Elson
Advocacy

August 14, 2023

BY RESS

Nancy Marconi
Registrar
Ontario Energy Board
2300 Yonge Street, Suite 2700, P.O. Box 2319
Toronto, Ontario M4P 1E4

Dear Ms. Marconi:

Re: EB-2022-0111 – Enbridge Gas Inc. – Bobcaygeon Pipeline Project

I am writing to respond to Enbridge's letter of August 8, 2023, asking the OEB to deny Environmental Defence's request to submit evidence in this proceeding. Enbridge's arguments are without merit, as detailed below.

First and foremost, Enbridge fails to respond to core argument regarding relevance put forward by Environmental Defence. Enbridge plans to recover the over $115 million in up front capital cost plus the ongoing incremental capital and O&M costs with forecast revenue. The revenue forecast may not materialize if customers decide to switch to heat pumps instead of gas, or subsequently switch away from gas to heat pumps. Environmental Defence's evidence would speak to the likelihood of that occurring, which is central to the project economics and the risks to ratepayers.

Enbridge relies solely on the fact that the OEB panel for EB-2022-0156/0248/0249 denied Environmental Defence's request to submit evidence in those proceedings. However, the circumstances of EB-2022-0156/0248/0249 in fact strongly support Environmental Defence's request to file evidence in the Bobcaygeon case.

Contrary to Enbridge's assertions, the panel's decision on intervenor evidence in EB-2022-0156/0248/0249 implicitly acknowledged that these issues are indeed relevant – it simply held that the cost-effectiveness of heat pumps and the potential impact on project economics may be explored "through interrogatories or by further discovery or follow-up as the OEB may require."[1]

Subsequent to the panel's decision on the Environmental Defence evidence, Enbridge filed evidence on heat pumps that is highly biased and unreliable, as outlined in Attachment 1 below. This highlights the importance of allowing Environmental Defence to submit evidence from an independent expert. This is necessary so the OEB can consider a different and more balanced perspective.

[1] EB-2022-0156/0248/0249, Decision on Intervenor Evidence and Confidentiality, April 17, 2023, p. 5

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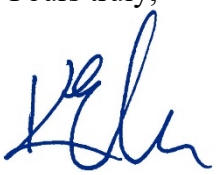
Enbridge suggests that the only way of estimating attachments is with its community surveys. However, the surveys used by Enbridge are highly flawed because they fail to advise customers of critical facts before asking whether they wish to switch to gas, as outlined in Attachment 2 below. Environmental Defence would provide evidence on the actual underlying cost-effectiveness of heat pumps, the current level of knowledge among customers, and the likely future level of knowledge. This is critical information in assessing the likely number of customers connections over the next decade – and is more relevant than a highly flawed survey. Furthermore, the details on heat pumps are relevant to assessing the appropriateness of the Enbridge surveys, which it uses to support its revenue forecasts.

In addition, Environmental Defence has sought a review of the denial of its request to file evidence in EB-2022-0156/0248/0249. That review is on hold and will be adjudicated pending the decisions in those cases.

Finally, far more is at stake in the Bobcaygeon case, with a capital cost of over $115 million versus approximately $18 million in the other three small cases combined. Even if it were true that independent evidence was not required for those other small cases, that would not rule out evidence in the Bobcaygeon case. With over $100 million in costs as risk of falling on the shoulders of existing customers, additional independent evidence relating to the reliability of the revenue forecast is warranted.

Yours truly,



Kent Elson

cc: Enbridge

Attachment 1: Details re Bias in Enbridge Heat Pump Evidence

Enbridge's analysis of heat pumps in EB-2022-0156/0248/0249 is highly biased in favour of gas. The pro-gas biases include the following:

1. **Excludes cooling benefits:** High performance heat pumps are more efficient than traditional air conditioners.[2] Installing a heat pump instead of converting to a gas furnace will save cooling costs for those with existing air conditioners (89% of Enbridge customers have air conditioners).[3] Enbridge disregards these savings in its cost-effectiveness analysis.

