

**Kai Millyard Associates**  
**72 Regal Road, Toronto, Ontario, M6H 2K1, 416-651-7141**  
**Fax: 416-651-4659**

May 21, 2013

Ms Kirsten Walli  
Board Secretary  
Ontario Energy Board  
27th floor  
2300 Yonge Street  
Toronto, ON  
M4P 1E4

RE: EB-2012-0451 / EB-2012-0451 / EB-2013-0074  
INTERROGATORIES

Dear Ms Walli,

I enclose 2 hard copies of interrogatories by GEC to Enbridge and Union Gas on their combined leave-to-construct hearing evidence. These have also been sent to the utilities, and PDF versions are being uploaded to RESS.

Sincerely,

(Mr.) Kai Millyard  
Case Manager for the  
Green Energy Coalition

encl.

Cc: All parties

## **Green Energy Coalition**

**EB-2012-0451 / EB-2012-0433 / EB-2013-0074**

### **Interrogatory for Union Gas**

1. Union, Issue A.1. Need, Ref: 4/30/13 Transcript of Issues/Process Day, p. 59, paragraphs in which Mr. Redford refers to several pieces of Union's project that are "growth projects" or "required...to serve growth volume".
  - a) Please provide a comprehensive list of all project components that are designed to address growth, as well as a separate list of all project components that are designed to address reliability and or other objectives.
  - b) What exactly does Mr. Redford mean by "growth projects" and "required...to serve growth volume"? Is the "growth" that is referenced growth in total demand for gas or a growth in volume of gas from Dawn hub (i.e. shifting sources of gas) or something else?
  - c) Putting aside questions of feasibility and cost-effectiveness, how much would total GTA demand for gas have to decline, relative to baseline projections, for the growth related elements of the Union project to either no longer be needed or no longer be economically viable?

### **Interrogatories for Enbridge Gas Distribution**

#### **GTA Project**

1. Enbridge, Issue A.1.Need, Ref: Exh. A, T3, S2, pp. 7-8, ¶24.
  - a) Please provide copies of all internal memoranda, planning documents, filings with the OEB, or other documentation of the Company's decision to postpone Parkway Phase 3 "following the additional procurement of STS capacity and the introduction of the first Demand Side Management program in 1995."
  - b) Please describe the "Central Distribution Area on the TransCanada system."
  - c) Please provide copies of all internal memoranda, planning documents, filings with the OEB, or other documentation of the Company's decision to postpone Parkway Phase 3 following procurement of "Firm

Transportation capacity from Parkway to Central Distribution Area on the TransCanada system.”

- d) Please identify all other T&D projects in the GTA that Enbridge has deferred due to DSM since 2003. For each such project, please provide:
  - i. The date of the deferral.
  - ii. The original and deferred in-service dates of the project.
  - iii. The estimated cost of the project.
- e) For each year, 2003–2012, please provide Enbridge’s then-current T&D investment plan, including a list of then-planned demand-related T&D projects in the GTA, the expected capital cost for each of these projects, and the expected in-service date for each of these projects.

- 2. Enbridge, Issue A.1.Need, Ref: Exh. A, T3, S2, pp. 7-8, ¶27.

The Company provides data on the growth in the number of customers in the Enbridge franchise. What portion of that growth was in the GTA Project Influence Area?

- 3. Enbridge, Issue A.1. Need, Ref: Ex A, T3, S1, p. 4, ¶8
  - a) What geographic area does Enbridge define as the “downtown core”?
  - b) What is the projected firm peak day demand of the downtown core for the 2015-2016 winter?
  - c) Please describe the routes by which Enbridge is currently able to deliver gas into the downtown core under peak day conditions, in addition to deliveries from Station B.
  - d) Please describe the changes in peak day gas flows into the downtown core are projected to occur if the GTA Project facilities are completed.
  - e) What portion (in TJ per day and as a percentage of the total) of the projected 2014-2015 firm peak day demand of the downtown core is projected to be supplied from Station B?
  - f) If the proposed GTA Project facilities are completed in 2015, what portion (in TJ per day and as a percentage of the total) of the projected 2015-2016 firm peak day demand of the downtown core is projected to be supplied from Station B?

