

Enbridge Gas Distribution Inc.
Interrogatories for Environmental Defence

1. Reference: Exhibit L.EGD.ED.1, Page 7 Figure 4: Peak Hourly Demand

Request:

- a) Please explain the data sources used for the two graphs provided.
- b) Please explain how the occupied data versus unoccupied data was obtained.
- c) Please explain "BT=15 deg C" as noted in the legend in the graph on the left.
- d) Please explain what outdoor air temperatures were used, the data source, and the location of measure.

2. Reference: Exhibit L.EGD.ED.1, Page 2, paragraph 1.

Preamble:

Exhibit L.EGD.ED.1, Page 2, paragraph 1, states:

"The Performance-Based Model analyzes actual, benchmarked energy use of different building types and establishes the potential savings due to all buildings reaching intensity levels already achieved by one half (median) or one quarter (top-quartile) of the peer group."

Request:

- a) Please provide a working version of the "Performance-Based Model" with all formula and data intact.
- b) Please identify the "different building types" classifications.

3. Reference: Exhibit L.EGD.ED.1, Page 3, paragraph 1.

Preamble:

Exhibit L.EGD.ED.1, Page 3, paragraph 1 states:

"Enerlife's model to forecast natural gas DSM potential in the GTA is based on established performance from a large multi-year database of energy use by buildings, direct project experience with successful high energy performing buildings and leadership of peer-reviewed initiatives aimed at

determining conservation potential by defining how much energy individual buildings need.”

Request:

- a) What constitutes a “large multi-year database”? Is it the database consisting of 638 buildings cited in Figure 3 on page 5?
 - b) Does the database (sample) represent a random selection of the entire building stock or is it based on participating buildings only? What are the confidence intervals associated with this sample size compared to the EGD data set of over 70,000 buildings overall and in each of the sectors?
 - c) Does that database include Ontario only buildings or buildings from other provinces as well?
 - d) Please confirm if EnerLife’s “large multi-year database of energy use by buildings” contains the following information
 - i. All the gas consuming appliances/equipment for each building
 - ii. Age of the building stock
 - iii. The capital improvements that have been performed on the building to date
 - iv. Energy efficiency upgrades/improvements that have been completed on the building
 - e) Please provide specific data sets required to establish the energy intensity of any building.
 - f) Please provide the results of the regression analysis and supporting algorithms used to establish benchmark comparisons across different building types.
4. Reference: Exhibit L.EGD.ED.1, Page 2, paragraph 3.

Preamble:

Exhibit L.EGD.ED.1, Page 2, paragraph 3 states:

“Energy efficiency initiatives such as REALpac’s 20 by ’15 Target and TRCA’s Town Hall Challenge and Greening Health Care programs use top quartile gas use to set energy targets.”

Request:

- a) How are buildings chosen for the Canada Green Building Council program? For example, are the buildings chosen because they are laggards, and use a relatively high level of energy?
- b) What percentage of those projects’ savings is as a result of operational versus capital improvements/investment?

c) Similarly, what portion of the cost of the project is driven by capital versus operational improvements/investment?

5. Reference: Exhibit L.EGD.ED.1, Page 13, Figure 12 “Race to Reduce – Gas Conservation Action Plan Workshop Results” and Page 2, paragraph 5.

Preamble:

Exhibit L.EGD.ED.1, Page 2, paragraph 5 states:

“The company has also gained experience in this space through its sponsorship of and participation in Toronto & Region Conservation’s programs and CivicAction’s Race to Reduce.”

Request:

- a. Please confirm your understanding that Enbridge is a founding participant in the Race to Reduce programs.
- b. Please confirm that Figure 12 on page 13 has been created solely from performance benchmarking data, without any detailed investigation and planning regarding the specific buildings themselves
- c. Is the sample of 32 buildings representative of current building stock?
- d. Has there been a review or update of the specific building information cited in Figure 12?

6. Reference: Exhibit L.EGD.ED.1, Page 2, paragraph 1.

Preamble:

Exhibit L.EGD.ED.1, Page 2, paragraph 1, states:

“The Performance-Based Model presented in this evidence for calculating commercial and apartment DSM potential is derived from Enerlife’s substantial and growing database of actual Pnergy performance data for buildings. The approach is consistent with a growing number of provincial and national programs.”

Request:

- a) Environmental Defence cites the Performance-Based Model as a method for calculating DSM Potential. Are there any utilities in major cities in North America using this method? If not, why not?

- b) Please confirm that performance benchmarking simply provides a starting point for further inquiry, and that detailed investigation and planning is required to establish realizable savings levels for any particular building.
- c) Please provide the date when the Performance Based model was first prepared and describe how it, “more completely represents the effects of DSM on the peak hour demand forecast.”
- d) Please provide all assumptions used in the Performance based model and how the model was calibrated to actual peak hour consumption for natural gas and provide the hourly calibration data by sector and degree day (as available).

