EB-2022-0200

Enbridge Gas 2024 Rebasing

GFN Compendium for Panel #2

Concentric claims that "an increasing number of investors… are prioritizing environmental, social, and governance ("ESG") considerations when making investment decisions.[27] In a succeeding section of Concentric's report, the impact of this is illustrated under "Enbridge developments." On June 2021 and September 2021, Enbridge issued SLBs that received an estimated 5 and 10 basis point "greenium," which is the "discount relative to the estimated interest rate of a debt issuance from Enbridge."[28] Further "(b)ond analysts have noted that such premiums are increasingly common among green bond issuances as investor demand far outpaces supply."[29] This is an actual, quantitative data point that illustrates how investors' ESG concerns affect the company. Since the result is a small *decrease* in the cost of new debt, this example does not support the assertion that investor concerns about the energy transition leads to an *increase* in EGI's capital risk.

Q47 Concentric says that emissions reduction targets announced by North American utilities are indicative of a "significant increase" in EGI's capital risk. Do you agree?

A47 No. Concentric lists numerous examples of utilities' climate commitments. These utility commitments are indicative of the fact that a decarbonization-focused energy transition is happening. However, Concentric again provides no tangible evidence that these utility commitments cause or indicate any specific course of action that would result in EGI not earning its return on and of capital.

Q48 Concentric says that regulatory responses have contributed to an increase in EGI's capital risk. Do you agree?

A48 No. Concentric's arguments do not sufficiently link "future of gas" proceedings to an increase in capital risk.

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[27] Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 25 of 164.
[28] Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 32 of 164.
[29] Ibid.

The evidence provided consists of examples of proceedings in the United States that examine the future of gas utilities. Concentric claims that these:

> "illustrate the degree to which the Energy Transition affects gas utilities' business risk today, as investors must consider that the long-term prospects of the industry have changed. Even if these impacts take years to unfold, investors take these factors into account today."[30]

I have prepared a survey of "future of gas" regulatory context and studies for eight U.S. jurisdictions, which I include as Attachment 3 to this evidence. This survey shows that leading states are taking a proactive look at the potential risks associated with energy transition. Those states are laying the groundwork for the types of analysis and actions that would be required to mitigate capital risks for gas utilities, if they arise.

To take Massachusetts as an example, Concentric quotes the petition from the state's attorney general asking for the creation of a docket to assess the future of gas utility operations and planning in light of the state's binding net zero commitment for 2050. Concentric fails to follow up and report on what followed that petition: the regulator opened a proceeding focused on the utilities' role in the state's achievement of its targets, in a cost-effective way and with a focus on safe and reliable service, while "potentially recasting" the role of the gas utilities in the state. The resulting study went further than almost all other comparable analysis that I am aware of in laying out both the challenges for gas utility regulation and the ability of straightforward regulatory and financial tools to mitigate risks. As a result, Massachusetts gas utilities and their regulators have a better sense of their future and path through the energy transition than other gas utilities. In short, and contrary to Concentric's claims, regulatory attention to energy transition issues reduces uncertainty and lowers risk. OEB consideration of EGI's plans in the context of the Ontario Ministry of Energy's Cost-Effective Energy Pathways

[30] Exhibit 5, Tab 3, Schedule 1, Attachment 1, Page 31 of 164.

Modelling the Strategic Transition of a Gas Utility White Paper

Modeling the Strategic Transition of a Gas Utility

With application to quantifying capital risk

May 1, 2023

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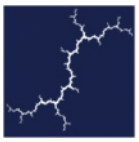

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1. INTRODUCTION

Future of Gas proceedings have been created in several states including New York, Rhode Island, Massachusetts, and California to discuss how to transition the gas system to meet state GHG emission reduction targets. Gas rate cases in Ontario and Quebec have raised issues regarding capital recovery risk in an energy transition scenario. All of these proceedings would be enriched by analysis that can demonstrate how the utility and its customers could manage a dramatic change in the gas utility's service provided, where a significant percentage of natural gas customers elect to exit the gas system and fully electrify their homes and businesses.

To contribute to these discussions, Synapse developed a financial model of a hypothetical utility, the Strategic Transition Model (STM). This simplified gas model calculates revenue requirements and financial metrics, providing insight into the impacts and correlates of a transition to a smaller gas utility.

This white paper documents the STM's characteristics, outputs, structure, calculations, assumptions, and simplifications. It provides illustrative results for a case in which gas use winds down to zero by 2050 in the building sector and among customers served by low-pressure mains, while gas use remains unchanged among industrial customers served by high-pressure mains and transmission.

