Elson Advocacy

May 2, 2018

BY COURIER (2 COPIES) AND RESS

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge Street, Suite 2700, P.O. Box 2319
Toronto, Ontario M4P 1E4

Dear Ms. Walli:

Re: EB-2017-0319 Enbridge Gas Distribution Inc. ("Enbridge")
RNG Enabling Program and Geothermal Energy Service Program
Notice of Motion re Intervention Request

Enclosed please find the Interrogatories of the Ontario Geothermal Association ("OGA") in the above matter.

We also ask that the contact information for the OGA be updated in the Board's records as follows:

Ontario Geothermal Association
c/o HRAI
2350 Matheson Avenue, Suite 101
Mississauga, Ontario L4W 5G9

Attn: Martin Luymes
Director, Programs and Relations
Heating, Refrigeration and Air Conditioning Institute of Canada (HRAI)
Tel: 905-602-4700 ext. 235
mluymes@hrai.ca

Please do not hesitate to contact me if anything further is required.

Yours truly,

Kent Elson

Kent@ElsonAdvocacy.ca tel: 416 906-7305
300-160 John St. Toronto, Ontario M5V 2E5 fax: 416 763-5435

EB-2017-0319

Ontario Geothermal Association Interrogatories for Enbridge

Issue 1.2 - Should the new business activity – Geothermal Energy Service Program – be considered as part of the utility's regulated business?[1]

1. Reference: Ex. B, Tab 1, Schedule 1, p. 27-30 & Appendix 11

Please confirm that the calculation of the profitability index for Enbridge's proposed geothermal project does not include avoided carbon costs.

2. Reference: Ex. B, Tab 1, Schedule 1, Appendix 11

Please provide an estimated breakdown of Enbridge's customer attachment forecast based on the fuel type that will be replaced by the geothermal installation.

It is understood that this will require a number of assumptions and caveats. Please undertake this analysis on a best efforts basis, make assumptions as necessary, state those assumptions, and state all necessary caveats.

3. Reference: Ex. B, Tab 1, Schedule 1, p. 27-30 & Appendix 11

Please estimate the avoided natural gas volumes (m3), carbon emissions (tonnes CO2 equivalent), and carbon costs ($) expected to result from the forecast number of customers converting to geothermal. Please calculate the figures for the expected lifetimes of the geothermal loops to be installed. For the total avoided carbon costs, please (a) provide a nominal value, (b) an NPV figure, and (c) a breakdown of the avoided costs associated with decreased natural gas usage versus other fuels.

For the price of carbon, please use the Board's Long Term Carbon Price Forecast. For years beyond that forecast (i.e. 2028 onward), please use Enbridge's best estimate of the future carbon prices, and provide an explanation if different figures are used than those in Exhibit I.1.EGDI.ED.24 in EB-2017-0224.

It is understood that this will require a number of assumptions and caveats. Please undertake this analysis on a best efforts basis, make assumptions as necessary, state those assumptions, and state all necessary caveats.

[1] Note that these interrogatories also relate to issue 2.3 - Are the services fees for the Geothermal Energy Service Program reasonable and appropriate?

4. Reference: Ex. B, Tab 1, Schedule 1, p. 27-30 & Appendix 11

Please complete the following table. Please provide a response by PDF and also in an electronic Excel spreadsheet.

It is understood that this will require a number of assumptions and caveats. Please undertake this analysis on a best efforts basis, make assumptions as necessary, state those assumptions, and state all necessary caveats. Please use the same assumptions as in Exhibit I.1.EGDI.ED.24 in EB-2017-0224, unless you believe that different assumptions are warranted, in which case please state so and explain why. Please adjust the table as necessary based on the method used by Enbridge to estimate the carbon reductions from switching from fuels other than natural gas,

Value of Lifetime GHG Emissions Reductions from the Proposed Geothermal Program					
	Year 1	Year 2	…	Last year of lifetime savings	Total for all years
Customer conversions (#)					
Natural Gas Conversions					
Conversions from NG (#)					
Forecast annual NG savings (m^3)					
Forecast annual GHG reduction from NG (t co2e)					
Forecast carbon price ($/tonne)					
Value of GHG reduction ($, nominal)					
Value of GHG reduction ($, NPV)					
Conversions From Other Fuels					
Conversions from other fuels (#)					
Est. avg. GHG savings rate – other fuels[2]					

[2] This figure could be estimated GHG reductions from a typical customer, averaged over the other fuel types. An estimate could be calculated based on figures available in EB-2016-0004.

