mitigation is required. The details of the QRA are set out in Exhibit B-1-1, including the full QRA report at Attachment 2 of it.[22]

32. Enbridge Gas also retained outside expert DNV (an internationally recognized firm with specialized expertise in QRAs), to review the QRA methodology and results. DNV's review concluded that the methodologies used were consistent with standard industry practices. They further validated that the results of the assessment were accurate and aligned with the condition data, and agreed with the conclusion that remedial action is now required to improve the reliability of the SLP.[23]

The TSSA's Review and Direction

33. Since the time of filing the application, in connection with a Fuels Safety engineering consultation application, the TSSA has also now reviewed the condition of the SLP system and considered whether remedial steps need to be taken in respect of it. In doing so, the TSSA reviewed extensive documents, including a full copy of the pre-filed material in this LTC application.[24]

34. Based on its detailed review, the TSSA concluded and directed that Enbridge Gas is required to take further action to remediate the condition of the SLP system. The TSSA found that: "The risks associated with this pipeline have been identified by Enbridge in the inspection reports and other documentation provided. <u>The risks now need to be properly managed by Enbridge to remain in compliance with the CSA Z662-2019.</u> Therefore, based on the information provided in the aforementioned documents,

[22] Supra note immediately above.
[23] Ex. B-1-1, para. 53, p. 36; DNV Memorandum May 11, 2023, Ex. B-1-1, Attachment 3, p. 1-2; DNV Report, Ex. I.1-PP-24, Attachment 5; Ex. I.1-PP-2.
[24] Letter from the TSSA to Enbridge September 20, 2024, Ex. 1-Staff-12, Attachment 2.

actions shall be taken by Enbridge to remediate the condition of the St. Laurent pipeline." (emphasis added)

35. Therefore, not only do the other above factors and evidence strongly establish the need for this project, but the technical and safety standards regulator of pipelines has now directed that there is need for Enbridge Gas to take remedial actions. Put simply, the status quo -- with the significant risks and deteriorated condition of this pipeline -- cannot be allowed to remain. Enbridge Gas cannot permit unacceptable risks to public safety and operational reliability of this pipeline to continue, particularly in this urban context, in the nation's capital, and with the risk of potentially catastrophic consequences that could result from a leak – nor should the OEB require that the status quo remain in these circumstances.

Stakeholder Engagement

36. In addition to Enbridge Gas's extensive examination of the condition of the existing SLP as described above and in evidence, the Company was also responsive to the OEB's recommendation in the Prior Decision to work collaboratively with the City of Ottawa and other stakeholders to proactively plan a course of action for if and when pipeline replacement is required, including the pursuit of Integrated Resource Planning (IRP) alternatives.[25] Enbridge Gas's communication and consultation with City officials, City staff, the public and other stakeholders such as the IESO and Hydro Ottawa were documented and described in evidence, interrogatories and during the technical conference.[26]

Responses to OEB Staff and Intervenor Submissions

37. There is widespread acknowledgment and acceptance by OEB staff and most intervenors that the need for comprehensive remedial action has now been established on the record here. Only one intervenor appears to have actually taken

[25] EB-2020-0293, Decision and Order, May 3, 2022, p. 23.
[26] Ex. B-2-1 (including Attachment 1); Ex. I.1-CAFES Ottawa-10; and Transcript, October 31, 2024, p. 33-41 and 49-63.

issue with this conclusion, FRPO. Below we refer to the submissions of OEB staff and various intervenors and respond to the concern raised by FRPO.

38. OEB staff confirmed that "OEB staff recognizes the need to address the integrity related risks of the St. Laurent Pipeline", and that: "In conclusion, OEB staff submits that Enbridge Gas has demonstrated the need to take corrective action to address the condition of the existing SLP."[27]

39. In support of its position and conclusion, at pages 6-17 of its submissions, OEB staff detailed the various steps Enbridge Gas took to examine the condition of the SLP and conduct a comprehensive risk assessment, described above. OEB staff noted the serious integrity concerns that currently exist in respect of the pipeline and ways in which the pipeline fails to meet safety and reliability risk tolerance thresholds. OEB staff noted that the QRA involved applying three independent sets of standards to assess the risk and noted the expert evaluation that was also conducted by DNV in this regard (with which OEB staff confirmed it had no concerns). OEB staff further highlighted the review and conclusion by the TSSA that remedial actions need to be taken to address the deteriorated condition of the SLP.[28]

40. A number of intervenors also expressly recognized that Enbridge Gas has now demonstrated the need for the project. These include:

- SEC confirmed that: "SEC accepts that Enbridge has demonstrated the need for a comprehensive solution to address the safety and reliability concerns driven by the current condition of the St. Laurent Pipeline". SEC noted the "more robust analysis" Enbridge Gas conducted this time (compared to the prior application) and that SEC has now changed its position in respect of the need for the project based on the new information provided in support of the application.[29]

[27] OEB staff closing argument dated January 24, 2025 ("OEB staff Argument"), p. 3, 17.
[28] OEB staff Argument, p. 6-17.
[29] SEC closing argument dated January 24, 2025 ("SEC Argument"), p. 1, 3.

- Environmental Defence (ED) has acknowledged that "Enbridge has established that there is a need to take remedial steps with respect to this pipeline, whether that be a replacement or a repair program."[30]

- Energy Probe (EP) believes that Enbridge Gas has performed a thorough investigation of the integrity of the SLP system. Its QRA has established the need for immediate action to address the risks to health and safety and operational reliability of SLP.[31]

41. While the combined submissions of Pollution Probe (PP) and CAFES Ottawa suggested another alternative is appropriate, they did not take the position that there is no need for remedial action to be taken. We note they did make some incorrect factual assertions relating to the issue of need. For instance, they stated that "this project has been put forward for OEB consideration solely based on the SLP age and forecasted condition" and suggested this is the same basis as was put forward in the previous application.[32] This assertion is clearly and demonstrably false. As described in the sections further above, the bases and supporting evidence for this project, and establishing the need for it, are based on extensive physical evidence, inspections, and a quantitative risk assessment underpinned by the Target Integrity Program. In any event, the focus of the PP and CAFES Ottawa submissions is more so on the remedial alternatives (which we address further below).[33]

42. City of Ottawa. Importantly, the City of Ottawa (the City) itself was an intervenor and it did not file any submissions raising any concerns with or objections to this application. The City has not taken issue with the need for the project or with the proposed pipeline replacement to address the need. This is in contrast to the prior application, in which the City did file submissions raising an objection to the project at

[30] ED closing argument dated January 24, 2025 ("ED Argument"), p. 5.
[31] EP closing argument dated January 24, 2025 ("EP Argument"), p. 2.
[32] PP and CAFES Ottawa closing argument dated January 24, 2025 (PP and CAFES Ottawa Argument), p. 19.
[33] PP and CAFES Ottawa Argument, p. 5.

that time based on the prior record. If the City had any continuing concerns or objection to the project in this application, it presumably would have indicated so.

43. FRPO. While FRPO expressly acknowledged that Enbridge Gas "has done a better job of investigating and applying in-line inspection to evaluate the pipe", FRPO nonetheless raised some concern about Enbridge Gas's evaluation of the levels of risk. FRPO's concern is focused on the QRA and seems to be based on a misapprehension that it was "subjective" in nature – in this regard, FRPO focuses on one reference to "semi-quantitative consequence assessments", and on FRPO's understanding of the impact of one repair on the risk assessment.[34] FRPO's concern is not valid.

44. The QRA was a *quantitative* risk assessment that involved measuring the risks against three distinct evaluation criteria to determine the feasibility of the SLP for continued safe operation: (i) CSA Z662-19 Annex O reliability targets; (ii) PHMSA (Pipeline and Hazardous Material Safety Administration) Distribution Pipeline Significant Incidents Benchmark; and (iii) Enbridge's ORAM (Standard Operational Risk Assessment Matrix).[35]

45. The CSA Z662-19 Annex O and PHMSA evaluations were fully quantitative. Only the ORAM evaluation had some elements that were "semi-quantitative", in that various "consequences are determined by consulting with Subject Matter Experts (SMEs) and incorporating data-driven models, where available."[36] This in no way makes the overall QRA "subjective" in nature, contrary to the suggestion by FRPO.

46. FRPO also asserted that the integrity inspections conducted on 40% of the SLP only "found and repaired the one substantial threat" and that this just moved the risk assessment "imperceptibly", and so FRPO seeks to question the validity of the QRA on this basis. However, FRPO's assertion is not factually correct. There was not only

[34] FRPO's closing argument dated January 24, 2025 ("FRPO Argument"), p. 2-3.
[35] Ex. B-1-1, Attachment 2.
[36] Ex. B-1-1, Attachment 2, p. 51-58, Section 7.2.

one substantial threat revealed by the various integrity examinations. There were in fact many more. In paragraph 25 above, we referred to the extensive and high number of metal loss features and other anomalies that were discovered through the ILI inspections and other examinations of the SLP. FRPO is only referring to the most significant and severe anomaly that required repair on an emergency basis. In respect of the integrity dig field findings, for example, over 100 anomalies were considered significant, requiring repairs. FRPO's misleading assertion is not a basis to question the validity of the QRA results, and the fact that there weas a very large number of anomalies explains why the repair of one of them does not adjust the overall risk levels for the pipeline very much.[37]

47. FRPO goes further and suggests that its concern about the QRA "seems to be shared by DNV." That is not the case. As noted further above -- in paragraph 32 and described in OEB staff's submissions -- the QRA methodologies were evaluated by independent expert DNV, and DNV validated the methodologies and the conclusions of the QRA. DNV concluded that "additional detailed risk assessment is not considered necessary at this time or to significantly alter the risk categorization."[38] We also note that Enbridge Gas's technical evidence and QRA were considered/tested by OEB staff's consultant, Mr. Al-Dojayli of Kinectrics, who pointed out through questioning that the QRA results may actually *understate* the level of risk that exists (i.e. the actual level of risk may in fact be even higher in some respects).

> Mr. Al-Dojayli: … My point of raising these questions are – is to say that it is likely that the probability risk, if we consider all these factors, it is likely it would be higher?
>
> Mr. Safari: Yeah, you are absolutely correct.[39]

[37] Transcript, October 30, 2024, p. 93-96.
[38] FRPO Argument, p. 4; and DNV SLP Risk Review Memo, Ex. B-1-1, Attachment 3, p. 2.
[39] Transcript, October 31, 2024, p. 157.

48. Only PP and CAFES Ottawa made any submissions in respect of Enbridge Gas's stakeholder communications on the need for the Project. They make the inflammatory suggestion that the Company's information campaigns related to the Project "include speculative and incorrect statements… that do not accurately represent the facts of the current SLP or Enbridge's preferred Full Replacement option"[40]. There is absolutely no basis for this suggestion, and it is untrue – nor is PP and CAFES Ottawa able to point to instances of this.[41] The fact that the SLP requires attention and that the Company intends to replace it is clearly and consistently articulated across the communication materials filed as evidence in this proceeding.

49. PP and CAFES Ottawa also tries to suggest that there was "mixed reaction" within the City of Ottawa to its proposal to replace the SLP and that the City may not fully endorse the project. There is no proper foundation for this speculation. And most importantly, as noted above, the City of Ottawa is itself a registered intervenor in this proceeding and received all materials filed related to the Company's proposal to replace the SLP, and the City has not raised any concerns about or reservations regarding the Project at any time during this proceeding.

50. That is the best indication that the City has no objection to the proposed project (and it is irrelevant whether every member of the City is fully supportive on an individual basis or not). PP and CAFES Ottawa, of course, does not represent the City and is not authorized to speak on the City's behalf. These unsubstantiated suggestions by PP and CAFES Ottawa should be ignored.[42] [43]

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[40] PP and CAFES Ottawa Argument, p. 11.
[41] The only example PP and CAFES Ottawa tries to provide is a reference to a December 1, 2023 letter from Enbridge Gas to the City in which Enbridge Gas states that "the pipeline will be ready for the possible integration of low-carbon gases" (emphasis added), clearly noting with the word "possible" that the prospect of the SLP carrying low-carbon gases is still uncertain (Ex. I.1-CAFES Ottawa-10, Attachment 4).
[42] We also note that, contrary to PP and CAFES Ottawa's suggestion (at p. 12 of its argument), there is no such thing as a "normal support letter" from the municipality that is filed by the utility in these types of applications, particularly when the municipality has chosen to itself be a registered intervenor.
[43] PP and CAFES Ottawa Argument, p. 12.

Conclusion on Project Need

51. We submit, based on all of the evidence on this issue, including the results of the Targeted Integrity Program (ILI inspections and field and lab examinations) and the comprehensive QRA that was conducted by Enbridge Gas and was validated by DNV, that the need for the project has been well established – a conclusion accepted by OEB staff and most intervenors.

