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June 23, 2015

VIA RESS, EMAIL and COURIER

Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge Street
Suite 2700
Toronto, ON M4P 1E4

Dear Ms. Walli

Re: Enbridge Gas Distribution Inc. (the "Company" or "Enbridge")
Ontario Energy Board (the "Board") File: EB-2015-0049
Multi-Year Demand Side Management Plan (2015 to 2020)
Interrogatory Responses

In accordance with the Board's Procedural Order No. 1 dated May 12, 2015, enclosed please find the interrogatory responses of Enbridge.

The submission has been filed through the Board's Regulatory Electronic Submission System (RESS) and will be available on the Company's website under the "Other Regulatory Proceedings" tab at www.enbridgegas.com/ratecase.

During the IRR process Enbridge discovered schedules within its application which require correction in order to address minor errors. In each instance the errors are not material in the Company's view. Further, Enbridge has made use of corrected evidence in responding to interrogatories such that responses provided shall not be in need of updating. The Company shall file corrected evidence no later than Friday June 26, 2015. Please see below a brief table outlining the schedules affected and a synopsis of the corrections that shall be made.

Schedule	Original	Revision
Exhibit B, Tab 2, Schedule 3	**Avoided Natural Gas Costs:** During the IRR process Enbridge discovered that the avoided natural gas costs used to calculate TRC Plus and PAC were incorrect, with the result of inflating avoided costs and all dependent values.	Enbridge has corrected its avoided natural gas costs. Due to the integrated nature of this input, the number of revisions resulting from this change in Exhibit B, Tab 2, Schedule 3 are too numerous to practically recount. In the context of the TRC Plus test as a screen of cost-effectiveness, the impact of this change is not material as none of Enbridge's DSM offers have reduced in cost-effectiveness below a TRC Plus ratio of 1.
	Adaptive Thermostats: Subsequent to conducting its TRC Plus and PAC analysis for the initial filing of EB-2015-0049 the Company received more appropriate incremental costs for adaptive thermostats.	Enbridge has now incorporated the best available information into its calculation of the cost-effectiveness of adaptive thermostats. While the cost-effectiveness of this offer has reduced both in the TRC Plus and PAC tests, it remains cost-effective.
Exhibit B, Tab 1, Schedule 6	**Demand Side Management Participant Incentive Deferral Account ("DSMPIDA"):** Through the IRR process, Enbridge discovered that its description of the DSMPIDA in its pre-filed evidence could be enhanced for clarity.	Enbridge has responded to interrogatories according to the intended purpose and functioning of the DSMPIDA.

If you require further information, please contact the undersigned.

Yours truly,

(Original Signed)

Bonnie Jean Adams
Regulatory Coordinator

cc: Mr. Dennis O'Leary, Aird &Berlis
EB-2015-0049 Intervenors

BOARD STAFF INTERROGATORY #1

INTERROGATORY

Topic 1 – Guiding Principles and OEB Priorities

Ref: Exhibit B / Tab 4 / Schedule 3 / pp. 1-4
EB-2014-0134 / Report of the Board / Section 6.2

Preamble:
At section 6.2 of the DSM Framework, the OEB stated that utilities should strive towards the "development of new and innovative programs, including flexibility to allow for on-bill financing options."

Enbridge indicated that, in late 2014, it committed to fund a study aimed at establishing the viability of using a Local Improvement Charge (LIC) to improve energy efficiency in commercial, industrial, and institutional buildings. Additionally, Enbridge indicated that it is a joint proponent to an NRCan project proposal to examine using a LIC for new residential single family dwellings.

Questions:

a) Please indicate whether Enbridge completed a jurisdictional review for on-bill financing programs. If yes, please provide the review.

b) If available, please file the results of the LIC viability study. If the study is not available, please provide a progress report.

c) Please discuss any progress made on the NRCan LIC project.

d) Please indicate how many municipalities in Enbridge's franchise area have the capability to charge for energy efficiency improvements on the property tax bill.

e) Please indicate whether zero interest financing was considered as an option for on-bill financing programs. Please provide Enbridge's views on a zero interest on-bill DSM financing program.

f) Please describe the on-bill financing research and design activities planned for 2015 and 2016.

Witnesses: M. Lister
E. Lontoc
F. Oliver-Glasford
J. Paris

g) Please provide rationale as to why Enbridge did not propose an on-bill financing program given the capabilities of its existing billing system.

h) Please discuss Enbridge's position on implementing a limited pilot program to test the effectiveness of an on-bill financing offer that uses Enbridge's bill as a vehicle for the payment of financing charges.

i) Please discuss Enbridge's position on collaborating with Union on the pilot program.

RESPONSE

a) Enbridge continues to gather information on on-bill financing programs including third party research from industry sources such as ACEEE and ESource. An ACEEE research report published in December 2011, "On-Bill Financing for Energy Efficiency Improvements: A Review of Current Program Challenges, Opportunities, and Best Practices", provides insights from 19 on-bill financing programs in the United States.