Forecast annual GHG reduction from other fuels (t co2e)					
Forecast carbon price ($/tonne)					
Value of GHG reduction ($, nominal)					
Value of GHG reduction ($, NPV)					
Totals					
Value of GHG reduction ($, nominal)					
Value of GHG reduction ($, NPV)					

5. Reference: Ex. B, Tab 1, Schedule 1, p. 27-30 & Appendix 11

Please recalculate the profitability index for the proposed geothermal program including the benefits from avoided carbon emissions and costs.

Please provide two figures – one including all avoided carbon costs and another including only the avoided carbon costs associated with reduced natural gas usage.

6. Reference: Ex. B, Tab 1, Schedule 1, p. 27-30 & Appendix 11

Please discuss the potential benefits to natural gas customers from reduced carbon emissions resulting from customers switching from other fuels (e.g. heating oil) to geothermal, including, but not limited to, potential downward pressure on carbon prices.

7. Reference: Ex. B, Tab 1, Schedule 1, p. 27-30 & Appendix 11

If the cap and trade system is cancelled, please provide Enbridge's best estimates of the carbon price that would most likely come into force based on the federal carbon price backstop. If the federal government's "Technical Paper" regarding the backstop is the latest information in Enbridge's possession, please append a copy of that document.

8. Reference: Ex. B, Tab 1, Schedule 1, p. 27-30 & Appendix 11

Please provide a revised response to OGA interrogatory #4 inserting the federal carbon price backstop for the carbon prices (i.e. the carbon levy). Seeing as the federal carbon price backstop

has only been forecast to 2022, please provide a best estimate of the prices beyond 2022 based on the best information available to Enbridge.[3]

Please also provide a revised response to OGA interrogatory #4 (regarding the profitability index) with the above-referenced revised assumptions.

9. Reference: Ex. B, Tab 1, Schedule 1, p. 27-30 & Appendix 11

Please discuss the potential benefits to natural gas customers from Enbridge diversifying its regulated business offerings to include geothermal energy. Please discuss how this could help reduce customer rates in a future scenario where natural gas volumes must be reduced significantly to meet carbon reduction targets.

10. Reference: Ex. B, Tab 1, Schedule 1, p. 27-30 & Appendix 11

Preamble:

The final report of the Board in EBO 188 states that: "A maximum 10 year forecast horizon will be utilized. For customer attachment periods of greater than 10 years an explanation of the extension of the period will be provided to the Board." See section 3.2.1.

Interrogatory:

Please recalculate Appendix 11 based on a 40 year customer forecast. Please make assumptions as needed, state all assumptions, and include any caveats as needed.

If Enbridge believes that a forecast in between 10 and 40 would be more reasonable (e.g. 20 or 30), please also recalculate Appendix 11 based on that longer period.

11. Reference: Ex. B, Tab 1, Schedule 1, p. 27-30 & Appendix 11

Preamble:

The final report of the Board in EBO 188 states that: "A maximum 10 year forecast horizon will be utilized. For customer attachment periods of greater than 10 years an explanation of the extension of the period will be provided to the Board." See section 3.2.1.

Interrogatory:

Please recalculate the profitability index and proposed service fee based on a 40 year customer forecast. Please make assumptions as needed, state all assumptions, and include any caveats as needed.

[3] Enbridge may wish to use a similar inflation factor as was used in Exhibit I.1.EGDI.ED.24 in EB-2017-0224 to estimate carbon prices beyond the end of the Board's Long Term Carbon Price Forecast in 2028. However, we ask that Enbridge use whatever figures it believes are most appropriate.

If Enbridge believes that a forecast in between 10 and 40 would be more reasonable (e.g. 20 or 30), please also recalculate Appendix 11 based on that longer period.

12. Reference: Ex. B, Tab 1, Schedule 1, p. 27-30 & Appendix 11

Preamble:

Enbridge has calculated a service fee of $25.20 per tonne based on a 10 year customer forecast. However, geothermal loops have easily a 50+ lifetime.

Furthermore, the final report of the Board in EBO 188 states that: "A maximum 10 year forecast horizon will be utilized. For customer attachment periods of greater than 10 years an explanation of the extension of the period will be provided to the Board." See section 3.2.1.

Interrogatory:

Please:

(a) Explain why a longer term such as 40 years wasn't used (which would result in lower than otherwise available monthly rates); and
(b) Discuss the pros and cons of using a period longer than 10 years.