2. MODEL SUMMARY

The STM is a simplified model of a hypothetical utility; the results can be scaled to approximate any gas utility if updated with the appropriate inputs. The STM calculates revenue requirements and financial metrics, providing insight into the impacts of a transition from today's state to a smaller gas utility.

The gas system in transition is characterized and driven by two factors: the rate of customer departure and the quantity of gas consumed. The STM assesses the impact of these changes.

The STM divides the current gas system into a *retiring* system and an *indefinite* system, with retirements based on assumptions about customer departures. The *retiring* system serves residential and commercial building consumers and is characterized by increased customer defection, since heating equipment and other building appliances are relatively easy to electrify. As modeled, this segment exits the natural gas system over time—the utility first retires meters and services as individual customers depart, and then mains as possible with neighborhood retirements. The indefinite system is composed of customers who need to retain the connection with the gas system as they will not fully electrify. For the purposes of model simplicity, we have assumed that these are the utility's industrial customers (or other customers directly served by high-pressure distribution mains or transmission).

INDUSTRIAL GAS USERS ASSOCIATION (Hopkins)

Answer to Interrogatory from Pollution Probe (PP)

Reference:

"Require EGI to conduct a detailed business analysis, along the lines of the illustrative examples I provide in my testimony, following the publication of Ontario's ongoing pathways study and the conclusions of the Electrification and Energy Transition Panel, to inform its capital and operational plans." [IGUA_IntrvEVD_Exh M8_Asa Hopkins_EGI Rebasing_20230511, Page 6]

Questions:

Enbridge analysis and related evidence in the Rebasing application was not done in partnership or collaboration with other relevant stakeholders (e.g. IESO). The studies put forward were not peer reviewed or open for stakeholder comments, which has led to significant gaps and updates required. For example, the Guidehouse Net Zero study is on its third publication in less than a year resulting in over $140 billion in corrections to the modeling and related report. What process would you recommend to the OEB to enhance the value and credibility of the analysis if the OEB adopts the recommendation for EGI to conduct additional analysis as outlined above?

Response:

The OEB faces an interesting challenge. On one hand, the information that is required to do this kind of analysis right gets into a level of detail that exceeds what utilities can easily share with outside participants, and requires expertise and experience with gas system operation to fully use. This includes geographic information (which assets are where; how old are they and what are they made of; and how are they connected to other assets), operational information (how do different assets contribute to the safe and reliable operation of the gas system; what are the capabilities and expertise of field staff and contractors), and business/financial information (what do actions cost, what are their implications for the financial strength of the company). In addition, utility management is composed of the people selected by the asset owners to undertake these kinds of planning exercises. These reasons support having utility employees and experts under contract to the utility conduct some or all of the energy transition planning.

On the other hand, utility staff and management bring an inherent perspective and bias to conducting this work, by virtue of their roles and responsibilities: their incentives are not fully aligned with the public interest. In addition, experts outside of the gas utility have valuable information and insight to contribute to a successful planning exercise. These experts include institutional stakeholders (such as IESO and electric distribution companies), market actors (such as HVAC installers, manufacturers, and distributors), and advocates who can reflect different customer and resident interests (including low-income and energy justice interests).

There have not been any perfect examples of how to resolve this tension. For example, even the promising Massachusetts process fell short: it welcomed stakeholder input, but was ultimately driven by the utilities and yet did not take advantage of access to nonpublic information about gas

system planning, operations, and the utility business. It also did not get to the level of business planning required to get to real answers.

Dr. Hopkins offers a few ideas and principles in hopes of helping the OEB find a good path forward:

- Any consultants retained to conduct analysis should be contracted to the OEB, not to a utility. The OEB should lend its authority to the consultant to ensure they get necessary information.

- The OEB should be prepared to require the utilities to conduct analysis and share the results, methods, and tools with the OEB (and its consultants as appropriate), with appropriate security and confidentiality constraints. Results and summary methods should be made public. It is important that oversight confirm that these analyses are conducted from the standpoint of "the best possible version" of each case. That is, utilities should model what they would do when trying to make the best business decisions within the context of each scenario.

- Allow stakeholders to define scenarios, in the level of detail they are capable of. The OEB should provide a venue for stakeholders to develop a limited set of scenarios reflecting different approaches, working with OEB and its experts to make sure the scenarios cover all appropriate parameters. The OEB's experts should analyze these scenarios, and have the utilities do their part (with OEB oversight) to provide the detailed insight necessary to evaluate each scenario.