Enbridge is willing to participate in an in-depth on-bill financing program research collaborative that will include a North American jurisdictional scan that incorporates Ontario perspectives and market conditions, as well as pilot testing as appropriate.

b) The LIC commercial viability study is underway. More information about this viability study can be found at Energy Probe Interrogatory #33, filed at Exhibit I.T13.EGDI.GEC.33

c) The LIC residential new construction project submission was unsuccessful in securing funding support from NRCan.

d) At the present time, it is only the City of Toronto that we are aware of that has the capability to charge for energy efficiency improvements on the property tax bill. Toronto has a LIC program in place for both residential and commercial multi-residential property taxpayers.

e) The energy products and services industry, along with their trade partners such energy efficiency as contractors and financial institutions, has successfully developed financial products to make HVAC products and services affordable and accessible beyond the service area borders of Enbridge. Further research will need to be done to understand how Enbridge can complement the financial

Witnesses: M. Lister
E. Lontoc
F. Oliver-Glasford
J. Paris

offerings available in the marketplace, as well as incentive designs to pay down financing costs such as zero interest in lieu of, or in addition, to financial rebates as part of its program offerings.

f) Enbridge will continue to participate in discussions with stakeholders to better understand how it can best support on-bill financing objectives with its present priorities.

Enbridge will be participating as part of the steering committee for a MaRS led initiative that seeks to explore how the U.S. 'Investor Confidence Project' ("ICP") standards could be adapted to de-risk and catalyze energy efficiency retrofits for Canadian commercial buildings. This energy efficiency financing related initiative will be participated by a variety of energy efficiency stakeholders including utilities, financial institutions, energy service firms, insurance companies and equipment manufacturers.

g) Enbridge has met on a number of occasions with the Ministry of Energy, City of Toronto, members of the Collaboration on Home Energy Efficiency Retrofits in Ontario (CHEERIO) and other business partners to discuss and debate the merits of an on-bill financing program. Enbridge continues to gather details from those same sources in order to ensure that any potential program that goes to market will be beneficial and have a high rate of participation from our customer base.

h) As in any other program, using a pilot approach to test various program design elements will be informed by in-depth market research and thoughtful program development efforts to achieve a high rate of participation. The Company will consider a pilot for this program if determined to be the appropriate program path and where timing and capacity meet the Company's requirements.

i) Enbridge is willing to collaborate with Union Gas on a pilot program provided they are interested and see the value and benefits to their customers.

Witnesses: M. Lister
E. Lontoc
F. Oliver-Glasford
J. Paris

CCC INTERROGATORY #1

INTERROGATORY

Topic 1 - Guiding Principles and OEB Priorities

Reference: (Ex. B/T1/S1/p. 4)

Please explain how, in the development of its plan, EGD has interpreted the Minister's Directive to "enable the achievement of all cost-effective DSM".

RESPONSE

The Energy Minister's March 31, 2014 Directive to the Board called upon the Board to develop a new DSM Framework which enabled all cost-effective DSM. Page 7 of the Board's 2015-2020 DSM Framework calls for "…all cost-effective DSM that [results] in a reasonable rate impact." Please see response to BOMA Interrogatory #13 found at Exhibit I.T8.EGDI.BOMA.13 for more on Enbridge's view on the pursuit of "all cost effective DSM".

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

BOARD STAFF INTERROGATORY #2

INTERROGATORY

Topic 2 – DSM Targets

Ref: Exhibit B / Tab 1 / Schedule 4 / p. 10 / Tables 8-12
Exhibit B / Tab 1 / Schedule 4 / p. 19 / Tables 14-19
Exhibit B / Tab 1 / Schedule 4 / p. 29 / Tables 22-26
Exhibit B / Tab 1 / Schedule 3 / p. 6

Preamble:
In Enbridge's 2015 Resource Acquisition scorecard, the weight allocated to cumulative natural gas savings is 92%. However, in Enbridge's 2016-2020 Resource Acquisition scorecards, the weight allocated to cumulative natural gas savings is 80% for large and small volume customers.

Questions:

a) Please provide further rationale for the reduced weighting on cumulative natural gas savings for the 2016-2020 Resource Acquisition scorecards.

b) Please provide the amount and the percentage of the cumulative natural gas metered/billing data (as opposed to modeled or prescriptive savings).

c) Please provide the amount and the percentage of the cumulative natural gas savings in the Low-Income scorecards that will be evaluated using metered/billing data (as opposed to modeled savings or prescriptive savings).

d) Please provide the amount and the percentage of the cumulative natural gas savings in the Market Transformation and Energy Management scorecards that will be evaluated using metered/billing data (as opposed to modeled or prescriptive savings).

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

RESPONSE

a) While Enbridge's Resource Acquisition scorecard has been developed with a modestly lower weighting in Resource Acquisition on CCM for 2016 - 2020 than was the case in 2015, it continues to highly value the importance of the cumulative natural gas savings metric. The shift is only indicative of Enbridge's commitment to balancing the important metric of cumulative natural gas savings with the Board's guiding principles and objectives.

Given the direction from section 15.1 of the DSM Framework, Enbridge rolled forward its 2014 budgets, targets and shareholder incentive into 2015. It should be recalled that the specifics of the Company's 2015 Resource Acquisition scorecard were formulated through a Settlement Conference in the summer of 2012 and were subsequently approved by the Board in EB-2012-0394. At that time, Enbridge's Community Energy Retrofit ("CER") was only halfway through its first year of deployment with a moderate 2012 target of 160 homes. At this stage of CER's development it was agreed that an 8% weighting on the residential deep savings metric was appropriate.[1]

Subsequently in the 2015-2020 DSM Framework the Board identified the following guiding principles:

- Design programs so that they achieve high customer participation levels;
- Minimize lost opportunities when implementing energy efficiency upgrades;
- Programs should be designed to pursue long-term energy savings.

The Board further identified the following key priority:

- Ensure that programs take a holistic-approach and identify and target all energy saving opportunities throughout a customer's home or business.