7. Reference: Exhibit L.EGD.ED.1, Page 2, paragraph 4.

Preamble:

Exhibit L.EGD.ED.1, Page 2, paragraph 4 states:

“Measures to improve efficiency in high gas intensity buildings go beyond those included in Marbek’s DSM Potential Study and are typically site-specific equipment repairs, upgraded control of buildings systems, and testing, tuning and rebalancing of heating plan systems.”

Request:

- a) Have you reviewed the recommissioning program outlined in the 2009 DSM Potential Study by Marbek? Please confirm your understanding that it has been identified as the single largest potential category in the commercial marketplace by 2017 in the Marbek report?
- b) Please clarify how the measures listed in the above reference are different than the “recommissioning” programs captured in that Study
- c) Please clarify how these measures in the reference are different than our current Run it Right program, Energy Compass program, and Custom Project opportunities.

8. Reference: Exhibit L.EGD.ED.1, Page 17, Appendix A.

Preamble:

The Terms of Reference requests that EnerLife:

“Quantify the demand side management (DSM) potential in large multi-residential, commercial and institutional buildings that can be pursued by Enbridge Gas Distribution Inc. (“Enbridge”) to potentially defer or avoid the need for part or all of the proposed GTA pipeline.”

Request:

- a. Please define “potential” as used in the Terms of Reference and in the EnerLife Report. Does it refer to Technical Potential, Economic Potential or Achievable Potential as used in DSM potential studies?

9. Reference: Exhibit L.EGD.ED.1, Page 3, paragraph 1.

Using the summary table, please provide comparable information on the Performance Based Forecast model as a tool to forecast natural gas DSM potential in the GTA.

	DSM Potential Study	Performance-based Forecast Model
Data set	All EGD commercial and apartment customers	
Data sort capabilities	By sector By consumption data Building archetypes developed for each sector based on customer data and information from other sources on market penetration of efficient equipment, stock replacement rates etc.	
Analysis of potential savings	Individual measures are screened for cost-effectiveness. Measures are applied to building archetypes in the model as applicable and resulting energy savings compared to reference case.	
Savings potential	Calculated for Technical Potential, Economic Potential and Achievable Potential	
	Achievable potential calculated at different funding scenarios	
	Achievable potential savings of 15% in the Commercial sector at financially unconstrained scenario	

10. Reference: Exhibit L.EGD.ED.1, Page 13, Figure 13 “GTA Project Influence Area (derived)”

Request:

- a. Please clarify what is meant by # of customers with high gas savings? Does this mean that the column is showing how many customers have the opportunity for high gas savings?
- b. Enbridge cannot understand some of the data in Figure 13. In particular in the column entitled “Customers with high gas savings” the Total line shows 13%. When we calculate that particular value, in the same way that we were able to reconcile the cells above for the various sectors (i.e. # of customers with high gas savings ÷ # of customers or in this specific table $70,041 \div 1,167,454$), we come up with 5.9995%. How was 13% achieved? Please provide sources and any calculations for the derivations outlining relevant assumptions.
- c. Where have the data points in the column entitled “% of potential savings” come from? Please provide sources and any calculations for the derivations outlining relevant assumptions.
- d. Please explain the discrepancies between the “Average savings potential” of 25% shown in Figure 12 and the 48% of potential savings outlined in Figure 13?
- e. Where have the data points in the column entitled “ 10^6 m3 savings” come from? Please provide sources and any calculations.

11. Reference: Exhibit L.EGD.ED.1, Figure 6.

Request:

How were the 8.3% and 21.8% reductions calculated for the commercial median and top quartile scenarios respectively? Similarly, how were the 4.3% increase and 10.3% reduction calculated for the apartment median and top quartile scenarios respectively?

12. Reference: Exhibit L.EGD.ED.1, Page 2, par 4 and Page 3, par 3.

Preamble:

Exhibit L.EGD.ED.1, Page 2, par 4 states:

“Measures to improve efficiency in high gas intensity buildings go beyond those included in Marbek’s DSM Potential Study..... Such projects show generally good Total Resource Cost (TRC) test values, can be implemented quite quickly.....”

Exhibit L.EGD.ED.1, Page 3, par 3.

“These pilots were incredibly successful, and set the stage for the remarkable pace of market transformation....”