E. PROJECT ALTERNATIVES– PIPELINE REPLACEMENT IS APPROPRIATE

52. Enbridge Gas conducted an extensive review of alternatives to address the pressing need for remedial action on the SLP. The conclusion was that full replacement of the SLP (the "Replacement Option") is the best solution to mitigate the risks associated with the current condition of the pipeline. It reduces the level of risk to an acceptable level and is also the most economic option for ratepayers. It is preferable to the alternative extensive inspection and repair option (the "EI&R Option") on each of the key factors that were considered.[44]

The Multi-Faceted Assessment

53. A detailed and multi-faceted assessment of both the Full Replacement and EI&R Options was conducted, examining each of the following dimensions: (i) public safety and residual risks; (ii) public disruption and nuisance; (iii) financial assessment; (iv) uncertainty of plan and outcomes; and (v) other considerations. The assessment demonstrated that the Replacement Option is better in respect of each of these factors.[45]

<u>Public Safety and Residual Risks</u>

54. In respect of public safety and residual risk – a consideration of paramount importance -- there is a notable difference in the effectiveness of the two options. The Replacement Option will deliver the most substantial and sustained risk reduction,

[44] Ex. A-2-2, para. 6, p. 3-5.
[45] Ex. C-1-1, paras. 8-40, p. 7-21.

regarding both health and safety as well as operational reliability (and also from a financial risk perspective).

55. Risk reduction is many times greater with the Replacement Option compared to the EI&R Option, as shown in Table 3 and Figures 1 and 2 in Exhibit C-1-1. This analysis takes into account the Ultimate Limit State and Leakage Limit State reliability thresholds defined by CSA Z662 Annex O and the Enbridge Operational Risk Matrix. As noted in the evidence: "the risk reduction from [the EI&R] alternative is orders of magnitude inferior to the [Replacement Option] on key risk metrics…"[46]

56. As the evidence confirms, the two options "exhibit significantly different levels of residual risk and associated uncertainties" – and acceptable risk thresholds may still be exceeded with the EI&R Option, particularly beyond the short term. The conclusion on this consideration is that the Replacement Option "significantly enhances public safety and better manages residual risks, making it the best approach."[47]

Public Disruption and Nuisance

57. In respect of this factor, the Replacement Option is less disruptive and impactful to residents in Ottawa and is limited mainly to the short term (with the project's single construction project being strategically planned and scheduled to reduce public inconvenience). Whereas, by contrast, the EI&R Option would entail extensive and continuous smaller projects that would be more disruptive. It would involve numerous integrity-driven excavations and replacements along the heavily trafficked St. Laurent Boulevard. These frequent smaller scale projects would cause continual disturbances to local residences. The EI&R Option would also then require on-going inspections and repairs over the life of the asset, with ongoing construction expected to likely occur on a 7 year interval, causing significant ongoing traffic congestion and disruption for residents, particularly those who regularly use Hwy 417 or St. Laurent Boulevard for

[46] Ex. C-1-1, paras. 9-13, p. 7-11; Ex. I.2-ED-1.
[47] Ex. C-1-1, paras. 9-13, p. 7-11.

their daily commutes or to access residential, retail and commercial buildings in the area.[48]

Financial Assessment

58. The economics of each alternative were carefully assessed by determining the work and costs associated with the alternative and calculating the net present value (NPV). This financial assessment provided a quantitative basis for comparing the long-term economic implications of each alternative, to help identify the most cost-efficient option. This NPV analysis was completed utilizing multiple potential "useful lives" of pipeline, corresponding to the various years at which customers could potentially disconnect from the gas system, depending on the rate of electrification – taking into account the energy transition analysis that was also done.[49]

59. For each of the three alternative time horizons that were considered, the Replacement Option had a lower NPV and is thus the more cost-effective option than EI&R. In case A (63-year horizon) the Replacement Option has an NPV that is $119 million more favourable (i.e. less costly). In case B (42-year horizon), the Replacement Option is $45 million less costly. We note that the energy transition analysis (referred to further below) shows that the SLP system will still be needed to serve general service customers until 2102, or 78 years from now.[50]

60. Enbridge Gas also did a third NPV analysis with a useful life matching the most aggressive electrification scenario – which projects no gas customers by 2055 – even though that scenario appears to be extremely unlikely and unrealistic. Even in this scenario, case C (31-year horizon) shows that the Replacement Option is $6 million less costly.[51]

[48] Ex. C-1-1, paras. 15-18, p. 12-13.
[49] Ex. C-1-1, paras. 19, 24, p. 14-15.
[50] Ex. C-1-1, paras. 25-30, p. 15-17.
[51] Ex. C-1-1, paras. 31-33, p. 17-18.

61. Therefore, and as illustrated in Table 7 of Exhibit C-1-1, the evidence from the energy transition analysis supports the conclusion that the Replacement Option provides the best economic value for ratepayers given all of the plausible energy transition scenarios and potential useful lives of the pipeline – with this option being significantly more cost-effective in the time horizon scenarios that are most likely to occur and are realistic.[52]

Uncertainty and Other Considerations

62. The uncertainties associated with the EI&R Option make it less optimal than the Replacement Option as well, and certain other considerations also favour the Replacement Option, including other risk types and viability of the pipeline system to support future low-carbon initiatives. [53]

63. Each of the above dimensions of Enbridge Gas's alternatives assessment individually points to the Replacement Option as the best mitigation approach. Viewed collectively, they offer very compelling support for the Replacement Option, which is the more predictable and stable solution that provides the lowest level of residual risk and the best cost-effectiveness in the long term.

The Energy Transition Analysis Supports the Replacement Option

64. Enbridge Gas has analyzed the potential impacts of decarbonization and energy transition on the proposed SLP replacement project. This analysis, which includes probabilistic modeling of various scenarios by an independent third-party expert, shows that the SLP will still be needed for a number of decades, and supports the conclusion that the Replacement Option is appropriate.

65. Enbridge Gas considered the drivers and pace of electrification of general service customers in Ottawa. Enbridge Gas has reviewed and taken into account municipal, provincial and federal decarbonization policies, including the City of Ottawa's Climate

[52] Ex. C-1-1, para. 34 and Table 7, p. 18-19.
[53] Ex. C-1-1, paras. 35-39, 40, p. 19-21.

Plan and its current status. Enbridge Gas has also undertaken a quantitative analysis of the need for the capacity provided by the SLP using probabilistic analysis, conducted by independent expert Integral Engineering ("Integral"). Integral's modeling used a set of input assumptions and relied on Monte Carlo simulations to estimate a range of potential outcomes based on choice of action (i.e. a range of 15 scenarios regarding the rate at which residential general service customers could choose to adopt non-heating gas solutions (an electric heat pump) and exit the gas system).[54]

66. The results of Integral's probabilistic analysis demonstrate that residential general service customers will likely remain connected to the gas system beyond 2080, even in scenarios with aggressive heat pump adoption and disconnection assumptions, and that customers could remain connected to the gas system until 2100 when less aggressive disconnection assumptions are used. Even when the most aggressive – though unrealistic – assumptions are used, the SLP system would still be needed until at least 2055.[55]

67. Large Volume Contract Demand (LVCD) customers served by the SLP system generally fall into the institutional sector and include hospitals, medical research facilities, post-secondary institutions, and government. The gas supplied to these customers is critical for meeting their energy needs and the safe and reliable operation of their facilities. Enbridge Gas has undertaken an outreach with the LVCD customers served by the SLP system to understand their current and future energy needs. Based on the information these customers provided, Enbridge Gas expects little decline in LVCD customer demand until at least the 2040s. Natural gas is a critical part of these customers' energy mix and will remain so going forward.[56]

68. Accordingly, the energy transition analysis showed there is a very low chance of a rapid conversion off gas to electric options and/or a meaningful increase in gas

[54] Ex. B-3-1, paras. 5-23, p. 2-11; Integral Engineering Report dated May 3, 2024, Ex. B-3-1, Attachment 1.
[55] Ex. B-3-1, paras. 32-36, 62, p. 15-17 and 27; Integral Engineering Report, Ex. B-3-1, Attachment 1.
[56] Ex. B-3-1, paras. 37-43, 63, p. 17-19, 27.

disconnections in the short-to-medium term (5-15 years). In the long-term (out to 2050 and beyond) there is more uncertainty (including how policy could influence the rate of gas disconnections), but the analysis demonstrated that even under aggressive heat pump adoption and disconnection assumptions, customers would likely remain on the gas system beyond 2080. As a result, the capacity provided by the SLP system for customers in Ottawa is needed now and well into the future.[57]

Responses to OEB Staff and Intervenor Submissions

69. In respect of project alternatives, OEB staff has confirmed that it is supportive of the proposed Replacement Option and recommends that it be accepted by the OEB taking into account all of the relevant factors. It stated: "OEB staff submits that Enbridge Gas's evidence supports its proposal for an immediate pipeline replacement; and that the OEB should approve the application." In its submissions (at pages 17-29), OEB staff discussed – consistent with Enbridge Gas's position -- how from both a risk management and repair perspective and a financial perspective the Replacement Option is preferable to the EI&R Option.[58]

70. As noted, the City of Ottawa has raised no concern and made no objection to the proposed pipeline replacement.

71. Some intervenors, however -- based primarily on questions or concerns relating to certain aspects of the financial (NPV) assessment -- have suggested that the EI&R Option could be more appropriate or that it warrants further consideration. Those concerns are not well founded and are contrary to the evidence in the record. They also largely ignore the various other important factors that strongly favour the Replacement Option. We will address these points in the sections below.

[57] Ex. B-3-1, para. 66, p. 28.
[58] OEB staff Argument, p. 17-29.

Mitigating the Safety and Reliability Risk Should be the Primary Consideration

72. The intervenors who take issue with the Replacement Option (and prefer the EI&R Option) either ignore or gloss over the fact that the Replacement Option is by far the best option – by many orders of magnitude -- to address the safety and reliability risks. This fact is well-established by extensive and uncontradicted evidence on the record, as summarized further above, and is recognized in OEB staff's submissions.

73. That the Replacement Option is the only option that will sufficiently mitigate these important risks should be the primary consideration in the analysis and, on its own, demonstrates that it is the appropriate option, even before considering the financial comparison of the alternatives and other factors. Ensuring public safety has to be the main focus and principal objective, both for Enbridge Gas, and we submit for the OEB as well. The OEB has historically validated through their Decisions on past LTC applications that safety and reliability are of paramount importance in system renewal projects.[59]

74. In its submissions, OEB staff submitted that "in terms of risk management and repair, Alternative A – replacement, is favourable." OEB staff noted that the Replacement Option was selected by Enbridge Gas "based on the risk assessment and the high estimated failure rate of the existing SLP." It similarly confirmed that: "OEB staff submits that replacement of the existing pipeline is the best alternative to manage integrity and safety risks compared to intensive inspections and repairs."[60] We also note that OEB staff retained an external technical integrity consultant, Kinectrics, to assist it with this application – who considered the integrity and safety risks and

[59] For example, EB-2020-0136 Cherry to Bathurst OEB Decision: "The OEB finds that it is prudent for Enbridge Gas to proceed with the Project at this time given the age and deteriorating condition of the existing pipeline; delay would be unlikely to reduce the cost and could lead to the need for additional repairs. The evidence supports this as the most efficient, safest, and least disruptive approach." (p. 7). And, EB-2020-0192 London Lines OEB Decision: "To this end, the OEB finds that the age of the London Lines, the high operational risk presented as whole …and finally, the integrity management and reporting done by Enbridge Gas, all support the replacement of the Existing Pipelines as the most effective way of managing the required ongoing safety and reliability." (p. 11).
[60] OEB staff Argument, p. 19-20.

approaches for mitigation and participated in the technical conference to ask questions on behalf of OEB staff in this area.

75. Through the technical conference questioning conducted by Kinectrics, it was established that, in some respects the residual risks or frailties associated with the EI&R Option may be even greater than as presented in the pre-filed evidence. For example, as OEB staff noted in its submissions, "the reported material toughness of the vintage SLP pipes constitutes an added risk not reflected in repair costs and delays", and that in respect of repair challenges associated with pipe wall lamination: "although this can be considered a fabrication matter that Enbridge Gas was not able to control/detect 60 years ago, it should be viewed as a high-risk for repair considering the reported low toughness."[61] This further highlights how the Replacement Option is the best, and only practical option, to sufficiently mitigate the risk to acceptable levels.

76. Intervenors who do refer to the risk mitigation factor in addressing the alternatives issue -- a number of intervenors simply ignore this key factor -- address it only briefly and seek to gloss over it.