In light of the above guiding principles and key priority Enbridge identified its whole home retrofit offer, which could be scaled to include relatively high participation levels, drive deep savings and, through the use of home energy audits, minimize lost opportunities by holistically evaluating a customer's home energy use. These changes are highly responsive to the Board's direction. Enbridge proposes to significantly increase the budget and effort dedicated to its Home Energy Conservation ("HEC") offer in the 2016-2020 timeframe. In order to recognize the efforts expended and results achieved through HEC the Company has proposed a Resource Acquisition scorecard which places adequate value on this critical offer.

[1] EB-2012-0394 Exhibit B, Tab 1, Schedule 3

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

b) As noted in Exhibit B, Tab 1, Schedule 4, page 35, Enbridge's Run it Right ("RiR") and Comprehensive Energy Management ("CEM") offers are projected to generate cumulative cubic metres ("CCM") of natural gas savings. Those CCM results will be measured using metered/billing data and captured on the Resource Acquisition scorecard.

c) None of the CCM savings counted toward the Low Income scorecard are intended to be evaluated using metered/billing data.

d) There is only one metric on the Market Transformation and Energy Management ("MTEM") scorecard which is measured in CCM; My Home Health Record ("MHHR"). Given that MHHR is a behavioural offer, CCM results can be appropriately measured using meter data - based on bi-monthly meter reads - to evaluate the entire home's energy use (as opposed to a specific end use of energy). This measurement approach is further made possible through a large number of participants and the use of control groups. In 2016, 19.5 million CCM, or 100% of the CCM on the MTEM scorecard, will be measured using metered data.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

BOARD STAFF INTERROGATORY #3

INTERROGATORY

Topic 2 – DSM Targets

Ref: Exhibit B / Tab 1 / Schedule 4

Questions:

a) Please provide the scorecards that were in place in 2012, 2013 and 2014.

b) Please provide the percentage of the target level achieved for each metric on each scorecard in 2012, 2013, and 2014.

c) Please provide the shareholder incentive received related to each scorecard for each year over the 2012-2014 period.

d) Please provide the total shareholder incentive received for each year over the 2012-2014 period.

e) Please provide the percentage of maximum shareholder incentive received for each year over the 2012-2014 period.

Response:

a) On the following pages, please find the scorecards from 2012 to 2014.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

2012 SCORECARD

Program Type		Performance Band		
Resource Acquisition Total	**Weight**	**Lower**	**Middle**	**Upper**
Resource Acquisition	92%	**615.30**	**820.40**	**1025.50**
Residential Deep Savings	4%	**120**	**160**	**200**
Commercial/Industrial Deep Savings	4%	**40%**	**45%**	**50%**
Low Income Total	**Weight**	**Lower**	**Middle**	**Upper**
Single Family - Part 9	50%	**12**	**17**	**21**
Multi-Residential - Part 3	50%	**33**	**45**	**56**
Part 3 - RIR	---	---	---	---
Market Transformation Total	**Weight**	**Lower**	**Middle**	**Upper**
DWHR - Units Installed	44%	**3,000**	**4,000**	**5,000**
SBD Residential Top 20 Builders	15%	**1**	**2**	**3**
SBD Residential Top 80 Builders	15%	**7**	**9**	**18**
SBD Commercial New Construction	20%	**6**	**8**	**15**
Home Rating	7%	**-**	**5,001**	**10,001**

***In 2012 MT was one single scorecard**

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

2013 SCORECARD

Program Type		Performance Band		
Resource Acquisition Total	**Weight**	**Lower**	**Middle**	**Upper**
Resource Acquisition	92%	**729.46**	**972.61**	**1215.76**
Residential Deep Savings	8%	**549**	**732**	**915**
Commercial/Industrial Deep Savings	---	---	---	---
Low Income Total	**Weight**	**Lower**	**Middle**	**Upper**
Single Family - Part 9	50%	**17.3**	**23.1**	**28.8**
Multi-Residential - Part 3	45%	**45.0**	**60.0**	**75.0**
Part 3 - RIR	5%	**30%**	**40%**	**50%**
SBD Residential Total (MT)	**Weight**	**Lower**	**Middle**	**Upper**
Builders Enrolled	60%	**11**	**14**	**18**
# of Completed Units	40%	**675**	**900**	**1125**
SBD Commercial Total (MT)	**Weight**	**Lower**	**Middle**	**Upper**
Commercial New Construction	100 %	**6**	**8**	**15**
Home Labeling Total (MT)	**Weight**	**Lower**	**Middle**	**Upper**
Number of Committed Realtors	70%	**-**	**5,001**	**10,001**
Ratings performed	30%	**250**	**500**	**750**
DHWR Total (MT)	**Weight**	**Lower**	**Middle**	**Upper**
# of Units Installed	100 %	**2,813**	**3,750**	**4,688**

***In 2013 MT was 4 separate scorecards**

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

2014 SCORECARD

Program Type		Performance Band		
Resource Acquisition Total	**Weight**	**Lower**	**Middle**	**Upper**
Resource Acquisition	92%	**744.05**	**992.06**	**1240.08**
Residential Deep Savings	8%	**560**	**747**	**934**
Commercial/Industrial Deep Savings	---	---	---	---
Low Income Total	**Weight**	**Lower**	**Middle**	**Upper**
Single Family - Part 9	50%	**17.7**	**23.6**	**29.5**
Multi-Residential - Part 3	45%	**48.15**	**64.2**	**80.25**
Part 3 - RIR	5%	**30%**	**40%**	**50%**
SBD Residential Total (MT)	**Weight**	**Lower**	**Middle**	**Upper**
Builders Enrolled	60%	**12**	**16**	**20**
# of Completed Units	40%	**750**	**1000**	**1250**
SBD Commercial Total (MT)	**Weight**	**Lower**	**Middle**	**Upper**
Commercial New Construction	100%	**8**	**12**	**19**
Home Labeling Total (MT)	**Weight**	**Lower**	**Middle**	**Upper**
Number of Committed Realtors	70%	**-**	**5,001**	**10,001**
Ratings performed	30%	**750**	**1,500**	**2,250**
DHWR Total (MT)	**Weight**	**Lower**	**Middle**	**Upper**
# of Units Installed	---	---	---	---

***In 2014 MT was 3 separate scorecards (DWHR program was no longer offered in 2014)**
****2014 results include CPSV and Auditor (Optimal) adjustments**
*****However, 2014 results are Pre-Audit Committee values and could still be subject to change**

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

b) Please see below the % achieved for each metric on Enbridge's DSM scorecards from 2012 to 2014.