4. Enbridge, Issue A.1. Need, Ref: ExA, T3, S1, pp. 5-6, ¶12
  - a) What is the total length of the NPS 30 Don Valley pipeline from Victoria Square to Station B?
  - b) What is the length of the NPS 30 Don Valley pipeline from Victoria Square to the proposed Buttonville Station?
  - c) Please confirm that the length of the proposed NPS 36 Don Valley line extension (the north-south portion of Segment B) is approximately 7.6 km.
  - d) What is the length of the NPS 36 loop of the Don Valley line that was added in 2008?
  - e) What is the length of the NPS 30 Don Valley pipeline from the southern end of the existing NPS 36 loop in the vicinity of Jonesville Station to Station B?
5. Enbridge, Issue A.1. Need, Ref: EB-2012-0451, ExA, T3, S3, p. 6, ¶11
  - a) Is the minimum required inlet pressure at Station B 1551 kPa (225 psi) as stated at Exhibit A, Tab 3, Schedule 3, page 6, footnote 7, or 1370 kPa (200 psi) as stated at Exhibit A, Tab 3, Schedule 3, page 8, footnote 10? Please explain.
  - b) How many days during the 2015-2016 winter season are operating pressures at Station B projected to drop below the minimum if none of the GTA Project facilities are built?
  - c) If none of the GTA Project facilities are built, by how much would the projected firm peak day demand in the GTA Project Influence Area have to be reduced (in TJ per day) to prevent the Enbridge distribution system from dropping below the minimum operating pressures at Station B? Please provide this information for each year from 2015 through 2025.
  - d) If the Segment A facilities are built in 2015, but the Segment B facilities are not constructed, by how much would the projected firm peak day demand in the GTA Project Influence Area have to be reduced (in TJ per day) to prevent the Enbridge distribution system from dropping below the minimum operating pressures at Station B? Please provide this information for each year from 2015 through 2025.

- e) If the Segment A facilities, the west-east portion of Segment B, and the Buttonville Station are constructed in 2015, but the north-south portion of Segment B is not constructed, by how much would the projected firm peak day demand in the GTA Project Influence Area have to be reduced (in TJ per day) to prevent the Enbridge distribution system from dropping below the minimum operating pressures at Station B? Please provide this information for each year from 2015 through 2025.
6. Enbridge, Issue A.1.Need, Ref: Exh. A, T3, S3, p. 6, ¶11.
- a) Please provide copies of all input data files and output reports from the system forecast models that were relied on to determine that the “GTA Project Influence Area will reach its peak day capacity in 2015.”
  - b) Please provide copies of all internal memoranda, reports, or other documentation regarding the determination from system forecast modeling that the “GTA Project Influence Area will reach its peak day capacity in 2015.”
7. Enbridge, Issue A.1.Need, Ref: Exh. A, T3, S3, pp. 12-13, ¶23.
- a) Please explain how the various elements of the proposed GTA Project would reduce the risk of curtailed deliveries to PEC or of customer outages in Toronto in the event that the Don Valley Pipeline “experienced a pipeline defect or damage in winter months.”
  - b) Please provide any information available to Enbridge regarding the ability of PEC to operate on an alternative fuel during gas curtailments.
  - c) If PEC cannot currently fully operate on an alternative fuel during gas curtailments, please provide any information available to Enbridge regarding the feasibility and cost of modifying PEC to operate on an alternative fuel.
  - d) Please explain whether Enbridge has approached PEC regarding its willingness to operate under an interruptible delivery tariff. If so, please provide all correspondence and other documents related to such discussions. If not, please explain why Enbridge has not explored this option for reducing load on Station B under design-condition loads and following operating contingencies.
8. Enbridge, Issue A.1.Need, Ref: Exh. A, T3, S3, pp. 17-18, ¶32.

- a) Please explain what type of capacity is being referred to in the statement regarding “unavailable capacity to reduce these lines to below 30% SMYS.”
- b) Please explain which two options are being referred to with regard to the statement that “the choice between these two options is not considered to be reasonable.”
- c) Are the SMYS values provided in Table 3 the current (i.e. 2013) values? If not, for what year did they apply?
- d) For how many years have the SMYS values been above 30% for each of the first three pipelines listed in Table 3:
  - i. NPS 26
  - ii. NPS 30 Don Valley
  - iii. NPS 36 Parkway
- e) Please provide the SMYS values for each of the four pipelines listed in Table 3 for each year since 1992.
- f) Has the Company evaluated whether additional load reductions through DSM programs would allow for reductions in operating pressure on the NPS 26 and NPS 30 Don Valley pipelines? If so, please provide all internal memoranda, reports, or other documentation of such evaluations.

