

STAFF INTERROGATORY #15

INTERROGATORY

Issue 2 – Cost Consequences

Topic: Geothermal Energy Service (GES) Program – Calculation of Service Fees

Ref: Exhibit B / Tab 1 / Schedule 1 / p. 28, #83

Exhibit B / Tab 1 / Schedule 1 / Appendix 11 and Appendix 12

Preamble:

Enbridge Gas indicates that its service is \$25.20 per tonne and in Appendix 12 outlines its costs assumptions.

Questions:

- a) Does Enbridge Gas intend to enter into a service agreement with the residential customer? Please explain. If yes, please provide the service agreement.
 - i) What is expected length of the contract?
- b) Please explain whether the \$25.20 per tonne is \$25.20 t CO₂e per month.
 - i) Does Enbridge Gas intend to charge the customer \$100.80 per month for the geothermal loops (\$25.20 per tonne * 4 [number of tonnes per customer])? Please explain.
 - ii) Please explain whether the service fees (\$25.20 per tonne) are fixed for the length of the customer's contract? If not, why not?
- c) Line 21, Appendix 12, states that the revenue per tonne per month is \$25.30. Please explain why this is different that the loop service fee of \$25.20 per tonne.
- d) Line 4, Appendix 12, states the number of tonnes per customer is assumed to be 4. Please explain how this number was calculated. Please provide all supporting documentation including data, assumptions and analysis.
 - i) Does the number of tonnes per customer depend on the housing stock (e.g., existing vs new construction) and geography/geology? Please explain.
 1. If so, please provide the number of tonnes per customer for: 1) an existing home by the potential different geography and geology and 2) a new construction by the potential different geography and geology.
- e) Please explain whether Enbridge considered calculating a service fee for each of the different types of housing stock per geography/geology? If not, why not?

- f) Please explain whether Enbridge Gas included in its DCF Analysis (Appendix 11) any of the GreenOn funding from the provincial government.
 - i) If the customer/Enbridge Gas does not receive GreenOn funding for its GES Program, please explain how this will impact Enbridge Gas' feasibility study?
- g) Please provide the description of property/rate class used for CCA rate.
- h) Please provide discounted cash flow analysis and complete Table 5 below by changing each of the following assumptions in the analysis and calculate accumulated NPV and PI for the 40 year forecast horizon (assuming the service fee stays at the same level as the base case).
 - i) Discount rate (i.e. Cost of debt, ROE, Capital structure)
 - ii) Capital investment
 - iii) O&M expense

Table 5. Scenario Analysis for Geothermal Energy Services			
Scenario	Service Fee	Accumulated NPV at Year 40	PI at Year 40
Base Case	\$25.30 per tonne per month	\$ 17,027,767	1.102
Scenario 1(a) Base case cost of debt + 50 bps	\$25.30 per tonne per month		
Scenario 1(b) Base case cost of debt + 100 bps	\$25.30 per tonne per month		
Scenario 1(c) Base case ROE + 100 bps	\$25.30 per tonne per month		
Scenario 1(d) Base case ROE + 300 bps	\$25.30 per tonne per month		
Scenario 1(e) 50/50 D/E ratio	\$25.30 per tonne per month		
Scenario 1(f) 35/65 D/E ratio	\$25.30 per tonne per month		
Scenario 2 Base case capital investment (\$237,148,543)+10% increase	\$25.30 per tonne per month		
Scenario 3 Base case O&M expense +10% increase (Year 1 to Year 40)	\$25.30 per tonne per month		

RESPONSE

- a) i) There will not be a written service agreement with Geothermal Energy Service customers who receive service from the regulated utility. As is the case with natural gas customers, the Geothermal Energy Service customers will be subject to the Company's Conditions of Service, which may have to be updated.

- b) i) The Company wishes to clarify that the proposed service fee is \$25.07 per tonne of loop capacity installed not \$25.20 per tonne of CO₂. The Company will file updated evidence to reflect the change. Please refer to the covering letter related to the filing of interrogatory responses in this proceeding.

The monthly charge will depend on the size of the loop installed and will vary by size and vintage of homes. The monthly charge for a customer who require a 4 tonne loop capacity would be $\$25.07 \times 4 = \100.28 .

- ii) The service fee will be fixed until such time as the Board approves a new service fee. Where there are material changes in the costs associated with the Geothermal Energy Service program, Enbridge will bring forward evidence to the Board to propose any increase or decrease to the service fee. This will provide a transparent service fee based on costs and protect customers as this market develops.
- c) Please see the response to b) above.
- d) Based on current building designs and heating requirements of new homes, it is estimated that the average home size lies between 1800-2400 sq. ft. with average peak heating requirements of <50,000btu/h. Using this data, the Company assumes that a 4 tonne system will meet the heating and cooling requirement of the average 1,800 sq ft to 2,400 sq ft home in Ontario.

The number of tonnes depends on the size of home and the vintage (age, insulation condition etc.). At this time, the Company has not undertaken an analysis of the loop size requirement based on geography.

- e) No. Enbridge did not consider calculating a service fee for each of the different types of housing stock or geographic area. The primary determinant for the fee is the size of the geothermal loop. On an exception basis, Enbridge may require a contribution in aid of construction in cases where the cost of installing the geothermal loop is particularly high.
- f) No, Enbridge did not include GreenON funding in the DCF model. Enbridge expects the GreenOn funding to subsidize the heat pump system not the geothermal loops. If GreenON funding is not received, the customer forecast may drop as geothermal systems will become relatively less economical.
- g) CCA Class 43.2 has been used.

h) Please see the table below.

Table 5. Scenario Analysis for Geothermal Energy Services			
Scenario	Service Fee	Accumulated NPV at Year 40	PI at Year 40
Base Case	\$25.07 per tonne per month	\$ 16,679,865	1.100
Scenario 1(a) Base case cost of debt + 50 bps	\$25.07 per tonne per month	\$ 12,620,742	1.077
Scenario 1(b) Base case cost of debt + 100 bps	\$25.07 per tonne per month	\$ 8,814,990	1.054
Scenario 1(c) Base case ROE + 100 bps	\$25.07 per tonne per month	\$ 10,421,964	1.064
Scenario 1(d) Base case ROE + 300 bps	\$25.07 per tonne per month	\$ (342,288)	0.998
Scenario 1(e) 50/50 D/E ratio	\$25.07 per tonne per month	\$ 3,735,821	1.024
Scenario 1(f) 35/65 D/E ratio	\$25.07 per tonne per month	\$ (7,132,935)	0.953
Scenario 2 Base case capital investment (\$237,148,543)+10% increase	\$25.07 per tonne per month	\$ 4,156,014	1.023
Scenario 3 Base case O&M expense +10% increase (Year 1 to Year 40)	\$25.07 per tonne per month	\$ 14,309,868	1.086