2. **Excludes air conditioner costs:** Enbridge's up-front cost comparison is skewed because it compares the cost of a heat pump to the cost of a gas furnace alone, even though a heat pump also provides cooling. A true cost comparison should account for the cost of the air conditioner or otherwise recognise the benefit that heat pumps also provide cooling.

3. **Disregards federal $40,000 interest-free heat pump loans:** Enbridge disregards the $40,000 interest-free loans available for heat pump installations under the greener homes grant.[4] By spreading out the capital costs over time on an interest free basis, the loan would significantly decrease the present value of the costs of a heat pump versus a gas furnace.[5]

4. **Capital cost survey highly biased:** Enbridge's capital cost survey results are highly biased in favour of gas for the followings reasons:

    a. **Excludes highest-cost gas scenario:** The survey purports to gather information on high and low-cost estimates of heat pump and gas furnace installations. However, it artificially excludes the highest-cost gas conversion scenario by excluding customers that are converting from electric baseboard heaters and do not have central ductwork.[6] This is the highest cost scenario for gas heating because it requires expensive retrofitting to add supply and return ducts for the gas furnace throughout a home. In contrast, ductless heat pumps are readily available and cost-effective and do not require ductwork. By artificially excluding this highest-cost gas scenario, Enbridge greatly skews the comparison between high-cost gas and high-cost heat pump installations.

    b. **Includes non-typical costs in the low-cost heat pump scenario:** When calculating the low-cost estimate for heat pumps, Enbridge includes costs that are often not required, such as a panel upgrade, utility service upgrade, and wiring beyond the standard installation costs.[7] A low-cost estimate should not include

[2] EB-2022-0249, Exhibit I.ED.16, Attachment 2, Page 6.
[3] EB-2022-0156 Exhibit I.ED.5
[4] EB-2022-0249, Exhibit I.ED.20.
[5] EB-2022-0249, Exhibit I.ED.16, Attachment 7.
[6] EB-2022-0249, Exhibit I.ED.16, Attachment 4, Page 1.
[7] EB-2022-0249, Exhibit I.ED.16, Attachment 5, Page 1.

items such as a utility service upgrade that are not typically required. This artificially skews the low-cost results in favour of gas.

c. **Low sample size:** The survey only received five responses. It is unclear whether those surveyed are representative of the market or have sufficient knowledge to accurately predict the cost of items such as electrical panel upgrades and utility service upgrades.

d. **Confusing questions:** The survey questions are confusing. For instance, they ask for the "installed cost" of a heat pump and separately ask for the "wiring or other costs."[8] For many HVAC installers, the installed cost would include wiring.

e. **Relies on outliers:** The detailed survey results reveal major outliers, which may be the result of errors, a respondent misunderstanding the questions, or incorrect information.[9] Enbridge should have removed the outliers and taken an average of the estimates. Instead, Enbridge does not take an average, and instead relies exclusively on the outlier responses to come up with its high-cost heat pump estimate.[10]

f. **Emphasizes extreme results:** Enbridge's approach treats the high-cost heat pump cost estimate as being equally relevant and likely even though it is extreme and highly unlikely.

g. **Disregards other additional gas costs:** Enbridge specifically itemizes and asks for additional estimates of any conceivable additional heat pump cost that may arise (e.g. wiring). In contrast, it does not itemize or specifically ask about additional gas costs that are likely to arise, such as the cost to install intake and exhaust vents required for modern furnaces or the cost to pipe gas from the meter to the furnace, both of which could be expensive depending on the home layout and furnace location.

h. **Fails to rely on third-party studies:** Instead of conducting its own biased survey, Enbridge should have relied on independent studies prepared by people with expertise in estimating costs of heat pump installations. In the very least, it should have compared its results to publicly available studies. Enbridge even failed to compare its results to the heat pump cost estimates it has submitted in evidence in previous OEB proceedings.