13. Reference: Ex. B, Tab 1, Schedule 1, p. 28 & Appendix 11

Preamble:

Enbridge references:

(a) A service fee of $25.20 per tonne in 2018 in Ex B-1-1, p. 28; and
(b) A revenue per tonne per month of $25.30 in Ex B-1-1, Attachment 4, p. 1.

Interrogatory:

Please reconcile these figures.

14. Reference: Ex. B, Tab 1, Appendix 11

Please provide an electronic excel copy of Appendix 11.

15. Reference: Ex. B, Tab 1, Schedule 1, p. 27 & Appendix 11

Please provide documentation justifying and explaining Enbridge's estimated capital costs for the installation of the geothermal loops. Please produce an explanation and attach any pre-existing cost estimate documentation in Enbridge's possession.

16. Reference: Ex. B, Tab 1, Schedule 1, p. 27 & Appendix 11

Please provide documentation justifying and explaining Enbridge's estimated costs for operating and maintaining the geothermal loops. Please produce an explanation and attach any pre-existing cost estimate documentation in Enbridge's possession.

17. Reference: Ex. B, Tab 1, Schedule 1, p. 27

Preamble:

In EB-2016-0004, the OGA submitted a report and interrogatory responses regarding the cost of installing geothermal loops.

Interrogatory:

Please compare Enbridge's estimated capital and O&M costs for the installation and maintenance of geothermal loops with the OGA's evidence and interrogatory responses in EB-2016-0004.

18. Reference: Ex. B, Tab 1, Schedule 1, p. 27-30 & Appendix 11

Preamble:

In EB-2016-0004, the OGA submitted a report and interrogatory responses regarding the cost of geothermal. This evidence discussed how the costs of geothermal energy would decline with economies of scale and technological improvements.

Interrogatory:

Please:

(a) Discuss whether the Enbridge has assumed that the estimated capital costs will decline over time based on economies of scale and technological improvements;
(b) If not, please put forward Enbridge's best estimates for the reduction in capital costs due to economies of scale and technological improvements.

19. Reference: Ex. B, Tab 1, Schedule 1, p. 27-30 & Appendix 11

Preamble:

In EB-2016-0004, the OGA submitted a report and interrogatory responses regarding the cost of geothermal. This evidence discussed how the costs of geothermal energy would decline with economies of scale and technological improvements.

Interrogatory:

Please:

(a) Discuss whether the Enbridge has assumed that the estimated O&M costs will decline over time based on economies of scale and technological improvements;
(b) If not, please put forward Enbridge's best estimates for the reduction in O&M costs due to economies of scale and technological improvements.

20. Reference: Ex. B, Tab 1, Schedule 1, p. 27-30 & Appendix 11

Preamble:

In EB-2016-0004, the OGA submitted a report and interrogatory responses regarding the cost of geothermal. This evidence discussed how the costs of geothermal energy would decline with economies of scale and technological improvements.

Interrogatory:

Please:

(a) Discuss whether the Enbridge has assumed an increase in customer uptake (i.e. customer attachments) as the cost of heat pumps and other geothermal system equipment declines with economies of scale and technological improvements;
(b) If not, please put forward Enbridge's best estimates for an increase in customer uptake (i.e. customer attachments) as the cost of heat pumps and other geothermal system equipment declines with economies of scale and technological improvements.

21. Reference: Ex. B, Tab 1, Schedule 1, p. 23

Please list and explain the benefits of Enbridge undertaking its proposed geothermal project as a regulated vs. unregulated business.

22. Reference: Ex. B, Tab 1, Schedule 1, p. 27-30 & Appendix 11

If Enbridge were to provide a similar geothermal offering to customers as part of its unregulated business (e.g. via an affiliate), would it need to charge higher rates to customers? If yes, please estimate those higher rates and explain the reasons why.

23. Reference: Ex. B, Tab 1, Schedule 1, p. 27-30 & Appendix 11

If Enbridge were to provide a similar geothermal offering to customers as part of its unregulated business (e.g. via an affiliate), would the financing costs for the high upfront capital costs be higher? If yes, please estimate the difference.

24. Reference: Ex. B, Tab 1, Schedule 1, p. 27-30 & Appendix 11

If Enbridge were to provide a similar geothermal offering to customers as part of its unregulated business (e.g. via an affiliate), would there be any mechanism to capture avoided carbon costs and incorporate them into lower charges for customers?

25. Reference: Ex. B, Tab 1, Schedule 1, p. 27-30 & Appendix 11

Please recalculate the table in response to OGA interrogatory #4 based on the longer customer attachment forecast provided in OGA interrogatory #10. Please also recalculate the response to OGA interrogatory #5 based on these revised assumptions.