9. Ref: Enbridge, Issue A.1. Need, , ExA, T3, S3, p.4, footnote 3

Enbridge, Issue A.1. Need, ExA, T3, S6, p.5, ¶17

Enbridge states that the NPS 30 XHP line currently operates at up to 3103 kPa (450 psi), and that once the GTA Project facilities are in operation, the operating pressure for the NPS 30 Don Valley line will be reduced to 2585 kPa (375 psi).

- a) With the existing facilities and current demand, what is the approximate peak day pressure of the NPS 30 Don Valley line in the vicinity of the proposed Buttonville Station, taking into account the drop in pressure from Victoria Square Station?
- b) Once the GTA Project facilities are in operation, does Enbridge plan to reduce the operating pressure of the NPS 30 XHP line between Jonesville Station and Station B from 450 psi to 375 psi? Please explain.

- c) Does Enbridge have any plans to reinforce or modify the NPS 30 Don Valley line between Jonesville Station and Station B during the 2015-2025 time period? If so, please explain.
- d) Are any reinforcements of the NPS 30 Don Valley line between Jonesville Station and Station B required to achieve the benefits of the GTA Project facilities? Please explain.

10. Enbridge, Issue A.1.Need, Ref: Exh. A, T3, S3, p. 18, ¶33.

- a) Table 3 shows operating pressure on the NPS 36 Parkway North pipeline at 37% SMYS. Please explain why the Company does not intend to reduce operating pressure below 30% SMYS on this pipeline “after the proposed facilities have been installed.”
- b) Please explain whether both Segments A and B need to be installed before the Company can reduce operating pressures below 30% SMYS on the NPS 26 and NPS 30 Don Valley pipelines.

11. Enbridge, Issue A.1.Need, Ref: Exh. A, T3, S3, p. 23, ¶43.

- a) Please describe in detail the specific “infrastructure constraints east of Parkway and on Enbridge’s distribution system” that limit access to supply from emerging supply basins.
- b) Please describe in detail how each of the elements of the proposed GTA Project would relieve these specific “infrastructure constraints” and increase access to supply from emerging supply basins.

12. Enbridge, Issue A.1.Need, Ref: Exh. A, T3, S3, p. 24, ¶46.

Please provide a copy of the “Enbridge Load Shed Report.”

13. Enbridge, Issue A.1.Load Forecast, Ref: Exh. A, T3, S4, p. 1, ¶1.

- a) Please provide copies of all available documentation of the derivation and results of the customer additions forecast.
- b) Please provide all workpapers, including electronic spreadsheets with cell formulas intact, relied on to develop the customer additions forecast.

14. Enbridge, Issue A.1.Load Forecast, Ref: Exh. A, T3, S4, p. 1, ¶2.

Please provide copies of all “information sources and factors” relied on to develop the customer additions forecast.

15. Enbridge, Issue A.1.Load Forecast, Ref: Exh. A, T3, S4, p. 1, ¶4.

Please provide copies of all internal memoranda, reports, or other documentation of the “review of the distribution system” used to determine the GTA Project Influence Area.

16. Enbridge, Issue A.1.Load Forecast, Ref: Exh. A, T3, S4, pp. 2-3, ¶6.

- a) What is meant by the statement “these three years are not included in the economics of this application”?
- b) Please provide an electronic spreadsheet version of Table 1.
- c) Please provide copies of all input data files and output reports of the forecast model relied on to derive the customer additions forecast summarized in Table 1.
- d) If the forecast model used to derive the customer additions forecast is spreadsheet-based, please provide a copy of the spreadsheet model, with all cell formulas, file linkages, and macros intact.
- e) Please provide a copy of the electronic spreadsheet, with all cell formulas intact, relied on to generate Figure 2.
- f) Please provide the actual Residential, Commercial, Industrial and Apartment additions for the GTA Project Influence Area for 2012.
- g) What is the Company’s definition of “residential”?
  - i. Which of the following does it include:
    - (1) Single family detached homes?
    - (2) Duplexes?
    - (3) Attached townhouses/rowhouses with separate entrances?
    - (4) Condos in low rise buildings with common entrances?
    - (5) Other building types? If there are others, please describe them.
  - ii. What portion of current residential housing units in the GTA project influence area fall into each of the categories described above?
  - iii. What portion of annual additions fall into each of the categories described above (provide separately for new construction and conversions)?