2012 SCORECARD

Program Type	
Resource Acquisition Total	**Score**
Resource Acquisition	**144%**
Commercial/Industrial Deep Savings	**-103%**
Residential deep savings # customers	**161%**
Weighted Score	**135%**
	$ 5,265,185

Low Income Total	**Score**
Single Family - Part 9	**196%**
Multi-Residential - Part 3	**93%**
Weighted Score	145%
	$ 2,228,489

Market Transformation Total	**Score**
DWHR - Units Installed	**152%**
SBD Residential Top 20 Builders	**150%**
SBD Residential Top 80 Builders	**100%**
SBD Commercial New Construction	**107%**
Home Rating	**136%**
Weighted Score	**134%**
	$ 1,323,855

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

2013 SCORECARD

Program Type	
Resource Acquisition Total	**Score**
Resource Acquisition	**58%**
Residential Deep Savings	**351%**
Weighted Score	**81%**
	$ 1,545,045

Low Income Total	**Score**
Single Family - Part 9	**186%**
Multi-Residential - Part 3	**-9%**
Part 3 - RIR	**325%**
Weighted Score	**105%**
	$ 1,117,939

SBD Residential Total (MT)	**Score**
Builders Enrolled	**150%**
# of Completed Units	**115%**
Weighted Score	**136%**
	$ 765,221

SBD Commercial Total (MT)	**Score**
Commercial New Construction	**157%**
Weighted Score	**157%**
	$ 235,572

Home Labeling Total (MT)	**Score**
Number of Committed Realtors	**830%**
Ratings performed	**28%**
Weighted Score	**589%**
	$ 309,438

DHWR Total (MT)	**Score**
# of Units Installed	245%
Weighted Score	**245%**
	$ 564,973

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

2014 SCORECARD*

Program Type	
Resource Acquisition Total	**Score**
Resource Acquisition	**34%**
Residential Deep Savings	**1296%**
Weighted Score	**135%**
	$ 5,202,419

Low Income Total	**Score**
Single Family - Part 9	**118%**
Multi-Residential - Part 3	**-7%**
Part 3 - RIR	**272%**
Weighted Score	**69%**
	$ 375,059

SBD Residential Total (MT)	**Score**
Builders Enrolled	**188%**
# of Completed Units	**112%**
Weighted Score	**157%**
	$ 1,055,385

SBD Commercial Total (MT)	**Score**
Commercial New Construction	**150%**
Weighted Score	**150%**
	$ 410,068

Home Labeling Total (MT)	**Score**
Number of Committed Realtors	**450%**
Ratings performed	**44%**
Weighted Score	**329%**
	$ 604,311

*2014 results remain subject to change due to audit, discussions with the Audit Committee and a Clearance of Accounts proceeding before the Board.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

c, d, e) Below please find charts outlining the shareholder incentive available and received from 2012 to 2014 as well as the percentage of the maximum Demand Side Management Incentive Deferral Account ("DSMIDA") received.

Shareholder Incentives

Resource Acquisition	**2014 DSMI**	**2013 DSMI**	**2012 DSMI**
Middle (100%) DSMI	$2,542,252	$2,485,008	$2,576,346
Maximum DSMI	$6,355,631	$6,212,521	$6,440,865
Actual DSMI Achieved	$5,202,419	$1,545,045	$4,607,962

Low Income	**2014 DSMI**	**2013 DSMI**	**2012 DSMI**
Middle (100%) DSMI	$978,714	$966,468	$950,000
Maximum DSMI	$2,446,785	$2,416,169	$2,375,000
Actual Achieved DSMI	$375,059	$1,117,939	$2,228,489

Market Transformation	**2014 DSMI**	**2013 DSMI**	**2012 DSMI**
Middle (100%) DSMI	$827,906	$812,124	$653,654
Maximum DSMI	$2,069,764	$2,030,310	$1,634,135
Actual Achieved DSMI	$2,069,764	$1,875,204	$1,323,855

Total Portfolio	**2014 DSMI**	**2013 DSMI**	**2012 DSMI**
Middle (100%) DSMI	$4,348,872	$4,263,600	$4,180,000
Maximum DSMI	$10,872,180	$10,659,000	$10,450,000
Actual Achieved DSMI	$7,647,242 (70% of max)	$4,538,188 (42% of max)	$8,160,306 (78% of max)

**2014 results are Pre-Clearance and could be subject to change*
***2012 Actual DSMI Achieved includes DSMI writedown of $657,223 from large industrial*

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

BOARD STAFF INTERROGATORY #4

INTERROGATORY

Topic 2 – DSM Targets

Ref: Exhibit B / Tab 1 / Schedule 3 / pp. 5-6
Exhibit B / Tab 1 / Schedule 4 / pp. 3-16

Preamble:
Enbridge's proposed 2015 cumulative cubic metre (CCM) target for the Resource Acquisition scorecard is 1,011.9 million m^3. In 2016, the CCM target decreases to 894.4 million m^3. By 2020, the CCM target increases to 1,064.9 million m^3. Over the same period, Enbridge's Resource Acquisition budget increases from $19.2 million (2015) to $34.6 million (2016) to $46.9 million (2020).

