

ENBRIDGE GAS DISTRIBUTION INC. RESPONSE TO
GEC INTERROGATORY #35

INTERROGATORY

Enbridge, Issue A.4.DSM Impacts on Peak, Ref: Exh. A, T3, S7, pp. 1-3, ¶13.

- 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.

Witnesses: T. MacLean
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- 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...”

RESPONSE

- a) i. Please see the response to Environmental Defence Interrogatory #14 at Exhibit I.A4.EGD.ED.14 for annual energy savings and peak demand savings included in the forecast. Please also see the response to Environmental Defence Interrogatory #13 (b) at Exhibit I.A4.EGD.ED.13 for a description of the reduction factor.
- ii.& iii. Enbridge has not conducted analysis regarding the impact of DSM over the past ten years on the timing of the GTA Project.
- b) Information on the annual energy savings by measure is not available for the 2012 program year. For reference, the Appendices A from the 2010 and 2011 DSM Annual report are attached. These Appendices provide information on the annual energy savings by measure.

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In regards to GEC's request for each DSM measure's impact on peak hour demand, Enbridge does not actively track or calculate the impact on peak hour of specific DSM measures.

- c) The Company has not conducted studies of the impacts of system controls such as setback thermostats on peak hourly loads. The Company did perform a desk top analysis utilizing hourly data that was from other studies conducted for other purposes. The data was specific to Residential usage and contains no other customer classifications. The directional result was that setback controls, while providing for annualized reduction in consumption, points to an increase in peak hour consumption.
- d) A nighttime setback control can be expected to increase peak loading in the early morning when the daytime setting resumes and the heating system operates at a maximum for some time in order to return the heated space to the desired daytime temperature.
- e)
 - i. Enbridge does not currently promote instantaneous water heaters in the residential sector; however, they are available as a prescriptive measure in the commercial sector.

ii. and iii.

The participation and natural gas savings information on instantaneous water heaters is not available for the 2012 program year (see item (b) above). The table below summarizes the instantaneous water heater installations and net natural gas savings in the commercial sector from 2007 to 2011 and in the residential sector for the 2009 program year.

| Year | Sector | Measure | Participants | Net annual gas savings (m ³) |
|------|-------------|------------------------|--------------|--|
| 2007 | Commercial | Tankless Water Heaters | 67 | 54,170 |
| 2008 | Commercial | Tankless Water Heaters | 11 | 9075 |
| 2009 | Commercial | Tankless Water Heaters | 30 | 4,528 |
| 2010 | Commercial | Tankless Water Heaters | 116 | 17,507 |
| 2011 | Commercial | Tankless Water Heaters | 81 | 12,225 |
| | | Total | 305 | 97,504 |
| 2009 | Residential | Tankless Water Heating | 7053 | 898,552 |

- iv. Enbridge does not have hourly or daily "load shape" consumption data for either standard water heaters or tankless water heaters.

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For residential buildings, it would be expected that the greatest consumption of gas for this application would closely track hot water usage. Enbridge expects that there would be an increase for hot water usage in the early morning hours (6 to 8 am) and in the evening hours (6 to 9 pm). This would apply to storage tank water heaters, tankless water heaters, and, in multi-residential buildings, to boiler systems connected to large storage tanks (or indirect heated storage tanks). Because of the variety of hot water applications (beyond personal use) in the commercial sector, it would be expected that the consumption of gas related to water heating would exhibit a more constant load profile throughout the day.

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