77. SEC briefly addressed this. It stated: "Enbridge's analysis indicates that while the reduction in risk under [the EI&R Option] would be considerably lower than that achieved through the Full Replacement option, it could meet the risk threshold."[62] SEC's position that the EI&R Option could meet the risk threshold is not supported by the evidence on the record. In fact, this suggestion by SEC is based on one part of an answer to one technical conference question, when the further portions of that response (which was in answer to an OEB staff question), along with a lot of other evidence in the record, clearly establishes that the EI&R Option is not an acceptable solution that can safely be relied on to mitigate the risk to acceptable levels. The

[61] OEB staff Argument, p. 20; Transcript, October 31, 2024, p. 137-162.
[62] SEC Argument, p. 4.

evidence establishes that this option is far inferior to the Replacement Option from this perspective.[63]

78. In the one technical conference exchange on which SEC seeks to rely, Enbridge Gas's witness (Mr. Safari) explains as follows:

> I just want to clarify that we have provided two alternatives in the evidence, but only the full-replacement option provides the necessary certainty in getting the necessary level of risk reduction as well as certainty in the feasibility.
>
> As I described previously, the EI&R, the extensive inspection and repair option, could conceivably meet those risk thresholds if all the various uncertainties and feasibility and risk that I mentioned previously result favourably. So our position is, yes, we have assigned and evaluated both alternatives.
>
> If we are trying to make a binary statement of whether they are both feasible with certainty, we believe that there is only one alternative, full replacement, that provides a certain result of the risk mitigation and the feasibility.[64]

79. PP and CAFES Ottawa referred to the EI&R Option as an alternative that is able to "plausibly mitigate the risks to a level that could be considered acceptable", referring to part of one technical conference answer.[65] In that answer, the Enbridge Gas witness confirmed that in its examination of possible remedial options, Enbridge Gas considered the various alternatives that could plausibly mitigate the risk, including the EI&R Option. He then again explained in that response that there are a number of uncertainties in respect of the EI&R Option that "relate to the residual risks and their tolerability and our ability to bring the system down to the level of risk that is required…as well as our ability to maintain that level of risk throughout the useful life of the asset."[66]

80. Enbridge Gas's witness pointed out that there are also "uncertainties around the feasibility and constructability of [the EI&R] option" (which he then touched on, and which were addressed in more detail in the written evidence). He then ended this

[63] Transcript, October 31, 2024, p. 133-134.
[64] Transcript, October 31, 2024, p. 134.
[65] PP and CAFES Ottawa Argument, p. 5.
[66] Transcript, October 31, 2024, p. 85-87.

technical conference exchange on feasibility of the EI&R Option by stating that "ultimately although that [EI&R Option]…is plausible there are a lot of uncertainties that exist and they would all have to work out or result favourably for it to end up becoming a feasible alternative."[67]

81. In terms of risk reduction, the pre-filed evidence quantified the levels of risk reduction from the Replacement Option compared to the EI&R Option, and confirmed the massive difference in the level of public safety and residual risk reduction (as well as the significant difference on other metrics as well). In respect of public safety and residual risk, the risk reduction table showed:[68]

Table 1
Alternatives and Risk Reduction Comparison

Dimension of Alternative Analysis	Metric		Full Replacement	Extensive Inspection and Repair
1. Public Safety and Residual Risk	Risk Reduction from Status-quo	Health and Safety	80x	10x
		Operational Reliability	150x	25x
		Financial[3]	5,000x	300x
	Risk Acceptability and Sustainment		• Residual risk substantially below limits and sustainable	• Residual risk at risk limits and transitory

82. In response to an interrogatory, Enbridge Gas further explained how the EI&R Option is not appropriate from a risk mitigation perspective over any time period. It confirmed: "While the [EI&R Option] offers some risk reduction from the status quo, to be clear: the risk reduction from this alternative is orders of magnitude inferior to [the Replacement Option] on key risk metrics (as illustrated by the Risk Reduction Comparison in Exhibit A, Tab 2, Schedule 2, Table 1), from year 1 of implementation. Given that the risk reduction from this alternative is barely tolerable and transitory at the outset, the uncertainties associated with [the EI&R Option] make it an inadequate

[67] Transcript, October 31, 2024, p. 86-87.
[68] Ex. A-2-2, p. 3, Table 1.

alternative to [the Replacement Option] measured over any time period." This interrogatory response goes on to describe the significant uncertainties with the EI&R Option which further increase the risks associated with it in an escalating way over time – impairing Enbridge Gas's ability to mitigate risk.[69]

83. In summary, for reasons explained above, the evidence in the record amply establishes that the Replacement Option is the only option that can reliably mitigate the risks to acceptable levels in order to ensure public safety and the continued reliable operation of the pipeline now and into the future (while also offering the lowest cost alternative and lowest levels of uncertainty, as addressed below).

Challenges to the Financial (NPV) Assessment

84. Some intervenors have questioned or critiqued certain elements of the financial (NPV) assessment in an effort to suggest that the Replacement Option might not end up being more cost-effective over the long term. However, the evidence demonstrates that Enbridge Gas did a detailed and careful assessment of the options and the costing of them, and it showed that the Replacement Option is more cost-effective and offers better financial certainty, even if one assumes an aggressively short transition of customers off of the gas system which is unlikely to actually occur. The questions and critiques by intervenors have been answered by Enbridge Gas. There is no proper foundation for a suggestion that the EI&R Option is preferable from a financial perspective, and certainly not in any way that could tip the scale in favour of that option over the Replacement Option.

85. As referred to at paragraphs 58 to 61 above, the NPV analysis confirmed that the Replacement Option is more cost-effective over all three of the time horizons that were considered, i.e. the 31 year, 42 year, and 63 year scenarios. This is also noted by OEB staff in its submissions.[70]

[69] Ex. I.2-ED-1.
[70] OEB staff Argument, p. 22.

86. Certain intervenors have questioned or taken issue with these elements of the NPV analysis: (i) how future regular inspection work was treated (and whether a fair comparison was done between the two options); (ii) the escalation (or inflation) rates that were used for certain work in the EI&R Option; (iii) the cost estimate for future robotic inspections; and (iv) the value of flexibility or spending money over time associated with the EI&R Option (or the 'planning value' in this regard).

The Treatment of Regular Inspection Work

87. SEC suggests, based on its understanding, that the treatment of repair costs in the two options is not a fair comparison and results in the costs of the EI&R Option being somewhat overstated. SEC states that the costs of the EI&R Option "should only account for *incremental* inspection and repair costs compared to the Full Replacement Option. Some of the planned inspection and repair work, specifically the ILI crawler inspections and integrity digs included in the forecast, would likely have been required under either scenario."[71] SEC's understanding is not correct.

88. PP and CAFES Ottawa makes a similar submission, suggesting that there is "inconsistent treatment of the same types of Inspection and Maintenance costs between the two options,"[72] which is incorrect, and worse, they go on to propose their own, random, unsubstantiated cost adder for the Replacement Option.

89. First off, all regularly scheduled inspections (e.g., valve inspections, cathodic protection, etc.) would be common across both options, and therefore only *incremental* costs were included in the financial assessment comparing the options – this is consistent with what SEC suggests should be the case.[73]

90. Second, it is expected the Replacement Option does not in fact require ILI crawler inspections and integrity digs. It will be a brand new pipeline built to current specifications, and would not meet Enbridge Gas's criteria for ongoing ILI campaigns.

[71] SEC Argument, p. 5.
[72] PP and CAFES Ottawa Argument, p. 37.
[73] Transcript, October 31, 2024, p. 113-114.

SEC's and PP and CAFES Ottawa's understanding is therefore incorrect on this point. The treatment of repair costs was appropriate and in a fair manner for purposes of comparing the two options.[74]

91. PP and CAFES Ottawa also submits, without any supporting evidence, that the costs related to the EI&R scenario are "simply inflated guesstimates" with "a low probability of occurring as projected by Enbridge,"[75] and therefore a discount factor should somehow be applied to these costs. Enbridge Gas provided an extensive and detailed cost breakdown for both the Replacement and EI&R Options in response to an OEB staff interrogatory[76] which included itemized tasks, assumptions, cost type (capital/O&M), year of expenditure, and unit and total costs among other inputs and assumptions. This was based on Enbridge Gas's years of experience and intimate familiarity with these work types and costs, clearly demonstrating that these were not "guesstimates." Further, on the probability of occurrence, the evidence shows that any uncertainty in these cost estimates for the EI&R Option points to a risk that the costs may be higher, not lower, than presented, for a number of reasons (including that the entirety of the pipeline has not been in-line inspected). [77]

92. In addition, contrary to PP and CAFES Ottawa's assertion that there is a "high likelihood that the estimated inspection and repair costs would cease once the pipeline throughput declines by 2050 due to the Energy Transition impacts,"[78] inspection and repair costs do not in fact vary based on throughput levels. Integrity inspections and repairs will be required until the pipeline is fully decommissioned and abandoned, independent of throughput levels and in line with applicable codes and standards.

The Escalation Rates Used

93. SEC, ED, PP and CAFES Ottawa and OEB staff question the escalation rates used for estimating certain future work, including specifically the 6% escalation rate that

[74] Transcript, October 31, 2024, p. 112-115.
[75] PP and CAFES Ottawa Argument, p. 38.
[76] Ex. I.2-STAFF-17, Attachment 4.
[77] Transcript, October 31, 2024, p. 86.
[78] PP and CAFES Ottawa Argument, p. 38.

was used for estimating the future integrity digs component of the EI&R Option, noting that it is higher than a general 2% inflation rate used for purposes of Enbridge Gas's overall 2023-2032 Asset Management Plan.[79] SEC, for instance, suggests that if Enbridge Gas were to instead use a 2% escalation rate for this work, the EI&R Option "would become cheaper over a 42-year horizon by $7 million" and more so over a 31-year horizon, though it would still be more expensive over a 63-year horizon. And SEC asserts it is "entirely possible" that this lower escalation rate than the one used by Enbridge Gas for this item of work "may prove to be more accurate."[80] While OEB staff notes that "a cost escalation rate higher than the discount rate has the counterintuitive implication that deferring capital expenditures actually increases costs on a net present value basis," it recommends that Enbridge Gas address this concern in a future IRP-related filing.[81]

94. The escalation (or inflation) rates used for purposes of the NPV assessments were appropriate and were specific to the elements of work for this project. This included that the rates used in the EI&R Option analysis were backed up by statistical analysis of historical data: 40 years for general spend and since 2011 for integrity digs.[82]

95. In respect of the integrity dig escalation rate specifically, the evidence shows that the 6% escalation rate used for this item of the cost estimate is actually lower and more conservative than the actual historical escalation rate that has been experienced. In undertaking response JT1.1, Enbridge Gas provided the spreadsheet that was used to trend the integrity dig cost escalation, and explained that an average of historical escalation rates starting from the base years of 2013 and 2017 is a 9.9% escalation rate per year. And looking at the actual rate for the 10 years before the pandemic (which an intervenor asked Enbridge Gas to do) resulted in an even higher average historical escalation rate. Accordingly, the 6% rate used for purposes of the financial

[79] SEC Argument p. 5-6; ED Argument p. 16; PP and CAFES Ottawa Argument, p. 36 and 38; OEB staff Argument p. 26.
[80] SEC Argument, p. 5-6.
[81] OEB staff Argument, p. 26.
[82] Ex. JT1.3 and Ex. JT1.1.

analysis is thus conservatively low compared to this historical average and, if anything, may understate the actual costs.[83]

96. Enbridge Gas explained that "costs for integrity digs have escalated more rapidly than other typical pipeline construction costs for a variety of reasons." Some of the reasons or drivers for this are: (i) location – integrity digs must be completed at the exact location that the pipe anomaly is found, and it is not possible to optimize a dig location if a feature or obstruction impacting construction is discovered (by contrast a pipeline replacement project can be designed around locations with challenging construction characteristics); (ii) environmental conditions conducive to the acceleration of corrosion (e.g. contaminated soils, etc.) typically cost more to remediate and to safely work in those areas (by contrast, pipeline replacement projects can alter the design route to avoid areas of high contamination); (iii) integrity digs typically involve localized areas of excavation and a smaller work site, compared to a pipeline replacement project (meaning that efficiencies that could otherwise be gained are lost); and (iv) at the outset of an integrity dig it may not be known what repair method is required until NDE is completed – and if a replacement is required a pipeline bypass may need to be designed in the field, and until the pipeline is exposed weldability cannot be confirmed, which can result in an extension of the integrity dig on either side of the excavation.[84]

97. In respect of the overall 2% escalation factor used in the 2023-2032 AMP, to which SEC referred, Enbridge Gas explained how it is not applicable or appropriate to use for this SLP project, and especially not for an integrity dig escalation factor. The 2% rate was applied at an overall macro level to the thousands of investments in various stages of development in the AMP. This macro level estimate is not intended to be used for, and is not applicable to, evaluating the economics of a specific project within a leave to construct application, such as this SLP project. As noted in a table in the AMP, future costs in it do not include normal inflationary measures and impacts (such

[83] Ex. JT1.1 and Ex. JT1.2.
[84] Ex. JT1.1.

as rising material costs, etc.) as these are expected to be covered within investment contingency. Further, a small number of programs within the AMP with defined scope/unit rates have in fact included an escalation factor where information was available to inform the assumption.[85]

98. Accordingly, as noted in the response to JT1.4, for this SLP replacement project leave to construct application, a specific escalation factor was used that is applicable to and reflects the parameters of the asset. Further, as was also noted in the response to JT1.5, using a hypothetical 2% escalation rate would be "especially inaccurate for the integrity dig work types, since it significantly differs from the actual trends observed in the historical data for this type of work" (as noted above).[86] Therefore, SEC's suggestion (which ED briefly refers to as well) that perhaps a 2% escalation rate could be used is directly contrary to, and a poor comparison to, the historical trends and uncontradicted evidence on this point. There is no proper basis for that suggestion.