Questions:

a) Please describe the methodology used for setting the CCM targets in the Resource Acquisition scorecard for the 2016-2020 period. Please provide rationale for the target setting methodology used.

b) Please explain why the targeted level of CCM savings in the Resource Acquisition scorecard decreases from 2015 to 2016 in the context of the significant increase in the budget ($15.4 million).

c) Please explain why the targeted level of CCM savings in the Resource Acquisition scorecard is only slightly higher in 2020 than 2015 in the context of the substantial increase in the budget ($27.7 million).

d) For the large volume CCM target, please provide rationale for the proposed thresholds for customers to fall into this category (i.e. annual average consumption greater than 75,000 m^3 for commercial customers and annual average consumption greater than 340,000 m^3 for industrial customers).

Response

Please see the response to Energy Probe Interrogatory #19, filed at I.T2.EGDI.EP.19 for a discussion of how the Commercial / Industrial budgets and targets were derived.

Witnesses: M. Lister
S. Moffat
B. Ott
K. Mark
F. Oliver-Glasford
J. Paris

a) The Home Energy Conservation ("HEC") target was created based on the allotted budget for Residential Resource Acquisition programming. Using the available budget divided by the historical average cost for each participant in addition to understanding the ability of the 3rd party resources who assist in delivering the program, allowed Enbridge to generate a yearly participation level.

b) The significant increase in budget is largely due to the fact that the HEC program is proposing significantly higher targets than in previous years. The HEC offer has been very successful to date. The HEC offer cost per CCM is higher than offerings from Commercial and Industrial which contributes to the higher budget and lower CCM return. Further, Enbridge wishes to draw a distinction between targets and actual achievement. While the 2015 CCM target for Resource Acquisition may be 1,011.9 million CCM, achievement in this category were 766.7 million in 2013 and 664.4 million CCM in 2014 based on pre-audit results. In light of this trend the change in 2016's Resource Acquisition CCM target does not represent a decrease in the natural gas savings being realized by ratepayers. Rather, the 2016 target represents a re-alignment of targets which are clearly no longer appropriate.

c) Please see c) above.

d) Industrial customers are assigned annual consumption of 340,000 m3 as this is the threshold for qualifying for a contract rate for natural gas.

   In the case of Commercial customers the threshold of 75,000 m3 was based on historical participation in the Commercial Offers and Enbridge's experience in the market.

   Customers who consume more than 75,000 m^3 annually typically approach their energy consumption differently. They will often have energy mangers, procurement managers, and/or a focus on the efficient use of energy. 85% of Enbridge's commercial CCM results are typically realized working with this segment of customers where DSM offers have a relatively high level of penetration.

   Customers who consume less than 75,000 m^3 annually are considered "hard to reach" customers, where Enbridge has typically seen much lower levels of participation and CCM results. These customers typically do not have energy mangers or departments dedicated to procurement and as a general rule, they are not as focused on energy efficiency or conservation.

Witnesses: M. Lister
S. Moffat
B. Ott
K. Mark
F. Oliver-Glasford
J. Paris

BOARD STAFF INTERROGATORY #5

INTERROGATORY

Topic 2 – DSM Targets

Ref: Exhibit B / Tab 1 / Schedule 3 / pp. 5-8
Exhibit B / Tab 1 / Schedule 4 / pp. 3-5, 19-21

Preamble:

Enbridge's proposed 2015 CCM target for the Low-Income scorecard is 92.8 million m^3. In 2016, the CCM target decreases to 87.9 million m^3. By 2020, the CCM target increases to 103 million m^3. Over the same period, Enbridge's resource acquisition budget increases from $7.4 million (2015) to $11.9 million (2016) to $13.8 million (2020).

Questions:

a) Please describe the methodology used for setting the CCM targets in the Low-Income scorecard for the 2016-2020 period. Please provide rationale for the target setting methodology used.
b) Please explain why the targeted level of CCM savings in the Low-Income scorecard decreases from 2015 to 2016 in the context of the significant increase in the budget ($4.5 million).
c) Please explain why the targeted level of CCM savings in the Low-Income scorecard is only slightly higher in 2020 than 2015 in the context of the substantial increase in the budget ($6.4 million).

Response:

a) Please see the response to Energy Probe Interrogatory #20 found at Exhibit I.T2.EGDI.EP.20 for a presentation of how the Low Income budgets and targets were generated.

b) 2015 is a roll over year making a direct comparison to 2016 difficult. However, Enbridge wishes to draw a distinction between targets, as written, and what is realistically achievable in the market. While Enbridge's 2015 Low Income targets may total 92.7 million CCM, 2013 results were only 60.2 million CCM and preliminary 2014 results indicate results of 55.5 million CCM. Given this clear

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

trend, the Company wishes to dispel any perception that achievement levels are being reduced from 2015 to 2016. Rather, the Company wishes to re-establish targets to levels that have been demonstrated to be achievable, rather than carry forward with targets that have demonstrated themselves to be largely unachievable. The targets and budgets proposed for 2016 are more reflective of what Enbridge can actually accomplish.

c) Please see Enbridge's response to b) above.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

BOARD STAFF INTERROGATORY #6

INTERROGATORY

Topic 2 – DSM Targets

Ref: Exhibit B / Tab 1 / Schedule 3 / pp. 29-33

Question:

a) Please provide rationale for the proposed weightings used in Enbridge's 2016 to 2020 Market Transformation and Energy Management (MTEM) scorecards.