- h) Please provide the average annual gas consumption of each decile of current residential customers (i.e. the average consumption of the 10% of customers that consume the most, the average consumption of the next 10%, average consumption of the next 10%, etc.).
- i) What is the Company's definition "apartment"?
  - i. Does it include both high rise and low rise? Please include in your response your definition of high rise and low rise.
  - ii. If so, what portion of current apartment buildings and what portion of current apartment dwelling units in the GTA project influence area are high rise? What portion are low rise?
  - iii. What portion of annual additions fall into each of the categories described above (please provide separately for new construction and conversion)?
- j) Please provide the following data on historic (1992 through 2013) and projected future (2014 through 2025) customers and annual energy consumption for the GTA Project Influence Area (note that by "total" we mean the sum of all existing and new customers, including adjustments for any attrition attributable to building demolition or other factors):
  - i. Total number of residential customers
  - ii. Total gas consumption by residential customers
  - iii. Total number of apartment buildings
  - iv. Total number of dwelling units in apartment buildings
  - v. Total gas consumption by apartment buildings
  - vi. Total number of commercial customers
  - vii. Total floor space (square meters) of commercial floor space
  - viii. Total gas consumption by commercial customers
  - ix. Total number of industrial customers
  - x. Total gas consumption by industrial customers.

- k) Regarding Table 1 and Figure 2, please provide the following separately for each customer type (residential, commercial, apartment, and industrial):
- i. The number of additions that were attributable to new construction
  - ii. The number of additions that were conversions (i.e. existing buildings converting space heating, water heating and/or other end uses to natural gas)
  - iii. Whether the numbers provided are net of attrition due to demolition of buildings and/or other factors. If they are not net of such effects, please provide data, by building type, on such attrition.
  - iv. The average annual gas consumption associated with the additions (please provide separately for new construction vs. conversions).
  - v. The average peak day and peak hour consumption associated with the additions (please provide separately for new construction vs. conversions)

17. Enbridge, Issue A.1.Load Forecast, Ref: Exh. A, T3, S4, pp. 7-8, ¶9.

- a) What is the “peak hour”? What season or month? What time(s) of day?
- b) Please provide an hourly load shape for each type of customer (residential, commercial, multi-family and industrial) for the peak day.
- c) Please provide copies of all available documentation of the derivation of the forecast of peak hourly consumption for the Influence Area.
- d) Please provide in an electronic spreadsheet all historical hourly consumption, temperature, and any other input data relied on for the regression analysis of hourly consumption against temperature.
- e) Please provide the results of all regression analyses of hourly consumption against temperature.
- f) Please explain what is meant by the term “41 DD.”
- g) Please provide all workpapers, including electronic spreadsheets with cell formulas intact, relied on to derive “peak hourly gas consumption at a 41 DD” from the results of the regression analyses.

- h) Please explain whether the derived “peak hourly gas consumption at a 41 DD” is assumed to remain constant or vary over the forecast period. If the latter, please provide the value for “peak hourly gas consumption at a 41 DD” for each year of the forecast period and explain in detail how the variation in each year of the forecast period was derived.
- i) With regard to the “reduction factor” for DSM and customer losses through building demolition, what is meant by DSM? Does it refer only to savings generated by utility programs? Or does it also account for naturally occurring efficiency improvements and conservation? If it only accounts for utility programs, how is naturally occurring efficiency and conservation captured in the utility’s forecast?
- j) For each year of the forecast period, please provide in an electronic spreadsheet the annual values for the “reduction factor” to account for DSM and building demolition.
- k) Please provide copies of all workpapers, including electronic spreadsheets with cell formulas intact, relied on to derive the “reduction factor.”
- l) If not clear from the information provided in response to previous questions, please indicate how much of the reduction factor is due to DSM vs. building demolition.
- m) Please provide copies of all available documentation of the determination of “replacement capacity requirements” for individual large volume customers.

18. Enbridge, Issue A.1.Load Forecast, Ref: Exh. A, T3, S4, pp. 8-9, ¶10.

- a) Please provide a table similar to Table 3 that covers the period 1992 through 2014 (with data for each year). Please include in that table the individual contribution to total peak day demand from incremental load and from the existing customer base, separately for each type of customer (residential, multi-family, commercial and industrial).
- b) Please provide an electronic spreadsheet version of Table 3 that shows for each forecast year the individual contribution to total peak day demand and peak hour demand from incremental load and from the existing customer base.