99. While the focus of intervenor questions was mainly on the integrity digs escalation rate, Enbridge Gas also answered other questions to explain the bases for the escalation rates used for other work in the Replacement Option and EI&R Option. In this regard, ED and SEC have briefly questioned the 3% escalation rate in respect of replacement costs in the EI&R Option. Enbridge Gas explained that this rate was used based on statistical analysis using 40 years of data. "The analysis revealed an average escalation rate of 3.34%, with a 95% confidence interval ranging from 2.51% to 4.17%. This interval suggests that, based on historical data, the anticipated escalation rate is likely to fall between 2.51% and 4.17%, with 95% certainty." The 3% rate was thus a reasonable and appropriate rate to use.[87]

100. There is no basis or evidentiary support in the record for ED's bald conclusory assertion that Enbridge Gas used a "biased inflation factor"[88]. As explained above the

[85] Ex. JT1.4.
[86] Ex.JT1.4 and JT1.5.
[87] Ex. JT1.3.
[88] ED Argument, p. 16.

inflation (or escalation) rates used were appropriate and based on historical data and statistical analysis. We also note that Enbridge Gas used a 4% inflation rate for the Replacement Option, and a lower 3% rate for the replacement components in the EI&R Option.[89]

Robotic Inspection Costs

101. With no evidentiary basis, ED posits that robotic inspection costs may come down in price in the future as the technology improves, and this "possibility" was not taken into account in Enbridge Gas's cost estimate for the EI&R Option.[90]

102. As Enbridge Gas explained in response to this suggestion from ED at the technical conference, while performance may improve in the future in respect of this technology that does not mean that price will necessarily come down. In fact, as types and methodologies of tools become more prevalent, demand for vendor services will increase and this may result in price increases. Also, and in any event, these inspection costs are relatively negligible to the overall NPV, and the evidence shows that the inspection costs in the NPV are actually conservative, based on recent data.[91]

103. PP and CAFES Ottawa inappropriately compares the costs incurred to date to inspect 4.5 km of the SLP with the Crawler in-line inspection tool ($2.2 million, extrapolated by PP and CAFES Ottawa to $5.43 million over the length of the SLP) to the projected lifetime costs of the full EI&R option, presumably to imply that the EI&R costs are overstated[92]. This comparison is simply inaccurate, and completely misleading. The stated costs incurred to date[93] are for a single campaign of ILI in 2022 and do not include any other types of inspection and repair costs. In contrast, the EI&R cost estimates provided by Enbridge Gas include multiple cost line items in addition to ILI, such as integrity digs, slabbing, right-of-way patrols, public awareness and most

[89] Transcript, October 30, 2024, p. 14-15.
[90] ED Argument, p. 16.
[91] Ex. JT1.9; Transcript, October 30, 2024, p. 46-47.
[92] PP Argument, p. 38.
[93] Ex. I.2-STAFF-17.

significantly the cost of selective replacement based on integrity findings, over multiple years of asset life, escalated in future years as provided in evidence.[94]

Planning Value (or value of potential future flexibility)

104. SEC argues that the EI&R Option might involve the ability to reduce spending if circumstances change in the future, and that this "flexibility has a value, which should have been considered." In a similar vein, ED suggests that Enbridge Gas disregarded planning value and asserts that it could perhaps do certain additional repairs now and "defer the replacement decision until more is known about future capacity needs."[95]

105. While FRPO's position on the Project doesn't explicitly refer to the planning or flexibility value of waiting, its submission that the OEB should direct Enbridge Gas to pursue the EI&R option and spend the next 2-3 years refining the development of the Company's risk matrix with the help of DNV and producing a report[96] implies that the same potential value exists – that there is a benefit to deferral.

106. Taking a further deferral approach could only be a suitable option if there were no current health and safety risks present and if it made financial sense to do so – neither of which is the case here. The pressing and intolerable risk levels require that an appropriate, urgent permanent mitigation solution be implemented at this stage to ensure continued safety and reliable operation, as described above.

107. From a financial perspective, in response to a question from ED about the possibility of deferring this replacement project by three years and doing additional inspections and repairs in the meantime, Enbridge Gas confirmed that significant incremental costs would be incurred. Specifically, it would cost (NPV) an additional $78 or $79 million in further inspection (depending on the NPV Case), mechanical protection and repair costs to defer this project by three years (and this would only partially be offset by accrued savings of $6 million). Deferring the project is thus not a

[94] Ex. I.2-STAFF-17, Attachment 4.
[95] SEC Argument, p. 6; ED Argument, p. 17.
[96] FRPO Argument, p. 15.

financially viable alternative, due to the significant upfront work that would be required to address immediate risks of the pipeline (to just bring risk down to tolerable levels in the interim). Put differently, the significant upfront costs that would be required at this point more than negate any planning value or value associated with future flexibility, as shown by the NPV computations. And while SEC hypothesizes that it is possible there might be the opportunity to reduce spending in the future under the EI&R Option, the evidence suggests that, if anything, the costs could actually end up being higher under that Option than currently estimated.[97] And SEC itself also expressly "acknowledges that the [EI&R Option] carries its own risks".[98] Deferral of the Replacement Option could exacerbate risks that are unknown that the Company is unable to mitigate. Beyond the general uncertainty factor implicit in forecasting future EI&R costs as described by Enbridge Gas witnesses (cited above), OEB staff's technical expert highlighted some potential incremental risks in his questioning that may further escalate the EI&R costs, making the Replacement Option even more advantageous.[99]

108. Put simply, taking a further deferral or 'wait and see' approach is simply not a financially viable, prudent or in any way acceptable option at this stage.

False Comparison by ED to last application

109. In ED's submissions, in questioning the NPV of the EI&R Option, ED tries to compare the estimated costs for this option to an option from the prior application. ED suggests that this same repair option was estimated to cost only $33 million (NPV) in the prior application, and that now the estimate has jumped to $179 million (NPV) "without adequate explanation".[100] That assertion is simply false.

110. The repair option to which ED is referring from the prior application was not in any way comparable to the EI&R Option in this current application.

[97] Ex. I.2-ED-16; Ex. I.2-Staff-17.
[98] SEC Argument, p. 4.
[99] Transcript, October 31, 2025, p. 137-162.
[100] ED Argument, p. 3, 16.

111. That prior $33 million repair option – which was rejected by Enbridge Gas at the time -- was a *reactive* approach that would merely involve sitting back and reacting to leaks as they occur (i.e. essentially a 'do nothing' reactive approach) based on a forecasted leak rate using available information at the time (which did not include all of the additional condition-specific information Enbridge Gas now has regarding the pipeline).[101]

112. In contrast, the EI&R Option in this application is very different. It is a much more developed and proactive option involving many more planned activities (e.g. integrity digs, replacement of an NPS 16 LRT crossing section, ongoing and additional 3rd party damage mitigations, etc.) -- not merely a reactive 'wait for leaks' approach. The work activities associated with this option, which make up the $179 million (NPV) have been fully detailed and quantified in the evidence.[102] Outdated rejected options from the prior application are no longer relevant here and are not even part of the record, of these proceedings. This false financial comparison ED tries to draw is wrong and should be ignored.

Conclusion Regarding Financial Assessment

113. Enbridge Gas responded to the questions or concerns intervenors raised about elements of the financial analysis. The analysis establishes that the Replacement Option is more cost-effective and certainly offers more cost certainty than the EI&R Option. That option has many uncertainties that could cause the scope and cost of future work to increase even more than currently estimated.

114. Also, taking into account the various questions or critiques that were raised about the financial analysis, OEB staff concluded and submitted that, even if various input assumptions were changed based on challenges or questions that were raised, this still would not make the EI&R Option preferable, particularly given the clear technical

[101] EB-2020-0293 Ex. B-1-1, p. 45.
[102] Ex. I.2-Staff-17, Attachment 4.

advantages of the Replacement Option – and thus the Replacement Option is preferable. Specifically, OEB staff concluded:

> While Enbridge Gas's NPV analysis shows Alternative A [i.e. Replacement Option] to be preferable to Alternative B [i.e. EI&R Option] under all modeled time horizons, with a change in the economic input assumptions related to cost escalation (discussed further below), the NPV of Alternative A and Alternative B becomes similar.
>
> However, as discussed earlier, additional actions are likely needed to make Alternatives A and Alternative B comparable from a risk and safety profile. This would increase the cost of Alternative B.
>
> OEB staff submits that the economic comparison of Alternatives A and B, at a minimum, does not favour Alternative B to a degree that would override the technical advantages of Alternative A. Therefore, OEB staff considers Alternative A [i.e. Replacement Option] to be the preferred alternative.[103]

Critique of Energy Transition Analysis

115. The intervenor whose main focus was the energy transition analysis was ED. ED expressly indicated in its submissions that its main focus was not so much in respect of this application and the choice of alternatives here, but rather its primary focus is on methodologies that will be used in future applications and its "primary request" was that the OEB not at this point decide on or endorse the specific methodologies used by Enbridge Gas in the analysis here (for purposes of future proceedings). ED raised concerns about certain alleged "flaws" to the methodologies that it hopes will be improved upon for purposes of future applications and decision-making regarding other pipeline renewal projects. And ED specifically asked that "final decisions on these methodological issues wait until a future case…" IGUA also raised certain similar points as well.[104]

116. Regarding ED's primary concern, it is important to bear in mind that the only issue in this application is whether it is in the public interest to grant leave to construct this SLP pipeline replacement project. This is not a generic proceeding in which the OEB

[103] OEB staff Argument, p. 24-25.
[104] ED Argument p. 3, 5, 7; and IGUA Argument, p. 3.

is being asked to decide upon or provide direction in respect of broad methodological issues regarding energy transition or IRP analyses for purposes of future applications. Any future applications in respect of renewal projects will, of course, need to be decided on their particular merits and facts, and based on the evidence in the record of those proceedings. We do not propose to address here what specific methodological approaches should be taken (or possible methodological adjustments made) in future energy transition or IRP analyses in subsequent cases.

117. Enbridge Gas does not agree with ED's assessment of "flaws" in the analyses done for purposes of this application, and we respond briefly to ED's main concerns below. It is also important, though, to bear in mind the context of and purpose for which the energy transition analysis was done here: namely, as an input into determining various plausible time horizons for over which to consider the financial (NPV) analysis (as described above). The analysis and probabilistic modeling that was conducted was more than sufficient for that purpose, we submit, and provided useful information to assist with the NPV exercise.

118. In response to ED's main points of methodological concern (some of which were also raised by SEC):

Ongoing feedback loop of customers exiting the system.

119. ED raised a concern that this (which SEC referred to as a "death spiral") was not taken into account in the energy transition modeling Integral performed. This suggestion was made to the Integral witness, Mr. Bandstra, at the technical conference -- with ED suggesting that a different adoption curve would need to be used in the modeling -- and Mr. Bandstra did not agree with this suggestion. He stated that "the scenario you [i.e. Mr. Elson] are describing where there is a change in rate of adoption is already considered by the logistic curve", in which "the rate of change of adoption goes up dramatically". And Mr. Bandstra then pointed out that scenario 6 in Integral's modeling "already assumes 100 percent disconnection, so there is no additional factors at that point that could drive disconnection any higher than case 6".