5. **Ignores the extra length charge:** Enbridge disregard the extra length charge it applies to new connections. Whether the charge is at the current levels or those proposed for 2024 ($159 per m over 20 m), this is an important consideration in the rural communities at issue in this case. A rural property in the relevant communities can be more than 100 m

[8] *Ibid*.
[9] *Ibid*.
[10] *Ibid.*

away from the road. Disregarding this cost is yet another example of how Enbridge skews a comparison of high-cost gas versus high-cost heat pump installations.

6. **Model inputs remain unverified:** Enbridge continues to withhold certain excel spreadsheets it used to ran the Guidehouse model. Enbridge acknowledges that it ran the model using unique input assumptions.[11] However, it has not provided an example of one of those model runs for us to verify the inputs that were used.[12] There continue to be elements that have not been verified, such as whether Enbridge updated the Guidehouse spreadsheet to remove taxes from the electricity cost (the Guidehouse model in Attachment 3 applies taxes only to electricity costs, not to gas costs, which significantly skews the results). If Enbridge states in its reply that is did make the adjustment, we ask that it file a copy of Attachment 3 with the inputs corresponding to one of the outputs in Attachment 7 (e.g. Toronto, 4 ton, 2023) so this can be verified.

7. **Underestimate carbon price impacts:** Enbridge underestimates the impacts of carbon pricing by assuming the equipment is installed this year (i.e. 2023), even though the revenue forecast assumes installations will occur over the next decade. The carbon price increases as time goes on. Using a mid-point installation in 2027 as the base case would result in an additional $\$0.12/m^3$ in carbon costs, making the heat pump option even more cost-effective.

[11] Enbridge Argument-in-Chief, p. 14.

[12] Enbridge states that we can manually run the model to confirm the inputs but we are not able to replicate Enbridge's results. Enbridge also does not provide all the inputs, including the electricity rates and the tax treatment of energy costs.

Attachment 2: Details re Flaws in Enbridge Survey Methodology

Enbridge primarily relies on the results of its surveys in EB-2022-0156/0248/0249 to forecast the likely number of customers that will connect to its gas system. However, the surveys were biased and unreliable.

Most importantly, the surveys failed to provide key information before asking customers whether they were likely to connect to the gas system.[13] This missing information included the following:

1. That the federal government is offering $5,000 rebates for customers to switch to high-efficiency electric heat pumps, which are not available for gas furnaces.[14]

2. That the federal government is offering an *additional* $5,000 in rebates for customers to switch from oil to high-efficiency electric heat pumps if they earn a median income or lower (e.g. $122,000 after-tax income for a family of 4 in Ontario) through the Oil to Heat Pump Affordability Program.[15]

3. That the federal government is now providing up to $40,000 in interest free loans, which can be put towards conversions to electric heat pumps, and not gas equipment, through the Greener Homes Loan.[16] (Note: The survey script does include a vague reference to heat pump rebates.[17] However, that is a far cry from actually indicating the high level of rebates that are available. In addition, the script fails to note that the rebates *and interest free loans* can make a heat pump installation less expensive than a gas furnace coupled with a traditional air conditioner.)

4. That heat pumps could save a customer approximately $1,200 in annual heating costs versus a gas furnace for a house with a moderate heat load (or whatever Enbridge's estimated savings are).[18]

5. An estimate of the extra line charge based on the distance of the building from the road.

6. That heat pumps significantly reduce summer cooling costs.

7. That natural gas is a potent greenhouse gas and its combustion generates approximately 1/3rd of Ontario's greenhouse gas emissions.[19]

8. That heat pumps result in far less greenhouse gas emissions than gas furnaces.[20]

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[13] The following list is based on the survey information for Hidden Valley and Selwyn. Equivalent information is not available for the Mohawks of the Bay of Quite First Nation but one can assume that the approach was similar.
[14] EB-2022-0249, Exhibit I.ED.20 & Exhibit I.ED.5.
[15] EB-2022-0249, Exhibit I.ED.20 & Exhibit I.ED.5.
[16] EB-2022-0249, Exhibit I.ED.20 & Exhibit I.ED.5.
[17] EB-2022-0249, Exhibit I.ED.5, Attachment 1, Page 52.
[18] EB-2022-0249, Exhibit I.ED.16, Attachment 7, Ottawa, 4 Ton Heating Load, "Cost savings" row, averaged; EB-2022-0249, Exhibit I.ED.5.
[19] EB-2022-0249, Exhibit I.ED.5.
[20] *Ibid*.