RESPONSE

a) The weightings proposed on Enbridge MTEM scorecard are based on a combination of the budget, anticipated outcomes, and level of effort associated with each metric.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

BOARD STAFF INTERROGATORY #7

INTERROGATORY

Topic 2 – DSM Targets

Ref: EB-2014-0134 / Filing Guidelines / Section 14.1
Exhibit B / Tab 2 / Schedule 1 / pp. 1-100

Preamble:
At section 14.1 of the Natural Gas DSM Filing Guidelines, the OEB stated that annual incremental natural gas savings for each program should be provided in the 2015-2020 DSM Plan.

Question:

a) Where applicable, please provide annual incremental natural gas savings by offer / initiative during the 2015-2020 period.

b) Where applicable, please provide annual CCM natural gas savings targets by offer / initiative during the 2015-2020 period.

c) Where applicable, please provide the 2020 natural gas savings goal for each program during the 2015-2020 period.

d) Please provide detailed rationale for all program-specific targets.

Response:

Please note that 2015 charts are included separate from 2016 to 2020.

a) Below please find a chart that provides a breakdown of the annual incremental natural gas savings during the 2016 to 2020 period.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

Annual Net Gas Savings

Multi-Year Results	2016	2017	2018	2019	2020
Portfolio	**66,861,090**	**72,320,260**	**76,626,192**	**77,840,992**	**78,993,810**
Resource Acquisition	59,701,844	64,502,060	68,657,066	69,872,280	71,169,559
Low Income	5,857,438	6,151,533	6,667,808	6,768,355	6,871,705
Market Transformation	6,509,038	8,333,333	6,506,591	6,001,785	4,762,731

Resource Acquisition	2016	2017	2018	2019	2020
Large C&I Customers Total	40,279,684	40,058,600	40,943,260	41,047,949	41,206,955
Small C&I Customers Total	10,911,505	11,063,600	10,402,236	10,610,277	10,822,487
Adaptive Thermostats	1,590,989	3,177,000	4,765,500	4,989,858	5,135,099
Home Energy Conservation	6,841,500	9,112,000	11,249,383	11,798,048	12,281,470
Total Forecast	**59,701,844**	**64,502,060**	**68,657,066**	**69,872,280**	**71,169,559**

Low Income	2016	2017	2018	2019	2020
Multi-Family Homes - Part 3	3,931,297	4,130,200	4,646,475	4,766,646	4,889,430
Single Family Homes - Part 9	1,926,141	2,021,333	2,021,333	2,001,709	1,982,275
Total Forecast	**5,857,438**	**6,151,533**	**6,667,808**	**6,768,355**	**6,871,705**

MTEM	2016	2017	2018	2019	2020
O-Power	6,509,038	8,333,333	6,506,591	6,001,785	4,762,731
Total Forecast	**6,509,038**	**8,333,333**	**6,506,591**	**6,001,785**	**4,762,731**

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

b) Below please find a chart that provides annual CCM natural gas savings targets by offer / initiative during the 2016 to 2020 period.

Cumulative Cubic Metres (CCM)

Resource Acquisition	2016	2017	2018	2019	2020
Large C&I Customers Total	*604,195,262*	*600,879,000*	*614,148,900*	*615,719,228*	*618,104,330*
Large Custom	541,170,423	538,200,087	550,085,776	551,492,300	553,628,608
Large Prescriptive	63,024,839	62,678,913	64,063,124	64,226,928	64,475,723
Large DI	0	0	0	0	0
Small C&I Customers Total	*163,672,568*	*165,954,000*	*156,033,535*	*159,154,161*	*162,337,299*
Small Custom	32,895,470	33,354,000	31,360,151	31,987,345	32,627,103
Small Prescriptive	70,418,437	71,400,000	67,131,822	68,474,439	69,843,952
Small DI	60,358,661	61,200,000	57,541,562	58,692,377	59,866,244
Small Commercial New Construction	0	14,620,000	17,960,200	19,548,431	23,236,432
Adaptive Thermostats	23,864,839	47,655,000	71,482,500	74,847,871	77,026,478
Home Energy Conservation	102,622,499	136,680,000	168,740,741	176,970,719	184,222,043
Run It Right	303,005	421,124	592,254	768,306	907,297
Industrial CEM	869,485	1,321,771	897,856	1,075,479	1,709,498
Total CCM Forecast	**895,527,658**	**967,530,895**	**1,029,855,985**	**1,048,084,195**	**1,067,543,378**

Low Income	2016	2017	2018	2019	2020
Multi-Family Homes - Part 3	58,969,452	61,953,000	69,697,121	71,499,695	73,341,453
Single Family Homes - Part 9	28,892,118	30,320,000	30,320,000	30,025,631	29,734,120
Total CCM Forecast	**87,861,570**	**92,273,000**	**100,017,121**	**101,525,326**	**103,075,573**

MTEM	2016	2017	2018	2019	2020
O-Power	19,527,114	25,000,000	19,519,774	18,005,354	14,288,193
Total CCM Forecast	**19,527,114**	**25,000,000**	**19,519,774**	**18,005,354**	**14,288,193**

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

c) A breakdown of the contributors to Enbridge's 2020 natural gas savings goal can be found in Exhibit B, Tab 1, Schedule 2. For convenience, the relevant table has been included below.