- c) Please provide copies of all workpapers, including electronic spreadsheets with cell formulas intact, relied on to derive for each year of the forecast period the peak day demand and peak hour demand from the existing customer base.
  - d) Please provide copies of all available documentation of the forecast of peak day demand and peak hour demand for the GTA Project Influence Area.
  - e) What is the basis for Enbridge's estimate of the impacts of customer additions on peak day and peak hour demands? Has Enbridge factored the effects of increasingly stringent building codes into its forecast of peak day demands? If so, please explain how.
  - f) Please provide peak day demand forecasts for 2015 to 2025 for (a) the Central Weather Area, (b) the Enbridge CDA, and (c) Total Company.
19. Enbridge, Issue A.1.Load Forecast, Ref: Exh. A, T3, S5, pp. 2-3, ¶6.
- a) What is the definition of the "Central Weather Zone"?
  - b) How does the Central Weather Zone relate to the GTA?
  - c) Please provide a spreadsheet with the actual values graphed in Figure 1
  - d) Please replicate Figure 1 for the GTA and provide a spreadsheet with all the values depicted in such a graph.
20. Enbridge, Issue A.1.Load Forecast, Ref: Exh. A, T3, S5, p.4, ¶10.
- What portion of growth in demand has been "partially offset by energy conservation and the Company's DSM programs"? Please explain how such an estimate was developed, providing any data used in calculations.
21. Enbridge, Issue A.1 Load Forecast, Ref: Exh. A, T3, S5, pp. 5-10, ¶14-18.
- a) Please reproduce the trend lines in Figures 2 through 5 using just data from the past 10 years (2003 through 2012).
  - b) Does the Company believe that longer term trends – going back to the late 1990s – provide greater insight into the future than trends for just the past 10 years? If so, please explain why data from the late 1990s provides any such insight.
22. Enbridge, Issue A.1.Gas Supply, Ref: Exh. A, T3, S5, p. 10, ¶20.

Please explain why the Company has increased reliance on short haul supply as demand has become more seasonal.

23. Enbridge, Issue A.1.Gas Supply, Ref: Exh. A, T3, S5, p. 11, ¶21.

- a) Please provide the equivalent of Table 2 for (i) the Central Weather Area, and (ii) the GTA Influence Area.
- b) Please provide any information available regarding the load on interruptible rates within the GTA Influence Area, including any available breakdowns by
  - i. rate schedule,
  - ii. type of business (e.g., industrial, commercial, institutional),
  - iii. interruptible processes (e.g., space heating, industrial boiler, industrial process), and
  - iv. the amount of interruption that is achieved by switching to an alternate fuel and the amount of interruption that is achieved by reduction in process output.
- c) For each interruptible rate schedule, please provide
  - i. the discount offered for interruption,
  - ii. the derivation of the interruptibility discount, including the supply resources assumed to be avoided by interruptible service,
  - iii. the cost of the interruptibility discount expressed in \$/Gj per hour of interruption.

24. Enbridge, Issue A.1.Gas Supply, Ref: Exh. A, T3, S5, p. 12, ¶26.

- a) Please provide the basis for the belief that “three months is the minimum contract term appropriate” for STFT service.
- b) Please explain why a contract term of three months or longer would lead to a reduced load factor on incremental STFT capacity.

25. Enbridge, Issue A.1.Gas Supply, Ref: Exh. A, T3, S5, pp. 12-13, ¶27.

- a) Please provide copies of all e-mails or other correspondence from TransCanada, notes from meetings with TransCanada, or other available

documentation regarding TransCanada's decision to discontinue "integrity work on certain Mainline assets for the remainder of 2012."

- b) Please provide copies of all e-mails or other correspondence from TransCanada, notes from meetings with TransCanada, or other available documentation regarding TransCanada's evaluation of the "possibility of converting certain Mainline assets to oil service."

26. Enbridge, Issue A.1.Gas Supply, Ref: Exh. A, T3, S5, p. 18, ¶38.

- a) Please describe in detail the specific constraints on the Company's existing system that currently precludes the Company from increasing its reliance on supply from Dawn or Niagara and decreasing its reliance on peaking supplies and STFT.
- b) Please describe in detail how each of the proposed GTA Project facilities would contribute to increasing the Company's access to supply sourced from Dawn or Niagara.

27. Enbridge, Issue A.1.Gas Supply, Ref: Exh. A, T3, S5, pp. 18-19, ¶39.

Is it the Company's contention that its ability to offer DP customers the option to deliver at Dawn is contingent on installation of the GTA Project facilities? If so, please provide the basis for this contention.

28. Enbridge, Issue A.1.Need, Ref: Exh. A, T3, S6, p. 7, ¶24.

How will TransCanada make use of its gas volumes transported to Albion?