He further confirmed that the curve used in the modeling is the most representative of technology adoption and it would not add any value to change the shape of the curve slightly as ED seemed to be asking about.[105]

120. Enbridge Gas's witness also pointed out that factually, whether or to what extent this feedback loop might actually occur in the future is difficult to predict (without additional information) as customers' choices may be affected by a number of factors, such as government programs that assist customers, capacity on the electricity system, availability of heat pumps to keep up with the demand ED was positing in its hypothetical scenario. The Enbridge Gas witness pointed out that "what we are seeing today is not what you are describing".[106]

Impacts of Reduced Demand from Existing Customers

121. ED raises a concern that the analysis did not assess impacts on customer demand, peak or annual (and SEC also raises a similar concern). It can't be assumed that peak gas demand will decline precipitously during the energy transition, even if annual demand does slow (e.g. hybrid heating won't change peak demand materially). Therefore, assessing likely disconnection rates was more relevant for the purposes of this analysis, in order to assess the likely time horizon over which the pipeline would be needed, to inform the potential NPV time horizons. Possible underutilization at some undetermined point in the future does not eliminate the need for a safely operating pipeline now.

Analysis on Likelihood of the Various Scenarios

122. ED is concerned that the energy transition analysis – which involved modeling 15 different scenarios – did not include an analysis of the likelihood of the different scenarios. While the modeling does not assign distinct probabilities to any of the aggressive disconnection scenarios that were modelled, the relative likelihood of the

[105] Transcript, November 13, 2024, p. 23-25.
[106] Transcript, November 13, 2024, p. 21-22.

scenarios to one another is discussed in Enbridge Gas's evidence. By way of example, case 1 (the least aggressive) and case 6 (the most aggressive) are dismissed due to having constant rates of disconnection, which is highly unlikely. And the evidence discusses the scenarios that are the most likely or realistic to occur. Case 6, the scenario that involves no new customer attachments and a 100% constant rate of disconnection when a heat pump is adopted – that might best fit ED's theory of future adoption – is considered to be highly unlikely.[107]

Development of Scenarios by an Outside Expert

123. ED suggests that the various scenarios were not independently developed by an outside expert with knowledge of plausible energy futures. However, the scenarios examined in the energy transition analysis are not broad economic decarbonization scenarios. They are scenarios that examine potential rates of customer adoption of heat pumps and subsequent disconnection from the gas system to investigate stranded asset risk, using a range of outcomes including the two extremes. The scenarios were appropriate for this purpose, and Enbridge Gas had in-house expertise to develop the scenarios together with Integral, for use in the modeling. Enbridge Gas has experts in energy transition,[108] and Integral has expertise in probabilistic modeling in the energy industry, including in respect of energy asset risk, reliability management, integrity management, and structural reliability analysis.[109] Moreover, Integral's qualification as an expert in this proceeding has not been challenged by ED or any other intervenor.

<u>Critique of IRP Alternatives Analysis</u>

124. SEC and ED raised two specific concerns in respect of one element of the IRP alternatives assessment, specifically regarding the methodology or scope of the Enhanced Targeted Energy Efficiency (ETEE) evaluation that was part of the assessment. We note up front that, in respect of Enbridge Gas's IRP alternatives

[107] Ex. B-3-1, p. 15-16.
[108] Ex. I.2-PP-43 part (b).
[109] Ex. JT3.4

analysis, SEC expressly acknowledged that "SEC generally accepts most of Enbridge's analysis."[110] And ED, who raised two similar points, is primarily focused on methodologies to be used going forward in future applications.

125. As described in Exhibit C-1-1, the evidence shows that Enbridge Gas did a full review of potential IRP alternatives and the most feasible strategies to address the condition of the SLP. It concluded that implementation of IRP alternatives would not address the risks associated with the condition of the existing SLP.[111]

126. As explained in the evidence, "supply-side alternatives require leveraging the existing infrastructure while securing gas from a different source, and demand-side alternatives provide reduction in demand/flow on the system. Risks involving corrosion and third-party damage cannot be mitigated through supplying gas to the system via a different source or through reduction in demand/flow on the system. Therefore, IRP alternatives cannot impact the identified risks, and consequently, cannot offset the need for a pipe replacement. As such, the scope of IRP alternatives assessment is to determine whether the proposed Project pipeline size can be reduced."[112]

127. A peak hour demand reduction of approximately 13,300 m^3/hr up to 25,100 m^3/hr, or the equivalent of 12,000 to 26,000 homes, would be required by winter 2025/2026 to allow Enbridge Gas to downsize the project's 2.4 km of NPS 16 to NPS 12. And if this downsizing were achievable it would just result in a one-time cost saving of approximately $1.3 million.[113]

128. The IRP alternatives assessment evaluated a hybrid facility solution with non-facility supply side and demand side IRP alternatives, including incremental gas supply, compressed natural gas (CNG), a reverse open season (ROS), and geo-targeted negotiable interruptible rates for the contract customers. As detailed in Exhibit C-1-1, the outcome of the IRP assessment determined that the proposed pipeline

[110] SEC Argument, p. 6-7.
[111] Ex. C-1-1, p. 1, 21-25.
[112] Ex. C-1-1, p. 21-22.
[113] Ex. C-1-1, p. 22-23.

replacement is the optimal solution to meet the identified system need and within the required timeframe. The assessment found:

- incremental gas supply is not a technically feasible alternative to downsize the project;
- the cost of providing CNG as an alternative is approximately $1.2 million per year for fourth months each winter over the life of the project, and as such the cost is significantly higher (even to do so for two years, let alone for decades) than the $1.3 million saving of downsizing this small section of pipe;
- in respect of ETEE, Enbridge Gas retained independent third-party expert Posterity Group to evaluate whether ETEE could viably meet the identified system need or reduce the scope of the facilities that would otherwise be required. Posterity's study showed that a maximum peak hour reduction potential of approximately 11,250 m^3/hr from general service customers in the project area could be obtained by 2042 and would cost approximately $77 million. As such there is insufficient technical potential from ETEE to meet the required peak hour reduction demand in order to downsize this section of pipe, and it would also clearly be cost prohibitive to do so.[114]

Contract Customers

129. The main methodological point of concern raised by both SEC and ED in respect of the Posterity study, is that it did not include contract customers. However, both Enbridge Gas and Posterity explained why it did not make sense to try to model potential reductions in respect of these customers. The project customers in the project service area were engaged directly through an expression of interest (EOI) and a ROS, as well as direct discussions with these customers on their energy requirements. Enbridge Gas thus obtained information directly from these customers, which provides more accurate information regarding their demand usage and peak

[114] Ex. C-1-1, p. 21-24; Posterity IRPA Analysis report, Ex. C-1-1, Attachment 2.

hour savings. Based on the results of the EOI, ROS and direct discussions, Enbridge Gas expects minimal change in these contract customers' peak hour demand.[115]

130. At the technical conference, ED asked the Posterity witness, Mr. Shipley, about the possibility of Posterity doing a further analysis to estimate the savings that could be achieved from contract customers. In response, Mr. Shipley stated: "I would want to draw on the best information available about the potential for DSM and contract customers. And the best information available is through Enbridge's direct contacts, one by one, to individual contract customers, about what the potential is in their facilities. So if I were to take your request and do the best job I could, I would ask Enbridge for their number and then give it to you." And as the Enbridge Gas witness further confirmed at the technical conference, the actual information from the customers themselves is most indicative of what will happen in the next few decades, and "that is a better, more realistic picture of what will happen with contract demand versus modeling it."[116]

131. On the above point, SEC suggests that the Enbridge Gas's decision to exclude contract customers from the Posterity study was just "based on the results of its EOI".[117] But that is not the case – it was also based on direct discussions with the customers (along with the EOI and ROS results).

132. SEC did, in any event, ultimately accept in its submissions that the downsizing of this small section of pipe may ultimately prove to be "not cost effective", and SEC acknowledged, based on the response to interrogatory I.2-SEC-12, the limited savings from a downsized pipe "which would almost certainly not make an ETEE option cost-effective".[118]

Assessing Electric Alternatives in Future IRP Assessments

[115] Ex. I.2-ED-21, parts (c) and (f); Ex. C-1-1, p. 24-25.
[116] Transcript, November 13, 2024, p. 5-7.
[117] SEC Argument, p. 7.
[118] SEC Argument, p. 7 and footnote 49 on that page.

133. Besides raising the same contract customers point SEC raised, ED also raised a point about consideration of electric alternatives. ED notes that heat pumps were not included in the IRP alternatives analysis, and suggests that it should assess electric alternatives in future IRP assessments (and asks Enbridge Gas to confirm it will do so). [119]

134. As indicated in Enbridge Gas's Phase 2 rebasing evidence, Enbridge Gas would begin to consider electric IRP measures on a pilot basis – based on its understanding that the Phase 1 decision signals piloting electric measures would be an effective way to understand how the IRP Framework could be evolved. As such, Enbridge Gas is proposing to include electric IRP measures on a pilot basis only, to gather learnings in relation to system pruning, as well as in the Southern Lake Huron Pilot Project application.[120] And in the Phase 2 settlement, Enbridge Gas agreed to develop its approach to system pruning in consultation with the IRP Technical Working Group by the end of Q2 of 2025, and begin implementation on one or two pilots by the end of Q1 of 2026.[121]

FRPO's Concerns Regarding System Design

135. In support of their position that the EI&R alternative is the optimal "measured response" approach, FRPO believes that some system design matters in Enbridge Gas's application are still unresolved. Enbridge Gas is of the view that these concerns have been fully addressed in this proceeding, and provides the following submissions in response to FRPO's concerns.

136. FRPO submits that a decision on the alternative to serve TransAlta ought to be made before the sizing of any replacement of the SLP is finalized.[122] Enbridge Gas has confirmed that the current proposal of the Company is for a new 660 m segment of XHP pipe for the TransAlta segment, and provided a complete costing of that

[119] ED Argument, p. 14.
[120] EB-2022-0335, Ex. D-1-2, p. 21-23.
[121] EB-2024-0111, Phase 2, Ex. 1-17-1, p. 22; and Ex. N-1-1 Partial Settlement Proposal, p. 19-20.
[122] FRPO Argument, p. 9.

alternative. In any event, the TransAlta load is interruptible and therefore this portion of the Project will have no impact on the SLP design, as interruptible load is not considered in the design condition driving the project sizing. If a different option is deemed to be more economic at some future point, Enbridge Gas would advise the OEB and file any necessary update or notice of change ,[123] as it would for any material change in the project plan or scope.

137. FRPO submits that uncertainties around the relocation of the Rockcliffe Control Station, combined with perceived uncertainties around the TransAlta options, create "too many uncertainties in design to ensure that the project is not over-built if approved."[124] Enbridge Gas submits the evidence demonstrates that any uncertainties associated with these two aspects of the Project are negligible. As explained above, the TransAlta alternatives do not impact project sizing. Further, Enbridge Gas has explained that the finalization of the Rockcliffe Control Station location is subject to further public consultation and engagement as part of a separate Rockcliffe Control Station location project, to fulfill the appropriate application processes with the Ontario Energy Board (OEB), the Canadian Energy Regulator (CER) and the NCC's Federal Land Use, Design and Transaction Approval (FLUDTA).[125] Enbridge Gas submits that the urgent need to mitigate the identified risks of the SLP requires that a decision on the full 17.6 km replacement of the SLP should not wait for a full resolution on the exact route for the final 560 m of pipe, which may ultimately be only slightly adjusted, within the range of the Environmental Report study area.

138. In its submissions, FRPO repeats its claim that there is an unresolved "evidentiary conflict" in Gazifère's demand requirements,[126] between firm contracted hourly demand and the demand modelled by Enbridge Gas at design conditions. Enbridge

[123] Ex. JT1.17.
[124] FRPO Argument, p. 9.
[125] Ex. JT2.26.
[126] FRPO Argument, p. 10-11.

Gas clarified in repeated communications[127] that the design modelling it completed in response to FRPO's proposed scenarios was based appropriately on actual historical demand and forecasted demand changes, excluding interruptible flow. The modelling was not based on contract demands and therefore no reconciliation is warranted.[128] The OEB confirmed that Enbridge Gas's responses to this and other questions from FRPO were "adequate in terms of addressing the gaps that FRPO identified" and did not direct any further response from Enbridge Gas.[129]

139. Finally, FRPO attempts to re-hash another question which was repeatedly resolved by Enbridge Gas[130] (to a sufficient level according to the OEB[131]) – the question of whether the maximum station pressures in the SLP could be increased from 380 kPa to a higher level to create capacity.[132] Enbridge Gas's explanation in the December 13, 2024 clarification to Exhibit JTX1.28 provides a list of reasons why this increase in pressure is not possible. While FRPO may not agree with these reasons,[133] the fact remains that such a pressure increase would not be sufficient to effect a reduction in pipe size in any event.[134]

140. And importantly, Enbridge Gas again notes that this pipe size issue that continues to be raised by FRPO is in respect of only a small section of the pipeline, and is financially immaterial in the context of the overall size of this project. This is only approximately a $1.3 million issue in the context of a $208.7 million proposed project – and is not probative to a determination of whether this project is in the public interest.