Request:

- a) Please provide the scope of each of the pilots.
- b) How much time and resources were involved in the pilots that are referred to in these references?
- c) What is the cost of the pilot projects (including all overhead, program costs and incentive costs)?
- d) What timeline is considered “quite quickly” in the first reference?
- e) What percentage of the programs would be TRC positive?
- f) Have the pilots been subjected to a third party audit? And if so, what were the results?
- g) Has there been a review or update of the specific building information cited in Figure 12 – Race to Reduce – Gas Conservation Action Plan Workshop Results?
- h) Market transformation assumes increased market share of new technologies and/or approaches to the point where they are widespread enough to become institutionalized and ultimately included in standard codes and practices. How is this pilot considered market transformation? What is considered as a remarkable pace of market transformation in this example?

13. Reference: Exhibit L.EGD.ED.1, Page 2, paragraph 3.

Preamble:

Exhibit L.EGD.ED.1, Page 2, paragraph 3 states:

“Energy efficiency initiatives such as REALpac’s 20 by ’15 Target and TRCA’s Town Hall Challenge and Greening Health Care programs use top quartile gas use to set energy targets.”

Request:

- a. How are buildings chosen for the Canada Green Building Council program? For example, are the buildings chosen because they are laggards, and use a relatively high level of energy?
- b. What percentage of those projects' savings are as a result of operational versus capital improvements/investment?
- c. Concurrently, what portion of the cost of the project is driven by capital versus operational improvements/investment?

14. Reference: Exhibit L.EGD.ED.1, Page 2, paragraph 5.

Request:

- a. What are the program costs for Toronto & Region's Conservation programs and CivicAction's Race to Reduce programs?
- b. Are the programs TRC positive?
- c. What is the cost of the program per m³ saved?

15. Reference: Exhibit L.EGD.ED.1, Page 5, paragraph 1.

Preamble:

Exhibit L.EGD.ED.1, Page 5, paragraph 1, states:

"The present value of the avoided commodity costs for attaining the median performance target is \$734 million and for the top quartile target is \$1,094 million, using a 5.88% discount rate and commodity cost used by Enbridge."

Request:

- a. In the TRC equation, incentives are not factored into determining the TRC ratio. Please estimate the incentive costs required to drive the median performance target.
- b. Please estimate the total DSM budget that would be required (including all program costs and overhead costs, etc.) to achieve the "median performance target" and the "top quartile performance target"?
- c. If possible, please calculate the Program Administrator Cost Test to achieving the median performance. If it is not possible, please state why.

- d. Please provide your calculations and assumptions for the responses to (a) – (c).

16. Request:

Prior to 2013, and anytime in the past decade, has ED provided any formal or informal documentation suggesting to Enbridge that it consider and/or calculate peak load reductions versus annual load reductions? If so, please produce any documentation.

17. Reference: Exhibit L.EGD.ED.1, Page 12, par 1, Section 3.1.

Preamble:

Exhibit L.EGD.ED.1, Page 12, par 1, Section 3.1 states:

“Performance based conservation begins with identifying high energy intensity buildings through benchmarking and then works systematically towards identifying and fixing the particular inefficiencies causing the high use in each building.”

Request:

- a. Given the process for performance based conservation outlined above, please confirm that such an approach is not practical or cost-effective for large quantities of small commercial customers.

18. Reference: Exhibit L.EGD.ED.1, Page 14, Section 4.2.

Preamble:

Exhibit L.EGD.ED.1, Page 14, Section 4.2, states:

“Identifying and addressing inefficiencies requires a savings focused approach to DSM.”

Request:

- a. Please confirm that the current DSM framework and its programs are focused on, measured by, and incented by m3 savings of natural gas.
- b. Please confirm that Enbridge’s DSM framework is a “savings focused approach.”

19. Reference: Exhibit L.EGD.ED.1, Page 14, Section 4.2.

Preamble:

Exhibit L.EGD.ED.1, Page 14, Section 4.2 states:

“Trained people with similar skill sets to energy analysts, commissioning agents and energy efficiency engineers focused on getting to energy savings as quickly as possible are needed to work with building operation staff.”

Request:

- a. Please define the educational or experiential background required of the above described persons.
- b. Please confirm that Enbridge’s DSM department and Enbridge’s partners, including Enerlife, employ individuals with the skill sets described in the above quote and the answer to part a.

20. Reference: Exhibit L.EGD.ED.1, Page 17, Appendix A -Terms of Reference.

Preamble:

The Terms of Reference requests that EnerLife:

“Quantify the demand side management (DSM) potential in large multi-residential, commercial and institutional buildings that can be pursued by Enbridge Gas Distribution Inc. (“Enbridge”) to potentially defer or avoid the need for part or all of the proposed GTA pipeline.”

Enbridge understands that EnerLife has shown potential through their “Performance-Based Approach”.

Request:

- a. Please define “potential” in L.EGD.ED.2 page 4, section 1.0, Performance-Based DSM Forecast Methodology. Is it achievable potential (and if so, based on what financial scenario), technical potential, or economic potential?