29. Enbridge, Issue A.1., Need, ExA, T3, S7, p.16, ¶35

- a) When were the long range planning studies referenced in this paragraph completed?
- b) In what year did these long range planning studies indicate that a northward extension of the NPS 36 Don Valley line loop would be required?
- c) Did these long range planning studies assume that the Parkway Phase 3 project would be built? If so, in what year?
- d) Please explain what is meant by "the replacement capacity requirements for PEC".

30. Enbridge, Issue A.3. Costs and Rates, Issue A.5. Timing

Ref: EB-2012-0451, ExC, T2, S1

EB-2006-0305, “Post-Construction Financial Report on Costs and Variances”  
report dated January 7, 2010

- a) Please describe the similarities and differences between the proposed north-south portion of the proposed Segment B facilities, and the north section of the transmission project that was approved by the Board in EB-2006-0305, which looped 6.5 km of the NPS 30 Don Valley line with NPS 36 XHP pipeline.
- b) Please provide a side-by-side comparison of the estimated cost per km of the north-south portion of the Segment B facilities and the north section of the EB-2006-0305 project, with the EB-2006-0305 project costs adjusted to 2013\$.
- c) Enbridge reported that actual Construction Labour costs for the EB-2006-0305 project were \$13.4 million higher than the original estimate, and that this variance was “primarily attributed to increased construction costs in 2007 and 2009, a period of intense activity and limited labour supply in the pipeline construction industry.” Given Enbridge’s experience with the EB-2006-0305 project, please explain how Enbridge has accounted for the fact that other major projects that have been proposed for 2015 could cause the costs of materials, equipment, and labor for the GTA Project to be significantly higher than they would be in a typical construction year.

31. Enbridge, Issue A.4.Alternatives, Ref: Exh. A, T3, S7, pp. 1-3, ¶3.

- a) Did the Company evaluate the cost-effectiveness of replacing all or part of the proposed GTA Project with additional investment in DSM? If so, please provide all available documentation of this analysis.
- b) Assuming that DSM could be made available on a timely and cost-effective basis, what amount of peak load reduction would be required each year – and in which area(s) – to defer the need for various components of the GTA project?

32. Enbridge, Issue A.4.DSM Avoided Cost, Ref: Exh. A, T3, S7, pp. 1-3, ¶3.

- a) Please provide the avoided costs that the Company has used in screening and evaluating its DSM programs for each year since 2003.
- b) Please provide the derivation of the avoided costs that Enbridge has used in screening and evaluating its DSM programs for each year since 2003.
- c) Please provide all workpapers and the derivation of all inputs supporting the avoided costs in EB-2012-0394, Exhibit B, Tab 2, Schedule 2, page 7.
- d) Please explain how the Company has reflected the difference in load shape in the avoided costs applied to various end uses, including space heating, water heating, and industrial load.
- e) Please explain how the Company estimates avoided costs of local transmission and distribution equipment due to DSM.
- f) Please provide an electronic copy of the spreadsheet(s) used by the Company to conduct the TRC cost-effectiveness screening for its 2013-2014 DSM Plan (e.g. to produce the results reported in EB-2012-0394, Exh. B, T2, S3, pp. 2-3).

33. Enbridge, Issue A.4.DSM Avoided Cost, Ref: Exh. A, T3, S7, pp. 1-3, ¶13.

- a) Please provide daily loads for the actual 2012–13 winter, for following areas, points, and pipeline segments:
  - i. The GTA.
  - ii. The GTA Project Influence Area.
  - iii. Flow into Station B, transmission flow out of Station B, and deliveries to distribution at Station B.
  - iv. Flow from the north into Maple.
  - v. Flow from Maple east.
  - vi. Flow from Maple west.
  - vii. Deliveries at Victoria Station.
  - viii. Deliveries at Lisgar Gate.
  - ix. Deliveries at Parkway.