- The OEB's process should be guided by provincial and federal policy and pathway decisions. It most likely would not helpful for the OEB to develop scenarios that are inconsistent with core tenets and principles of the provincial pathway.

OEB with a plan, accompanied by a quantitative assessment of capital recovery risk.

Q87 Could you elaborate on what this plan should contain?

A87 The first essential step is for the utility to develop a business plan for managing the firm in the changing public policy and competitive context in which it operates. That plan should identify and quantify risks and opportunities, including when they would manifest in impacts on the company as well as what their impacts would be. This plan should include a comprehensive assessment of electricity and gas utility roles in decarbonization, gas load forecasts, infrastructure needs, gas price forecasts, analysis of customer counts and consumption patterns by customer type, and the availability and costs of alternative fuels. Developing such a plan would reduce uncertainty regarding the company's future business, and thereby lower investor risk. Such a plan should also inform analysis of, and selection of, additional mitigating actions. These actions could include:

- Detailed and careful examination of any choice to invest in new gas system infrastructure, including a clear-eyed view of the useful life of that infrastructure (which informs the appropriate depreciation rate and cost/benefit analysis) and the options for economic non-pipeline alternatives to reduce or eliminate the need for rate-based utility infrastructure investment.

- Reevaluation of depreciation approaches for each type of utility asset, including differentiation among assets that serve different types of customers that may have different long-term usage patterns. This could include utilization-based depreciation approaches that move beyond straight-line depreciation to assign depreciation costs based on the projected units of fuel expected to pass through a given asset in each year of its remaining useful life. It could also include identifying which assets

may have alternate future use (such as supporting district heating solutions or carrying different fluids such as captured carbon dioxide) so that their costs and lifetimes can be appropriately modeled.

- Developing partnerships with electric utilities to cost effectively meet winter peak needs through the gas system, subject to regulatory approval and where consistent with provincial plans.

- Evaluation of low-carbon fuels such as green hydrogen[44] or biomethane, including costs and availability as well as impact on pipeline performance and leakage. This should include consultation with experts in different end-use markets, including industrial customers, to identify where these fuels will deliver the greatest overall benefit (such as in meeting needs that cannot be electrified).

Q88 Has EGI started to take risk-mitigating actions of the sort you identified?

A88 The most important actions that EGI has taken to date are to commission the studies from Posterity Group and Guidehouse submitted in this proceeding. These could provide the foundation on which to build a risk analysis that would evaluate scenarios for the likelihood and consequence of capital risk events. However, given the provincial pathways study now underway, the outcome of that process should form the foundation for EGI's decision-making and modeling. The utility could nonetheless use the already characterized scenarios to develop and test its modeling tools.

In terms of concrete actions to test pathways and understand performance risks (and business opportunities), EGI's preliminary work on renewable natural gas and hydrogen could provide some important information to reduce uncertainty and thereby lower risk. It is important that these pilots and other research and

[44] Green hydrogen is hydrogen generated from water through electrolysis using zero-carbon electricity.

Looking at the raw commodity price through the indicator of the Henry Hub price, which is a greater factor for large-volume commercial and industrial customers, gas commodity prices remained low or fell between 2012 and 2021, before the recent war-related spike (which recent data indicates may be dissipating). Retail electricity rates are generally slightly higher (although perhaps lower in real terms) today than they were in 2012.[38]

On net, I would conclude that the competitive position of gas versus electricity is comparable today to what it was in 2012.

Q56 What is the role of public policy and provincial plans in consideration of the competition between gas and electricity?

A56 If gas retains a price advantage, unmanageably rapid departures from the gas system are unlikely. Instead, policy is going to drive adoption rates and the path forward. At this time, Ontario does not have an established path forward to decarbonize the building and industrial sectors. That pathway is being developed through the Ministry of Energy's Cost-Effective Energy Pathways Study process.[39] Once that path is clear and policies and programs are developed to accomplish it, those will become among the primary drivers for customer heating system choice. Even if the province were to choose a high-electrification path, the resulting customer departure rate would likely be manageable because it would be restrained by customer equipment lifetimes and gas's competitive price. For example, customers would be unlikely to jump at the need to change to a heating source that is more expensive, absent a programmatic incentive; the incentive could be targeted and scaled to meet policy objectives. This means that approaches such as neighborhood-level conversions to electric heat are available

[38] "Historical electricity rates." Ontario Energy Board. Accessed at https://www.oeb.ca/consumer-information-and-protection/electricity-rates/historical-electriciity-rates.
[39] "Ontario Finalizes Electrification and Energy Transition Panel." November 17, 2022. King's Printer for Ontario. Accessed at https://news.ontario.ca/en/release/1002487/ontario-finalizes-electrification-and-energy-transition-panel.

and EGI could manage its asset investments and depreciation to mitigate stranded costs. Forward-going customer and utility decisions regarding adding gas service to new construction could similarly account for the new policy context.