Contributor	CCM
2015 Transition Year*	774,359,281
Large C/I	3,053,046,721
Small C/I	882,516,626
Residential	1,064,112,689
Low Income Multi-Family	335,460,721
Low Income Single Family	149,291,870
MTEM	96,340,435
Total Lifetime Net Natural Gas Savings from 2015 - 2020 DSM Programs (m^3)	**6,355,128,342**

*Based on preliminary and unaudited 2014 results escalated by 2%

d) For details regarding budgets and targets please see Enbridge's response to GEC Interrogatory #16, filed at Exhibit I.T2.EGDI.GEC.16.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

BOARD STAFF INTERROGATORY #8

INTERROGATORY

Topic 2 – DSM Targets

Ref: Exhibit B / Tab 1 / Schedule 4 / pp. 40-41
EB-2014-0134 / DSM Filing Guidelines / Section 8.2 / p. 25

Preamble:
Enbridge proposed a target adjustment factor (TAF) to account for changes in input assumptions that may occur over the six years of the 2015-2020 Plan.

The DSM Filing Guidelines state the following:

> "The evaluation of the achieved results for the purpose of determining the lost revenue adjustment mechanism ("LRAM") amounts and the shareholder incentive amounts should be based on the best available information which, in this case, refers to the updated input assumptions resulting from the evaluation and audit process of the same program year. For example, the LRAM and shareholder incentive amounts for the 2015 program year should be based on the updated input assumptions resulting from the evaluation and audit of the 2015 results. The updates to the input assumptions resulting from the evaluation and audit of the 2015 results would likely be completed in the second half of 2016."

OEB staff's interpretation of this passage is that savings evaluations (for the purpose of determining the LRAM and shareholder incentive amounts) should be based on updated input assumptions and that the updated input assumptions are not to be used to adjust the annual targets.

Questions:

a) Please explain how Enbridge's proposed use of a TAF is consistent with the DSM Framework and Filling Guidelines, which require the use of the best available information in the calculation of the LRAM and shareholder incentive amounts, not in the setting of annual targets.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

b) Please explain why it is reasonable to use a TAF (that is based on changes to input assumptions resulting from the program evaluation and audit process) to adjust targets each year and how Enbridge's proposed approach will result in sufficiently aggressive targets that ensure the prudent use of ratepayer funds.

c) Please explain, using an example, how the TAF will be calculated and applied to adjust the targets based on changes to input assumptions for individual measures (e.g. change in boiler efficiency base case).

d) Please explain in what year Enbridge will apply the TAF. For example, will the TAF resulting from the program evaluation and audit process be applied to the target of the year being evaluated, or the following year?

RESPONSE

a) Enbridge's proposed use of a TAF will not impact the Company's ability to calculate LRAM and the shareholder incentive using the best available information. Rather, the Company is seeking recognition of the reality that its DSM targets have been proposed using the best available information at present, without an opportunity to adjust those targets as more appropriate information is made available. In Enbridge's view, the DSM Framework and Guidelines do not preclude the proposal of a mechanism such as the TAF which would allow the gas utilities to incorporate more up to date information into the determination of the DSM targets against which they are measured in a given program year.

b) Enbridge has developed and proposed DSM targets that it believes are highly challenging, but also achievable provided that the utility is effective, and efficient. The Company interprets the question above as implying that the TAF will result only in the adjustment of targets to become less aggressive over time. Enbridge does not share this view and can envision a situation in which the TAF actually results in DSM targets which are more aggressive. In fact, the purpose of the TAF is to maintain this important balance and avoid a situation where unanticipated changes to input assumptions or adjustment factors result in targets which are either too easy or unachievable; in either case limiting the effectiveness of a shareholder incentive in maximizing utility efforts.

It should be recognized that for the purposes of setting targets and measuring DSM results, there are hundreds of inputs which are subject to numerous adjustments, all of which will vary over time based upon the best available information.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

The best available information is determined by various studies which are undertaken across the continent, which are ongoing and which will be produced at different points in a particular year. This challenge becomes even more pronounced when discussing adjustment factors, such as Net to Gross ratios, that are typically determined through third-party studies with significant qualitative components. These studies are the work of specialized consultants and their outcomes cannot be predicted with a high level of certainty or relative accuracy by the utility when proposing 6 year DSM targets. These studies may be relevant to the gas utilities in Ontario, but at other times they may be less relevant for reasons of climate and utility structure. The important point is that over time, these changes are likely to have a material impact on the targets which have been set in this proceeding based upon the best available information today, which are the current approved input assumptions. The TAF is intended to be an automatic mechanism which will simply adjust for the changes which are ultimately approved for use in Ontario. The TAF will do so in a transparent and neutral fashion in that targets will only adjust to a degree and in a direction that is equivalent to changes in the input assumptions which impact DSM results. This means that there should be no material difference in terms of the results achieved relative to the targets. The results will therefore be more accurate and representative of actual results being based upon the best available information applied to both targets and results.

In addition, it should be recalled that the Framework contemplates the Board taking a more active role in the evaluation of program results and the review and approval of updated input assumptions. Accordingly, the TAF would only adjust targets to the extent that the Board has approved changes to input assumptions. It should also be recalled that where changes have been approved to input assumptions, the Company will use these for the purposes of completing its cost-effectiveness screening and for the purposes of future program results evaluations.