- x. Deliveries to PEC.
- b) Please provide load-duration curves for normal and design years, for the existing system configuration, for the following areas, points, and pipeline segments:
    - i. The GTA.
    - ii. The GTA Project Influence Area.
    - iii. Flow from the north into Maple.
    - iv. Flow from Maple east.
    - v. Flow from Maple west.
    - vi. Station B.
    - vii. Deliveries at Victoria Station.
  - c) For normal and design years, please provide the load at Station B and at Victoria Station at the hour coincident with the GTA peak.
  - d) Please provide hourly loads for the actual 2012–13 winter, for the Don Valley.
  - e) Please provide the daily flow on each pipeline segment shown on Exh. A, T3, S6, Figure 1, for the GTA peak day of the 2012–13 winter.
  - f) Please provide the hourly flow on each pipeline segment shown on Exh. A, T3, S6, Figure 1, for the GTA peak hour of the 2012–13 winter.
34. Enbridge, Issue A.4.DSM Potential, Ref: Exh. A, T3, S7, pp. 1-3, ¶3.
- a) Please provide the following actual results from Enbridge's DSM portfolio for every year from 2003 through 2012 (please provide by customer type – i.e. residential, apartments/multi-family, commercial and industrial – and in aggregate for the whole portfolio):
    - i. Incremental annual gas saved
    - ii. Incremental annual gas saved as a percentage of annual consumption by all of Enbridge's customers (please provide both the numerator and denominator used to compute the percentages, as well as their sources)

- iii. Lifetime gas savings
  - iv. Average measure life of the gas savings.
  - v. The portion of the incremental annual savings that were achieved in the GTA region.
  - vi. Final portfolio DSM spending.
  - vii. Final portfolio TRC net benefits.
- b) Please provide the following forecast results for Enbridge's DSM portfolio for 2013 and for 2014 (please provide by customer type – i.e. residential, apartments/multi-family, commercial and industrial – and in aggregate for the whole portfolio):
- i. incremental annual gas saved
  - ii. Incremental annual gas saved as a percentage of annual consumption by all of Enbridge's customers (please provide both the numerator and denominator used to compute the percentages, as well as their sources)
  - iii. lifetime gas saved
  - iv. average measure life of gas savings
  - v. The portion of incremental annual gas savings that will be in the GTA region.
- c) Please explain what is meant by the statement that “currently planned DSM activities and conservation are already included in the forecast presented.” Specifically:
- i. To what forecast in the evidence is Enbridge referring?
  - ii. Exactly what forecast DSM savings were assumed or included in the forecast?
  - iii. How much of the forecast savings for Enbridge's entire service territory allocated to the GTA region? How was that allocation developed?
  - iv. Does the forecast include any assumption regarding additional DSM savings beyond 2014? If so, what was assumed and what was the basis for the assumption?

- d) Did Enbridge attempt to quantify cost-effective efficiency potential for the purpose of determining its potential role in deferring the need for the GTA project? If so, please provide all available documentation of the inputs to and results from that assessment.
- e) Please provide copies of all assessments of efficiency potential within the Company's service territory conducted within the past ten years. Please include both comprehensive studies (i.e. those that examined all sectors) and studies focused on just parts of the Company's customer base (e.g. just industrial, just residential, just from large boiler replacements, etc.).

35. Enbridge, Issue A.4.DSM Impacts on Peak, Ref: Exh. A, T3, S7, pp. 1-3, ¶3.

- a) The Company states that "currently planned DSM activities and conservation are already included in the forecast presented."
  - i. Please specify what level of annual energy savings and peak demand savings are "already included in the forecast presented." Please indicate what portion of those savings are from the utility's DSM activities (as opposed to driven by natural market forces, government programs or other initiatives).
  - ii. Had the Company not been investing in DSM at the levels it has invested over the past 10 years, how many years earlier would the GTA project have been required? Please explain the basis for the answer, providing documentation of any analysis performed to produce the answer.
  - iii. If the Company had been acquiring twice as much energy and peak demand savings in each of the last ten years as it had actually acquired, how much farther into the future would the need for the GTA have been deferred? Please explain the basis for the answer, providing documentation of any analysis performed to produce the answer.
- b) The Company states that some efficiency measures and programs reduce both energy and peak demand, whereas others – such as set-back thermostats and instantaneous water heating do not. Please provide the results (annual energy savings and, if available, peak demand savings) of the Company's 2012 DSM efforts by measure. Please provide the

results in an Excel spreadsheet and indicate which measures fall into each of the two categories (i.e. measures which save both energy and peak and measures that do not).

- c) The Company states that when system controls, such as setback thermostats, are employed on a large scale, can have significant impact on peak loads. Has the Company conducted any quantitative analysis of such impacts? If so, please summarize the results of that analysis and provide documentation of all inputs to and outputs from that analysis.
- d) Please explain how “nighttime set back control...increases peak loading.”
- e) Are any of the Company’s current DSM programs promoting instantaneous water heaters?
  - i. If so, in what sectors?
  - ii. How many such water heaters did the company’s programs cause to have been installed in 2012?
  - iii. What were the annual savings from those measures?
  - iv. Does the Company have any “load shape” data for both standard water heater (i.e. with a tank) and/or tankless water heaters, for either residential or business applications. If so, please provide those load shapes. If not, please indicate which hours of the day the Company expects greatest consumption of gas for both standard and tankless water heaters, for both residential and business applications.
- f) Please explain the statement that “conservation efforts...cannot be expected to replace capacity within the system due to the lowering of pressures on large diameter, high pressure lines...”