[127] Enbridge Gas December 6, 2024, letter including updated undertaking responses JTX1.22, JTX1.24, and JTX1.26; Enbridge Gas December 13, 2024 letter.
[128] Ex. JTX1.24 updated 2024-12-06.
[129] Procedural Order No. 5, December 16, 2024, p. 3.
[130] Ex. JTX1.28 (original, updated December 6, 2024 and further updated December 13, 2024)
[131] Procedural Order No. 5, December 16, 2024, p. 3.
[132] FRPO Argument, p. 12-13.
[133] FRPO Argument p. 13.
[134] Ex. JTX1.28 (Updated December 13, 2024).

Conclusion on Project Alternatives

141. The evidence shows that Enbridge Gas has carefully considered the various project alternatives. Taking into account all the relevant factors, the proposed Replacement Option is the only suitable option to adequately remediate the deteriorated condition of the SLP system to acceptable risk levels, and meet the TSSA's directive. It is the only option to ensure continued safe and reliable pipeline operation and minimize public disruption and inconvenience. Public safety, and eliminating the risk of leaks and potentially disastrous health and safety consequences (e.g. potential migration, explosion and fatality risk) and also property damage consequences in this urban environment, must be the paramount objective here.

142. The evidence also shows, based on Enbridge Gas's data driven assessment, that the Replacement Option is more cost-effective compared to the EI&R Option. Taken at its highest, even if intervenors' concerns about the NPV assessment were valid -- which the evidence does not support – it would still only mean that it is possible that the EI&R option *might* ultimately turn out to be slightly less expensive if energy transition occurs at an unrealistically fast and aggressive pace, and if no new, previously unidentified, integrity concerns arise. This possibility cannot be determinative or displace the need for the replacement project to be undertaken at this stage to address the pressing risks and ensure public safety. As noted, that is the conclusion of not only Enbridge Gas, but also of OEB staff, as well as EP – and with no objection or concern being raised by the City of Ottawa either.

143. In response to an interrogatory from OEB staff enquiring as to what steps Enbridge Gas would take in the event this application is denied, Enbridge Gas confirmed that if leave to construct the replacement pipeline were denied (thus maintaining the current status quo), Enbridge Gas would have no alternative in the short term but to implement proven pressure and load reductions as risk mitigation

measures, i.e. take “extraordinary measures” that would have significant impacts and negative consequences for customers.[135]

144. These measures would include: halting gas connections to new customers; removing gas service from large-volume customers on interruptible contracts; removing or significantly reducing gas service from large-volume customers on firm contracts; and implementing a significant reduction in the SLP’s operating pressure to bring the risks down to a tolerable level. This would have an impact on up to 52,000 customers currently served by the SLP and downstream networks. In this scenario, the impacted area serves several City of Ottawa buildings, federal government buildings, and schools/universities.[136]

145. As noted in the evidence, “safety is Enbridge Gas’s top priority, and the risks on the SLP system cannot be effectively mitigated without an appropriate long-term solution.”[137]

F. PROJECT COST AND ECONOMICS

146. The total estimated cost of the project is $216,065,181, of which $208,715,452 is attributable to facilities which Enbridge Gas is seeking leave to construct via this application. Enbridge Gas is not including the difference of $7,349,729 in its leave to construct application, which is attributable to investigation costs incurred as a result of the Targeted Integrity Program to assess the reliability and condition of the SLP beginning in June 2022.[138]

147. As detailed in the evidence, excluding indirect overheads, loadings, and incremental investigation costs, the total estimated cost of the project is $173.2 million.[139]

[135] Ex. I.1-Staff-11.
[136] Ex. I.1-Staff-11.
[137] Ex. I.1-Staff-11.
[138] Ex. E-1-1, p. 1.
[139] Ex. E-1-1, p. 1.

148. In OEB staff's submissions, it confirms: "OEB staff has no concern with the forecast cost for the Project." OEB staff notes that condition 6 of the standard conditions of approval (to which Enbridge Gas has agreed) would require that Enbridge Gas file with the OEB the actual capital cost of the project and explain variances and the use of contingencies.[140]

149. Energy Probe expresses no concerns with the proposed project costs,[141] and SEC believes the project cost forecasts are sufficient to support leave to construct approval, but not adequate to justify rate recovery at this time.[142] IGUA, FRPO and ED make no submissions related to the proposed project costs, should the replacement project be approved as filed. If the project is approved, ED will seek to test whether the replacement expenditures are prudent at the next rebasing case when Enbridge Gas seeks to have these costs added to rate base.[143]

150. PP and CAFES Ottawa make a number of incorrect assertions in their submissions related to the proposed project costs. They claim that $22,406,044 should be removed from the current project estimate in the leave to construct for costs previously incurred for the project denied by the OEB in EB-2020-0293.[144] In fact, they have misinterpreted the $22.4 million from undertaking response JT3.8 Table 2 as costs from the previous SLP application, when they are largely costs associated with the current project, but incurred prior to the year 2025 for various design and development activities, and for planned abandonment activity.[145]

151. Enbridge Gas identified approximately $1.56 million in carry-forward costs[146] related to cancellation of contracts and payment of lease agreements for the temporary construction yard in 2022. These and other development costs that

[140] OEB staff Argument, p. 31.
[141] Energy Probe Argument, p. 3.
[142] SEC Argument, p. 10.
[143] IGUA Argument; FRPO Argument; ED Argument, p. 1.
[144] PP and CAFES Ottawa Argument, p. 42.
[145] Ex. JT3.8, Table 2.
[146] Ex. JT2.6.

informed the current application[147] were brought forward from the previous SLP application after the LTC was denied. SEC also calls out these costs suggesting they were inappropriately carried forward, although SEC is not asking the OEB to make a determination on these costs in the current proceeding.[148]

152. Despite the OEB's denial of the project in EB-2020-0293, Enbridge Gas considers costs incurred at that time to be costs related to an earlier stage of the same project, which have informed and created efficiencies in the current application. In the OEB's decision in EB-2020-0293, it encouraged Enbridge Gas to continue to "examine other alternatives…and propose appropriate action based on its findings;"[149] it did not conclude that the Company should cease work on evaluating the need for and alternatives to mitigating the risk on the SLP. Offsetting these carry-forward costs are the savings in the current application associated with only having to refresh certain elements of the last application instead of starting from scratch – for example, the Environmental Report.[150]

153. Another error in PP and CAFES Ottawa's submissions, and repeated by ED, is the claim that Enbridge Gas is seeking LTC approval for $216,065,181 spend on the SLP.[151] PP and CAFES Ottawa use this value to incorrectly argue that there are "significant discrepancies and variances in the cost estimates for the proposed Project". A review of the Table 1 details in Exhibit E, Tab 1, Schedule 1 – which PP and CAFES Ottawa refer to in their own footnotes – makes it clear that the total project cost (including ancillary facilities) for which Enbridge Gas is seeking leave to construct is actually $208.7 million.[152] A detailed explanation for the variance from the last SLP application (to which PP and CAFES Ottawa refer, although they use the wrong

[147] Ex. JT2.7.
[148] SEC Argument, p. 10.
[149] EB-2020-0293 Decision and Order, May 3, 2022, p. 23.
[150] Ex. JT2.8.
[151] PP and CAFES Ottawa Argument, p. 43; ED Argument, p. 3.
[152] PP and CAFES Ottawa, and ED incorrectly included Row 11 Incremental Investigation Costs in their $216M figure. The table notes indicate that costs associated with Incremental Investigation have already been expensed or put into rate base. Additionally, PP and CAFES Ottawa states that ancillary facilities are incremental to the $216M figure; again, not true. The table clearly shows that the $216M figure, and the $208.7M figure, are both inclusive of ancillary costs.

number and percentage difference) is provided in I.3-SEC-14. The proposed project cost of $208.7 million is fully reconciled with the values in the 2025-2034 AMP in JT3.8.[153]

154. In referring to Gazifère, PP and CAFES Ottawa also submits that "it is typical to include an executed Contribution in Aide of Construction (CIAC) agreement in a Leave to Construct where there is one large customer that is being allocated a significant amount of the Project peak capacity".[154] This is incorrect. The concept of a CIAC is laid out in EBO-188;[155] it is designed for use in natural gas system expansion projects, where there may be a revenue shortfall in meeting a Profitability Index (PI) of 1.0. A CIAC is not applicable in a system renewal project intended to address system integrity concerns, such as this SLP project.

G. ENVIRONMENTAL MATTERS

155. Enbridge Gas retained Dillon Consulting Limited (Dillon) to undertake a route evaluation and environmental and socio-economic impact study, which included a cumulative effects assessment, to select the preferred route for the project. This included a consultation program, input from which was evaluated and integrated into the study. Mitigation measures designed to minimize environmental and socio-economic impacts that may result from construction of the project were also developed as part of the study.[156]

156. Enbridge Gas believes that, by following its standard construction practices and adhering to the recommendations and mitigation measures identified in the Environmental Report (ER), and Amendments and subsequent Environmental Protection Plan (prepared prior to commencing construction), the construction and operation of the project will have negligible impacts on the environment. The

[153] Ex. I.3-SEC-14; Ex. JT3.8.
[154] PP and CAFES Ottawa Argument, p. 42.
[155] https://www.oeb.ca/sites/default/files/uploads/documents/regulatorycodes/2019-01/EBO-188-AppB-Guidelines-Gas-Expansion-19980130.pdf.
[156] Ex. F-1-1, p. 1-2; Environmental Report and Environmental Report Amendment, Ex. F-1-1, Attachments 1 and 2.

cumulative effects assessment completed as part of the ER indicates that no significant cumulative effects are anticipated from the development of the project.[157]

157. Enbridge Gas submits that it has appropriately completed the ER in accordance with the OEB's applicable guidelines. And OEB staff agreed in its submissions that "Enbridge Gas has completed the ER in accordance with the OEB's *Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario*. OEB staff has no concerns with the environmental aspects of the project, based on Enbridge Gas's commitment to implement the mitigation measures set out in the ER."

158. No intervenor made submissions on or took any issue with any environmental matters, except for PP and CAFES Ottawa.

159. PP and CAFES Ottawa assert that Enbridge Gas failed to identify and analyze the potential impacts of each alternative and include the operational activities, costs and impacts related to the proposed project. That assertion fails to recognize that analysis of operational activities and costs are included in the Project Alternatives (Exhibit C-1-1) section of pre-filed evidence with the evaluation of route alternatives included as part of the environmental assessment in the ER as required by the OEB Environmental Guidelines.[158]

160. The ER considered reasonably foreseeable environmental and cumulative impacts resulting from the operation of the project. Operational impacts are evaluated as part of the assessment of cumulative effects (section 7.0 of the ER), since the operational phase of the project does not commence until the construction phase has completed, and any reasonably foreseen impacts resulting from operation of the project fall within the temporal boundaries of the cumulative effects assessment (i.e. within 3 years following construction completion). As noted above, the cumulative effects

[157] Ex. F-1-1, p. 5-6, Environmental Report and Environmental Report Amendment, Ex. F-1-1, Attachments 1 and 2.
[158] OEB Environmental Guidelines for Hydrocarbon Project, 8th Edition (March 28, 2023), p. 23. "The rationale provided in the Environmental Report for the routing or siting should be evident."

assessment completed as part of the ER indicates that no significant cumulative effects are anticipated from the development of the project.[159]

161. PP and CAFES Ottawa raise an issue with the route alternatives and preferred route selection. They assert that the alternatives and route selection were restricted to a narrow boundary (Study Area) surrounding Enbridge Gas's preferred route (PR), but this ignores the process in which the PR was determined.[160] The OEB's Environmental Guidelines in force at the time of preparation of the original ER states that "study area boundaries should be established, to ensure that all reasonable alternatives and their impacts can be evaluated". The 250 m wide Study Area, defined by the expert consultant Dillon, around the alternative routes was based on the start and end points of the routes, and included areas that were most likely to be directly or indirectly affected by the project.