Q57 How does the competitive position of natural gas and electricity inform your consideration of changes in EGI's capital risk?

A57 Capital risk is linked to competitive position by the concern that costs will be stranded if the utility is unable to raise rates further without reducing revenue (that is, by driving more sales away than it gains from raising rates). Because EGI begins with its service and fuel having a cost advantage over electricity rates for comparable services, I believe that EGI could sustain a substantial increase in delivery rates and stay below the level where stranded costs would become an issue.

Q58 Have Concentric or EGI conducted analysis of EGI's competitive position and how it relates to capital risk?

A58 No, neither the utility nor its contracted business risk expert have conducted such analysis.

C. Setting a Standard for Utility Energy Transition Risk Analysis

Q59 In the previous two sections, you stated that Concentric's analysis is not sufficient to justify a conclusion that EGI's capital risks have increased. What would an analysis need to include for you to find it convincing?

A59 Risk is composed of the combination of likelihood and consequence. A capital risk analysis should include identification and analysis of the circumstances under which a utility would fail to recover its invested capital along with a fair return, the extent of the shortfall, and the likelihood of such circumstances. The most obvious way to conduct such an analysis would be through scenario analysis.

D. Survey of Analyses Conducted Elsewhere

Q66 Are you aware of utilities or others that have conducted analyses of the sort you have just described?

A66 I am not aware of any one study that has met the full set of best practices that I laid out. However, some utilities, regulators, and policymakers are making good progress. I have included as Attachment 3 to this evidence a white paper that I co-wrote with my colleague Sol Deleon regarding the status of relevant processes and analyses in eight different jurisdictions across the United States: Massachusetts, New York, Maryland, Washington, DC, Minnesota, Colorado, Oregon, and California.

Q67 Are there particular exemplars or lessons from this analysis that are relevant for EGI and the OEB?

A67 Yes. I would highlight aspects of the analysis conducted in five states as particularly relevant here:

1. Massachusetts: In Case 20-80, the state's gas utilities expanded the scope for a study required by the regulator to include explicit analysis of potential regulatory actions and their impacts for the utilities. The study consultants quantified the impact of changing depreciation to a "units of production"-based approach on both near-term rates and the undepreciated plant balance remaining in 2050. They also quantified the potential impacts of geographically targeted electrification and neighborhood-level approaches to asset retirement. The consultants proposed an extensive suite or menu of potential regulatory changes to help the utility manage the energy transition while mitigating both equity and investor concerns.

2. New York: New York's utility regulator has established study and planning requirements that are informing that state's approach to gas utility transformation in line with that state's Climate Scoping Plan's directive to

before they retire. The scenarios would also identify which assets would be able to serve their full engineering life, such as high-pressure pipe serving industrial and power generation customers that plan to retain pipeline gas service as part of their net zero plans. Where scenario modeling identifies assets at risk of stranding, the analysis could identify, and quantify the potential cost of, mitigating actions to avoid stranding.

At the foundational level, scenario analysis of capital risk aims to answer: under what circumstances is a prudent utility manager forced to strand costs; how likely are those circumstances and what is the extent of the stranding; and are some approaches in the near term more or less likely to create unavoidably risky situations later?

Q62 What are other important considerations for this analysis?

A62 There are a handful of additional items to look for in scenario analysis of the gas utility's future:

- The analysis should be geographical in nature and grounded in the topology and configuration of the utility's system. What opportunities are there for neighborhood-level approaches that work well with the age and configuration of existing assets, such as for non-pipeline alternatives?

- The analysis should include the value of optionality—once a utility invests in a long-lived asset it cannot un-invest, so incremental approaches that limit investments in irreversible decisions are more valuable than approaches which depend on large commitments.

- The analysis should respect the ability for customers to make decisions, and account for their behavior when presented with different electric and gas rate designs and incentives. For example, the analysis would examine the impacts of a straight fixed-variable rate design on customer decision-