36. Enbridge, Issue A.4.Alternatives, Ref: Exh. A, T3, S7, pp. 5-6, ¶8.

- a) Please provide copies of all available documentation of the current constraint between Parkway and Maple, including evidence of the constraint from “recent open seasons and new builds by TransCanada along this path.”

- b) Please provide copies of all available documentation of the current XHP constraint at Parkway.

37. Enbridge, Issue A.4.Alternatives, Ref: Exh. A, T3, S7, p. 9, ¶15.

- a) Please provide a description of the Maple facility and a map showing its location.
- b) Please confirm that neither Enbridge nor Union Gas are currently planning to construct a pipeline between Albion and Maple.

38. Enbridge, Issue A.4.Alternatives, Ref: Exh. A, T3, S7, pp. 9-10, ¶16.

- a) Did the Company evaluate the cost-effectiveness of replacing all or part of the proposed GTA Project with a combination of additional investment in DSM and alternative routes or alternative transport arrangements? If so, please provide all available documentation of this analysis.
- b) If the load in the GTA or the GTA Project Influence Area were half of the forecast levels, which Project components would not be needed in 2015?
- c) For each Project component that would not be needed at half of the forecast levels, please identify the load level at which the component would be needed.
- d) For each Project component that would be needed at half of the forecast levels, please explain why it would be needed and identify the extent to which it could be downsized in capacity and cost.
- e) If the Portlands Energy Centre were to switch to interruptible delivery service, would any of the Project components be unnecessary?
- f) If an additional ten percent of peak load in the GTA Project Influence Area were on interruptible rates, which Project components would not be needed in 2015?
- g) Please explain whether any component of the Project is required to maintain the pressure of gas delivered to Portlands Energy Centre, and if so, please describe the potential for added compression at Portlands Energy Centre to allow Enbridge to deliver gas at lower minimum pressure under peak load conditions.

39. Enbridge, Issue A.1.Economic Analysis, Ref: Exh. E, T1, S1, p. 2, ¶7.

Please reconcile the capital cost amount of \$595.3 million with the total estimated project costs shown in Table 1 on page 1 of Exhibit C, Tab2, Schedule 1.

40. Enbridge, Issue A.1.Economic Analysis, Ref: Exh. E, T1, S1, p. 2, ¶8.

- a) Please provide copies of all workpapers, including electronic spreadsheets with cell formulas intact, relied on to derive the estimate of \$14.0 million for annual O&M costs.
- b) Please provide the Company's assumption for annual escalation of O&M costs.

41. Enbridge, Issue A.1.Economic Analysis, Ref: Exh. E, T1, S1, p. 2, ¶9.

- a) Please provide copies of all workpapers, including electronic spreadsheets with cell formulas intact, relied on to derive the estimate of \$1.0 million for annual on-going capital costs.
- b) Please provide the Company's assumption for annual escalation of on-going capital costs.

42. Enbridge, Issue A.1.Economic Analysis, Ref: Exh. E, T1, S1, p. 3, ¶10.

- a) Please provide copies of all workpapers, including electronic spreadsheets with cell formulas intact, relied on to derive the capital-cost estimate of \$396.8 million for incremental customer services.
- b) Please provide copies of all workpapers, including electronic spreadsheets with cell formulas intact, relied on to derive the cost estimates for future reinforcement projects.

43. Enbridge, Issue A.1.Economic Analysis, Ref: Exh. E, T1, S1, pp. 3-4, ¶11.

Please provide copies of all workpapers, including electronic spreadsheets with cell formulas intact, relied on to estimate "the revenue generated for ten years of incremental customer additions."

44. Enbridge, Issue A.1.Economic Analysis, Ref: Exh. E, T1, S1, pp. 8-9.

Please provide an electronic spreadsheet version of the Summary of Inputs and Summary of Results tables, with all cell formulas and file linkages intact. Please provide copies of all linked spreadsheet files.

45. Enbridge, Issue A.1.Economic Analysis, Ref: Exh. E, T1, S1, Attachment.

Please provide an electronic spreadsheet version of all tables shown in the Attachment, with all cell formulas, file linkages, and macros intact.