162. This size of study area is commonly used in the environmental assessment process and has been acceptable to the OEB in many previous applications.[161] Enbridge Gas identified multiple alternatives and ultimately selected a different PR than the originally identified Preliminary Preferred Route, due to feedback received during the initial stakeholder consultation program it conducted. PP and CAFES Ottawa's submission on this point should be rejected.[162]

163. PP and CAFES Ottawa state that, for the Rockcliffe Station relocation, the final location for the pipeline and station was not used to consider alternatives, impacts and mitigation for the project and fall outside of the Study Area.[163] Rockcliffe Station is a Canada Energy Regulator (CER) asset and at this time, the final location has not been selected for the relocation of the station. Since the Rockcliffe Station Relocation is outside of the scope of the project, it is not appropriate to have considered potential relocation options and their associated natural gas infrastructure facilities within the

[159] Ex. F-1-1, p. 6.
[160] PP and CAFES Ottawa Argument, p. 31.
[161] For example, EB-2020-0136 Cherry to Bathurst Replacement and EB-2023-0175 Watford Pipeline.
[162] Ex. F-1-1 Attachment 2, p. 12 and Appendix D – Updated Stakeholder Consultation Log.
[163] PP and CAFES Ottawa Argument, p. 32.

scope of the ER prepared for this project. Enbridge Gas confirms that the pipe associated with the project for all new potential Rockcliffe Station Relocation locations still falls within the Study Area. Should Enbridge Gas relocate the station in the future, it will conduct its planning work in accordance with federal, provincial and municipal regulations.[164]

H. LAND MATTERS

164. Exhibit G in this application addresses land matters, including the Enbridge Gas forms of easement and of temporary land use and the status of outreach and negotiations with affected landowners.[165]

165. In OEB staff's submissions, it confirmed that: "OEB staff submits that the OEB should approve the proposed form of easement and temporary land use agreements as both were previously approved by the OEB."[166]

166. OEB staff further confirmed that it has no concerns with the relocation of the Rockcliffe Station, as the proposed conditions of approval require Enbridge Gas to obtain all necessary approvals, permits, licenses and certificates needed to construct, operate and maintain the project.[167]

167. No intervenors made submissions on land matters or the proposed forms of agreement. However, FRPO and PP and CAFES Ottawa made submissions on the relocation of Rockcliffe Station. As described above in paragraphs 137 and 163, the relocation of Rockcliffe Station resides under a different energy regulator requiring a separate approval. Should Enbridge Gas relocate the station in the future, it will conduct its planning work in accordance with federal, provincial and municipal regulations.

[164] Ex. JT2.26 and Ex. I.4-STAFF-21.
[165] Ex. G-1-1, p. 1-4.
[166] OEB staff Argument, p. 32.
[167] OEB staff Argument, p. 32-33.

I. INDIGENOUS CONSULTATION

168. On the issue of consultation with potentially affected Indigenous communities, Enbridge Gas explained that it was delegated the procedural aspects of consultation by the Ministry of Energy and Electrification (ENERGY). In accordance with the OEB's guidelines, an Indigenous Consultation Report (ICR) outlining consultation activities Enbridge Gas has conducted has been prepared, provided to ENERGY and filed with the OEB as part of this application. Enbridge Gas is not aware of any outstanding concerns from Indigenous communities at this time and has committed to maintaining ongoing engagement with these communities throughout the life of the project to ensure any potential impacts on Aboriginal or treaty rights are addressed, as appropriate.[168]

169. On November 8, 2024, Enbridge Gas received ENERGY's letter of opinion (Sufficiency Letter) in which ENERGY stated that, based on its review of materials and outreach to Indigenous communities, ENERGY is of the opinion that the procedural aspects of consultation undertaken by Enbridge Gas to date for the purposes of the OEB's Leave to Construct process for the project are satisfactory.[169]

170. In its submissions, OEB staff states:[170]

> OEB notes that the Letter of Opinion has been filed and that the Ministry expressed its satisfaction with the procedural aspects of the consultation.
>
> OEB staff submits that Enbridge Gas appears to have made efforts to engage with potentially affected Indigenous groups and no concerns that could materially affect the Project have been raised through its consultation to date.
>
> OEB staff is not aware of any potential adverse impacts of the Project to any Aboriginal or treaty rights.

[168] Ex. H-1-1, p. 1-5.
[169] Ex. H-1-1, Attachment 4 (Updated November 12, 2024).
[170] OEB staff Argument, p. 35.

J. CONDITIONS OF APPROVAL

171. In preparing this application Enbridge Gas reviewed the OEB's standard conditions of approval that are typically ordered in leave to construct applications, and did not identify any additional or revised conditions it wished to propose.[171]

172. In OEB staff's submissions, it noted: "OEB staff sought comments from Enbridge Gas on the OEB's Standard Conditions of Approval for leave to construct applications. In response, Enbridge Gas agreed with the Standard Conditions of Approval." And OEB staff therefore submitted that, if leave to construct is granted, it should be subject to the conditions of approval attached as appendix "A" to its submissions. That is acceptable to Enbridge Gas.

173. PP and CAFES Ottawa seeks a requirement to file the completed Environmental Protection Plan (EPP) prior to the commencement of construction.[172] Enbridge Gas's EPP will incorporate recommended mitigation measures contained within the ER and those stipulated by permitting agencies.[173] The Standard Conditions of Approval require that "Enbridge Gas Inc. shall implement all the recommendations of the Environmental Report filed in the proceeding, and all the recommendations and directives identified by the Ontario Pipeline Coordinating Committee review." Enbridge Gas is producing an EPP to aid in informing field personnel of the environmental mitigation measures needing to be implemented and of the commitments it made that need to be followed during construction. The EPP functions as a living document, evolving throughout the construction of the project as need be. Filing the EPP would not provide any additional useful information, and is not something the OEB typically requires to be filed – as such, PP and CAFES Ottawa's request should be rejected.

174. PP and CAFES Ottawa also make a bald assumption that the City of Ottawa is expected to require Enbridge Gas to remove existing pipeline, rather than abandon in

[171] Ex. I-1-1, p. 1.
[172] PP and CAFES Ottawa Argument, p. 46.
[173] Ex. F-1-1, p. 5, para. 15.

place due to the majority of the project being located in the same road right-of-way as the existing pipeline.[174] There is no basis for this assertion. PP and CAFES Ottawa have misinterpreted the route outlined in the Project Map[175] which shows the majority of the existing pipelines along Hwy 417 and St Laurent Blvd being replaced outside the existing right-of-way. In any event, Enbridge Gas is permitted to decommission and abandon the pipeline in place pursuant to its franchise agreement with the City of Ottawa, and the City of Ottawa has not expressed any concerns.[176]

K. CONCLUSION AND RELIEF REQUESTED

175. For all of the above reasons – and consistent with OEB staff's position – Enbridge Gas submits that, on the record of evidence, it has established the need for this project and that the Replacement Option is the best alternative to address the urgent need to remediate the deteriorated condition of the SLP and ensure continued safe and reliable operation. Enbridge Gas has also addressed the other standard issues in order to show that this proposed Project is in the public interest.

176. Enbridge Gas therefore submits it is in the public interest for leave to construct to be granted, and requests that the OEB issue an order granting leave, subject to the OEB's standard conditions of approval. At the conclusion of its submissions, OEB staff similarly submitted that "the OEB should approve the Project."[177]

177. We also note, by way of reminder, that there is urgency in respect of the completion of these proceedings given the need for timely permanent mitigation to be put in place to address the serious integrity concerns, and given that the start of construction for this Project has been planned for April 2025 (with a project in-service date of December 2026). This was previously referred to in Enbridge Gas's submissions in December 2024 on the question of the form of hearing and in the pre-filed evidence. This timing concern was also noted by the OEB in Procedural Order No. 2, bearing in

[174] PP and CAFES Ottawa Argument, p. 6.
[175] Ex. A-2-1, Attachment 1.
[176] Ex. I.4-CAFES Ottawa-26.
[177] OEB staff Argument, p. 36.

mind the execution risk Enbridge Gas pointed to in the event of unnecessary delays (in the context of ED's request to delay the proceedings to file certain evidence). In the circumstances, Enbridge Gas respectfully asks that the OEB consider this matter and issue a decision as expeditiously as reasonably possible.

178. All of which is respectfully submitted this 7th day of February, 2025.

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Charles Keizer/Arlen Sternberg
Counsel to Enbridge Gas

Appendix 1
Factual Errors or Misleading Statements in PP and CAFES Ottawa's Argument

Item	Page	Quote from Argument	Nature of Factual Error or Misleading Statement	Supporting Evidence	Reference
1	5	"[EI&R] is the most cost-effective alternative (see Section 5.3 – NPV Analysis and Results for details)."	Incorrect. PP and CAFES Ottawa's "adjustments" to the NPV calculation to substantiate their position are not based in fact or evidence. PP and CAFES Ottawa is attempting to file their own evidence in Argument, which is inappropriate.		Ex. A-2-2, Table 1 and Ex. C-1-1, p. 14-21.
2	5	"[EI&R] is the least impact alternative from an environmental and socio-economic perspective."	Incorrect.	Full Replacement will result in: • Disruption limited to short term (2 years) • Construction planned, coordinated, and communicated. • Optimized route EI&R will result in: • Numerous, ongoing integrity-driven excavations and replacements along heavily trafficked roads • Ongoing inspection and remedial actions through construction activities on a 7-year cycle, plus restoration work • Significant defect repairs/replacements on an emergency basis where disruptions cannot be minimized	Ex. A-2-2, Table 1, Dimension 2.
3	8	"There are no incremental benefits forecasted related to the proposed Project."	Incorrect	Table 1 in A-2-2 summarizes several incremental benefits of the Project across multiple dimensions.	Ex. A-2-2, p. 3-4, Table 1.
4	10	"Enbridge has already recently repaired or replaced certain sections that were determined to require mitigation. There are no other sections requiring immediate mitigation. If there were, Enbridge would have already progressed with those actions."	Incorrect.	Enbridge Gas has identified the need to "inspect and mitigate remaining critical features identified from the inspected sections of the pipeline (40% of pipeline). Integrity has identified the need for 19 additional digs based on the proposed EDIMP dig criteria and probability of sizing the inspection tool. Based on the 2 year timeframe for Phase 2 digs in the proposed Dig Criteria, these digs would be required to be completed by 2025."	Ex. I.2-STAFF-17, Attachment 4, p. 2.

Item	Page	Quote from Argument	Nature of Factual Error or Misleading Statement	Supporting Evidence	Reference
5	12	"The required review letter from the TSSA for the proposed new pipeline is still pending. This letter is typically filed with a Leave to Construct application and the fact that it is still outstanding does nothing to support Enbridge's claim that a replacement is required."	Incorrect.	Enbridge Gas typically receives the TSSA design approval closer to the start of construction, and therefore the absence of this approval to date indicates nothing about the apprpriateness of the Company's proposal or the TSSA's view of it. "TSSA approval has not yet been received. Enbridge Gas anticipates receiving TSSA approval prior to construction starting in Q2 2025, consistent with typical timelines."	Ex. I.1-STAFF-12 b).
6	13	"…the Energy Transition has continued to accelerate since this Project was last declined in 2022"	No supporting evidence.	"While the City's Climate Change Master Plan has ambitious plans to reduce GHG emissions, the status of those priority projects within the Plan that could impact natural gas demand shows that the majority are currently off track and, therefore, the timing of when these reductions could occur cannot be determined."	Ex. B-3-1 p. 2-7, specifically par 17.
7	14	"Enbridge does not have the authority to blend RNG to serve specific customers in Ottawa."	Incorrect.	Any producer of RNG interested in injecting into the Enbridge system can do so today under Rate 401 (Renewable Natural Gas Injection Service).	https://www.rds.oeb.ca/CMWebDrawer/Record/876749/File/document
8	15	"With the continuation of the work toward Energy Evolution, it is expected that the Ottawa Hydro Distribution Service Plan (DSP) to be filed in early 2025 with further align with the City of Ottawa Energy Evolution Net Zero by 2050 objectives."	No supporting evidence.		
9	15	"Repairs and section replacement have already been applied to portions of the SLP, reducing risk even from those included in included in the Quantitative Risk Assessment (QRA) Enbridge created and filed in this application."	Incorrect.	The QRA was completed on the current condition of SLP, and incorporated all recent repairs conducted. "Figure 1 in Exhibit B, Tab 1, Schedule 1, Appendix B showcases the safety level with respect to the LLS and ULS thresholds after repairs, as per the QRA"	Ex. I.1-FRPO-9.
10	15	"Enbridge's singular focus on a Full Replacement has undermined allocation of focus and resources needed to properly consider alternatives including those that align with IRP, DSM and City decarbonization goals."	Incorrect.	Enbridge evaluated six facility alternatives plus non-facility alternatives.	Ex. C-1-1, Table 1.