Instead of noting the concrete benefits of heat pumps, the script emphasizes that a heat pump may require ductwork changes and an electrical upgrade, even though these are often not required.[21]

Enbridge's decision not to provide customers with an estimate of the savings from installing a heat pump versus a gas furnace is particularly concerning. Enbridge *does* tell customers how much they will save as between gas and oil, propane, or electric baseboards.[22] There is no reason why Enbridge could not do this for heat pumps as well. Although the upfront costs vary, the operating costs of heat pumps are as consistent as the operating costs of the other heating systems that Enbridge forecasts.

The survey script is also misleading. For example:

1. It states that heat pumps "could result in lower annual operating costs compared to other energy sources."[23] The impression left by this statement is that some modest savings are merely possible. In contrast, Enbridge's own analysis shows that heat pumps result in far lower annual operating costs that *in each and every scenario* examined – ranging from $10,000 to $20,000 lower operating costs over the lifetime of the equipment.[24]

2. The script refers to "high upfront costs" for heat pumps and implies that they are greater than gas upfront costs.[25] However, heat pumps likely have lower upfront costs versus gas equipment (a) in homes heated with baseboards (see above re ductless heat pumps), (b) in rural buildings with high extra length charges, and (c) in homes receiving the $10,000 Oil-to-Heat-Pump rebate. In other cases, heat pumps will still often be cheaper than a gas furnace and traditional air conditioner after accounting for the federal rebates and interest free loan.

3. The script also leaves the impression that it is a challenge to heat homes with heat pumps in cold climates without "specialized" equipment or "a supplementary heating source."[26] In reality, all that is needed is an inexpensive built-in backup heating coil that comes standard in markets like Ontario.

The lack of information on heat pumps is a problem because current customer knowledge of heat pumps is low but increasing. Customers are likely to learn more before they actually invest in new equipment. Over the 10-year customer connection forecast, knowledge will be greater than it was back in 2022 when the surveys were conducted. Until recently, gas was the cheapest way to heat a home. Most customers likely assume that to be the case. But that has changed because of the following:

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[21] EB-2022-0249, Exhibit I.ED.5, Attachment 1, Page 52.
[22] EB-2022-0249, Exhibit I.ED.5, Attachment 1, Page 58 ("With the surcharge added, an average home will save approximately [H5SEL] per year by switching heating equipment to natural gas. Savings are likely greater for businesses Considering this, how likely are you to convert your heating system to natural gas?").
[23] EB-2022-0249, Exhibit I.ED.5, Attachment 1, Page 52.
[24] EB-2022-0249, Exhibit I.ED.16, Attachment 7, Ottawa, 4 Ton Heating Load, "Cost savings" row, averaged; EB-2022-0249, Exhibit I.ED.5.
[25] EB-2022-0249, Exhibit I.ED.5, Attachment 1, Page 52.
[26] EB-2022-0249, Exhibit I.ED.5, Attachment 1, Page 52.

- Advancements in heat pump efficiency, which lowers heating costs;
- The advent of cold climate heat pumps and built-in backup electric heating elements;
- The federal government's rebates and interest free loan program;
- The carbon price, which was only established in 2019 and adds 12.39 cents/m3 now, and will add 32.40 cents/m3 by 2030.[27]

In this changing environment, it is not sufficiently reliable to base revenue forecasts on the state of customer knowledge in 2022 when the surveys were conducted. That knowledge has already evolved by now and will keep evolving over the revenue horizon. Enbridge could have corrected for this factor by informing customers of the above details in its survey scripts, but it did not do so.

[27] Enbridge Gas, Federal Carbon Charge (link).