Item	Page	Quote from Argument	Nature of Factual Error or Misleading Statement	Supporting Evidence	Reference
11	17	"Enbridge's focus has been squarely on the Full Replacement Option even directly following the OEB rejection of the Project in 2022, including when the custom work began on the QRA report in Q2 2022."	Incorrect.	PP and CAFES Ottawa's own reference to Exhibit I.1-STAFF-1 Attachment 2 clearly demonstrates that the preliminary decision (Q2 2023-Q4 2023) and then a final decision (Q1 2024-Q2 2024) to pursue full replacement occured only after the outputs of the "Identify Risks," "Assess Risks," "Respond to Risks," and "Evaluate Alternatives" steps were complete. Additionally, Enbridge Gas witness Mr. Chebaro said on October 31, 2024: "I was tasked earlier by our senior management as the lead on the project. And I could confirm that the direction provided was we are going to approach this from an objective basis. We are going to park the first application aside, and let the data decide on what next steps are required."	Ex. I-1-STAFF-1, Attachment 2. Transcript, October 31, 2024, p. 77-78.
12	19	"Enbridge's experience with the SLP has clearly shown that it is not under a homogenous set of environmental factors or risks, and that extrapolating these across the entire SLP is not appropriate."	Misleading statement.	Enbridge Gas has not treated the SLP as one homogenous unit. This non-homogeneity is clearly demonstrated in Exhibit B, Tab 1, Schedule 1, Figure 17, where the pipeline reliability is shown in different sections to be below targets, approaching limits, and above limits. A pipeline treated homogenously would have only one categorization. "8.8 km of the 11.2 km pipeline (79%) exceeds the acceptable CSA Z662 - Annex O reliability thresholds. Several segments fail these reliability thresholds by orders of magnitude. The segments that fail the targets along the pipeline are non-continuous and are distributed along the pipeline length, as shown in red in Figure 17."	Ex. B-1-1, p. 33-34, including Figure 17.
13	20	"Although the background template is from an Enbridge manual, plotting the pipeline information on this diagram is a manual and subjective exercise prone to interpretation and variation."	Incorrect.	Exhibit I.1-FRPO-10, Attachment 1 shows the calculations supporting the plotting of results.	Ex. I.1-FRPO-10, Attachment 1.
14	21	"For example, the highest likelihood issues are labeled as F1 at the top of the diagram. F1 is related to small leaks, which as noted are peripheral and not actually on the SLP proposed to be replaced[98]." And footnote 98: "Exhibit I.2-ED-10 Table 1. The first item in the table relates to the section of SLP replaced and the remaining leaks identified are not related to the XHP steel pipeline proposed to be replaced."	Incorrect	As described in Exhibit I.2-ED-10, the first item in the table was repaired, not replaced. The leaks listed on the table were, in fact, related to the XHP steel pipeline proposed to be replaced, as denoted by the table heading: "Summary of Repairs on the St. Laurent Pipeline (2014-2024)".	Ex. B-1-1, Attachment 2, p. 17.
15	21	"It was confirmed that no leaks associated with the SLP were identified"	Incorrect	PP and CAFES Ottawa's reference is to a single leak survey over 2 days in 2023 and does not represent the full leak history of the SLP.	Ex. I.1-SEC-2, Attachment 1, p. 9.

Item	Page	Quote from Argument	Nature of Factual Error or Misleading Statement	Supporting Evidence	Reference
16	26	“As the OEB is aware, the Energy Transition is accelerating and it is very possible that results will be achieved before those forecasted in the Energy Evolution Plan. Case A which has the SLP ‘used and useful’ in 2089 or beyond is not a credible case given best available current information and reasonable assumptions.”	No supporting evidence.	"Based on the above, the existing federal, provincial, and municipal policies demonstrate a lack of clear direction and progress, particularly at the municipal level (i.e., in Ottawa) regarding how large-scale electrification would be achieved."	Ex. B-3-1, p. 10.
17	26	"Enbridge confirmed that as customers move to other options, the remaining customer costs would increase"	PP and CAFES Ottawa selectively excludes the rest of the relevant transcript excerpts which qualifies the meaning of the quote.	In the transcript leading up to, and following, Ms. Murphy's comment that PP and CAFES Ottawa quotes, it is clarified that this effect is "in the context of the cases that we looked at in the probabilistic analysis, particularly if you consider case 6, which has hundred percent disconnection rates."	Transcript, November 13, 2025, p. 15-16.
18	26	“The City of Ottawa has identified a steady decrease in future use of natural gas demand over the next decade and out to 2050”	Incorrect	As the Y-axis shows, the referenced chart is portraying emissions levels, not natural gas demand. PP and CAFES Ottawa also selectively excludes the chart's heading from its source document, *Ottawa's Energy Evolution,* "Figure 24: Emissions by fuel type for 100% scenario, 2016-2050." This figure represents a scenario to explore the scope and scale of change required to reduce emissions by 100% by 2050, not a forecast.	OTTAWA’S COMMUNITY ENERGY TRANSITION STRATEGY – FINAL REPORT p. 47 https://documents.ottawa.ca/sites/default/files/energy_evolution_strategy_en.pdf
19	28	"Enbridge confirmed that it has no evidence to indicate that the City of Ottawa will not achieve the Energy Evolution Plan and target of Net Zero by 2050"	Misleading statement.	The referenced interrogatory does not make the confirmation that PP and CAFES Ottawa asserts: "No, Enbridge Gas did not state that achieving net zero by 2050 is not possible. Enbridge Gas provided an overview of the City’s climate plan and status, including whether the priority projects within the plan are ‘on track’ or not (Exhibit B-3-1, paras. 8-17)."	Ex. I.2-PP-39.
20	28	"Pollution Probe offered the OEB an update through filing even more timely evidence on the progress of decarbonisation activities and the resulting energy transition impacts in the City of Ottawa. The trend is clear and the OEB deemed that this evidence was not required for this proceeding.”	Misleading statement regarding the OEB's reasons for denying PP's evidence proposal.	"The OEB denies Pollution Probe’s request to file evidence. The OEB is not convinced that the nature of the proposed evidence is within the scope of this proceeding and the OEB is not clear about the capacity in which Mr. Herbert and Mr. Fletcher could be qualified as experts. There is insufficient information regarding the nature of the proposed evidence."	https://www.rds.oeb.ca/CMWebDrawer/Record/866855/File/document
21	28	"Enbridge indicated that it did not undertake a demand forecast for the area served by the SLP because it is complex and would take time and effort"	Misleading statement.	The interrogatory referenced by PP and CAFES Ottawa asked Enbridge Gas to produce a demand forecast for the scenarios outlined in its probabilistic modelling of customer disconnection (the Integral analysis). Enbridge Gas indicated that including demand within the probabilistic analysis would be difficult and time consuming.	Ex. I.2-PP-46 part b.

Item	Page	Quote from Argument	Nature of Factual Error or Misleading Statement	Supporting Evidence	Reference
22	29	"The Energy Transition witness panel Enbridge put forward in the Technical Conference stated that a ccASHP is not able to handle cold Ottawa weather and therefore it is assumed that natural gas will always be needed. This is factually incorrect, even for the coldest peak day in Ottawa."	Misleading statement.	Enbridge Gas witness Mr. Wood explained that the ability for CCASHP to handle cold Ottawa weather is dependent on multiple factors: October 30, 2024: MR. WOOD: Cody Wood. In the circumstance where both the heat pump and a furnace remain in the home, it is likely that the heating demand would be provided by the furnace, so it is also likely that it would have the same peak demand. October 31, 2024: MR. WOOD: Enbridge Gas, Cody Wood. It is my understanding that the ability of a heat pump to provide heating through cold-weather conditions is dependent on a considerable number of factors. So, it is not simple to say that a cold climate heat pump can provide all the heating requirements for a home even at very extreme cold weather conditions without taking into consideration the particulars of the building and the installation of that heat pump.	Transcript, October 30, 2024 p. 124 and Transcript, October 31, 2024 p. 72.
23	30	"Enbridge analysis was based on - HER+ Program Data January 1, 2023 to March 22, 2024, The very narrow range of data is not a valid predictive extrapolation of the accelerating Energy Transition and also does not include increasing awareness including the IESO heat pumps programs available in the City of Ottawa"	Misrepresentation of evidence and incorrect statements.	Enbridge Gas's evidence explains that the HER+ data were only used to establish the starting point of disconnection scenarios: "Insight derived from the Home Energy Rebate Plus (HER+) Program was used to develop the lower bound. The program data indicates that of the 44,891 natural gas heated homes that installed electric heat pumps through NRCan's Canada Greener Homes Grant in Ontario, only 320 (approximately 1%) disconnected from natural gas while 44,571 (99%) maintained their natural gas connection. Based on this data, the lower bound for the likelihood of disconnection was assumed to be 1%." Regarding the IESO heat pump program available in the city of Ottawa, the IESO offers incentives to homes that are currently heated with electricity, not gas. An IESO incentive program would not impact gas demand.	Ex. B-3-1 p. 13 para 28.
24	35	"Every different assumption applied between scenarios was always applying a more favourable treatment to the Full Replacement Option and a disadvantage to Inspection and Repair, including when guesses were being applied to values."	Incorrect.	Many examples exist to disprove this statement. For example: The Full Replacement assumed a 4% escalation rate for general construction, whereas EI&R assumed a 3% escalation rate.	Ex. I.2-STAFF-17, Attachment 4.

Item	Page	Quote from Argument	Nature of Factual Error or Misleading Statement	Supporting Evidence	Reference
25	36	"The basis of the escalation used by Enbridge is punitive and not statistically prudent" and associated footnote 193: "Statistical significance of the Enbridge assumption is far outside the range of logic per PollutionProbe_CAFESOttawa_SUB_Appendix A _20250124. The Standard deviation of the historical transmission line dig data is 71,626 which is an extremely wide dispersion in the costs. The R-Squared is only 0.28, which is also indicates extremely uncorrelated data for extrapolating any assumptions. This lack of correlation is further illustrated by the transmission line costs per dig which ranges from approximately $8,000 to $285,000 (the highest cost being in a pandemic year).	PP and CAFES Ottawa is providing statistical expert evidence in Argument when they are unqualified as an expert.		
26	38	"To be conservative and using Enbridge's assumptions, it would be very conservative to apply $600 million of additional costs to the Full Replacement Option to make an 'apples to apples' comparison.	Unsubstantiated evidence in argument.	There is no evidentiary basis for PP and CAFES Ottawa's assertion that an additional $600 million should be added to the Full Replacement option to make an "apples to apples" comparison.	
27	38-39	"The number and related total costs of the integrity digs should be decreased to a more logical value. Decreasing by at least 95% appears to be more in line with the pace of digs across the system, including on similar distribution lines that are older or have higher risk than the SLP . In addition, removing guesstimate digs after 2050 would reduce those estimates by another 70%, or a compounded reduction of 98.5% compared to Enbridge's dig guestimate. Using a conservation 95% true up would result in a decrease of $164.4 million in cost reduction to the Inspection and Repair Option Case A (65 years). The similar result for Case B (42 years) and Case C (31 years) is $98.2 million and $63.8 million, respectively."	Unsubstantiated evidence in argument.	There is no evidentiary basis for PP and CAFES Ottawa's assertion that the number of integrity digs should be decreased by 95% or 98.5%. In any event a 95% reduction would result in an absurdly low number of digs for the remaining life of the asset (14 digs).	
28	41	"The following is a summary of adjustments that apply to the NPV analysis to make the Full Replacement more comparable to the Inspect and Repair Option. Even if only a small number of these adjustments were applied, it results in the Inspection and Repair Option being more cost-effective than the Full Replacement." PLUS Table below quote.	All of these adjustments are unsubstantiated evidence in argument.		
29	45	"the proposed new pipeline will essentially follow the same downtown corridors and result in the greatest impacts if the Full Replacement Option is implemented in those corridors."	Incorrect.	See project map which shows differences between existing pipeline route and proposed pipeline route.	Ex. A-2-1, Attachment 1.

Item	Page	Quote from Argument	Nature of Factual Error or Misleading Statement	Supporting Evidence	Reference
30	45	"Locating the proposed Project in the same busy active downtown corridors poses the same risks now and over the life of the pipeline."	Incorrect.	Comparison of risks of Full Replacement (with modified route from existing pipeline) to EI&R shows considerably higher risks on multiple dimensions for the EI&R option. Full Replacement reduces reliability risk related to third-party damage.	Ex. A-2-2, Table 1. Ex. I.1-SEC-6.
31	45	"Enbridge has suggested that isolated repairs could be disruptive, but increased scope of Full Replacement construction activities will increase the magnitude and time related to those impacts. Cumulative traffic impacts also far exceed that of the more limited and isolated Inspection and Repair Option. Repairs and limited section replacements have already proven to be a feasible solution without disrupting the entire pipeline corridor during a concentrated period."	Incorrect and unsubstantiated evidence.	"In addition to these expected short-term construction activities, Alternative B will require on-going inspections and repairs over the life of the asset to keep the pipeline system within safety thresholds. This ongoing construction which is estimated to occur on a 7-year interval is likely to cause significant traffic congestion and disrupt daily life for Ottawa residents, particularly those who regularly use Hwy 417 or St. Laurent Blvd. for their daily commutes or to access residential, retail, and commercial buildings in the area. Additional restoration work, including road resurfacing and sidewalk replacement, usually occurs at a later stage. These activities will also contribute to further disruptions, such as increased traffic and restricted driveway access to buildings."	Ex. A-2-2, Table 1, Dimension 2. Ex. C-1-1 p.12-13.