The Company submits that it is simply logical to have in place a mechanism which will ensure that program results which are based upon approved updated input assumptions are compared to targets which are similarly developed using the same updated input assumptions. Where, for example, the input assumptions which have been used for the purposes of setting targets in this Multi-Year DSM Plan are updated and changed over the coming years, there will be an increasing disconnect between the evaluation of program results and the targets set years earlier given the fact that the targets are not based on a similar set of input assumptions. Either a form of a TAF mechanism is required or the Utilities should be entitled to annually update the targets to reflect

updated input assumptions. If this does not occur, it could result in either a windfall (where the changes to input assumptions artificially increase results relative to targets) or a disincentive to the Utilities to undertake programs (where the disconnect artificially exaggerates the gap between results and targets).

The TAF is in the Company's view consistent with and complimentary to the Framework in that it will not affect how the LRAM and program results are calculated and evaluated using the best available information at the time of such calculations. The TAF simply applies the best available information to targets as part of the annual evaluation of program results. This then results in an apples to apples comparison and avoids the necessity of updating future years targets annually as this will be done automatically using the TAF.

In responding to the Board's Draft DSM Framework on October 15, 2014 (EB-2014-0134) the Company advocated against the application of input assumption and adjustment factor changes retroactively. For the Board's convenience Enbridge's position in that proceeding has been included below[1]:

> Enbridge has advocated against this practice in the past and continues to do so for the following reasons among others:
>
> - The practice creates an unrealistic expectation of the utility's ability to anticipate and respond to changes in the wide variety of inputs that influence program performance.[2]
> - DSM targets and budgets, and therefore resources, are agreed to based upon values such as deemed input assumptions and net to gross ratios.[3] Changes in these values constitute changes to the foundation on which utilities agreed a given target was achievable under a given budget scenario. If changes are to affect DSM results they

[1] EB-2014-0134, "*Response to the Reports from the Ontario Energy Board: Draft Report of the Board; Demand Side Management Framework for Natural Gas Distributors, and, Draft Filing Guidelines to the Demand Side Management Framework for Natural Gas Distributors*," submission from Enbridge Gas Distribution Inc., Oct. 15th, 2014, p.31-32
[2] California Public Utilities Commission (2010) "*Decision Regarding the Risk/Reward Incentive Mechanism Earnings True-Up for 2006-2008*," Decision 10-12-049, Dec. 16th, p.34
[3] Kushler, Martin; Nowak, Seth; White, Patti (2012) "*A National Survey of State Policies and Practices for the Evaluation of Ratepayer-Funded Energy Efficiency Programs*", *ACEEE*, Report U122, Feb. p.34, 39

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

should logically affect the DSM targets against which those results are judged.

- The retroactive changing of assumptions, in this case net to gross values, was at the heart of one the most severe regulatory disputes in the history of North American conservation and energy efficiency. California's investor-owned utilities believed their collective incentive payments for 2006-2008 were approximately $400 million, but a retroactive change in assumptions resulted in the evaluator proposing $45 million in collective penalties to shareholders[4]. Years of legal and regulatory disputes ensued until a December 2010 decision awarded approximately $212 million in incentives to California's investor-owned utilities.[5]
- The risk created by the retroactive application of assumptions discourages utilities from pursuing innovative programs and technologies. For this reason Massachusetts, identified in the Concentric study as a leading jurisdiction in energy efficiency and conservation, no longer applies changes to assumptions retroactively when measuring results.[6]
- The retroactive application of assumptions does not appear to be best practice in North America as 31 out of 38 U.S. states analyzed in 2012 applied assumptions on a forward looking basis.[7]
- The Board's retained consultant, Concentric Energy Advisors, advocated against the retroactive application of input assumptions during the development of the 2012 DSM Guidelines.[8]

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[4] Zuckerman, Julia; Dearson, Jeff; Chandrashekeran, Sangeetha. (2013) "*Rewarding Efficiency: Lessons from California's Shareholder Incentive*," *Climate Policy Initiative, University of Melbourne,* 2013 International Energy Program Evaluation Conference, Chicago, p.4

[5] California Public Utilities Commission (2010) "*Decision Regarding the Risk/Reward Incentive Mechanism Earnings True-Up for 2006-2008*," Decision 10-12-049, Dec. 16th

[6] Massachusetts Department of Public Utilities.(2012) *Docket 11-120 Order*, Aug. 10th, p.15

[7] Kushler, Martin; Nowak, Seth; White, Patti (2012) "*A National Survey of State Policies and Practices for the Evaluation of Ratepayer-Funded Energy Efficiency Programs*", *ACEEE*, Report U122, Feb. p.62-63

[8] EB-2008-0346, Concentric responses to stakeholder questions, Question 52 (EGDI Question 9),

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

c) For convenience, Enbridge's proposed TAF calculation, as outlined in Exhibit B, Tab 1, Schedule 4, page 41, has been provided below.

$$TAF = \left(\frac{\text{CCM Based on Input Assumptions and Adjustment Factors at Time of Audit} - \text{CCM Based on Input Assumptions and Adjustment Factors at Time of Filing}}{\text{CCM Based on Input Assumptions and Adjustment Factors at Time of Filing}} \right)$$

The TAF would adjust the Company's current year target according to the new input assumption information to align with the current year's actual performance so that both are measured the same way. The example below captures the mechanics of how the TAF would work in practice.

Assume that the Company achieves a 100% score on a metric, based on information available to it today. Then assume that a new study changes an input assumption to yield a 5% reduction to the Company's performance relative to the new information. Had the Company been aware of the new information, it could have used resources or budget in a different way to try to achieve a greater score either in that metric or in another. In other words, the Company would be retroactively penalized for information it did not have at the beginning of the year without a TAF. The table below illustrates how the TAF would be applied:

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

Performance	Score	Comment
Original Current Year Target	1,000	The target known to the Company at the beginning of the year (set in this case) is 1,000.
Current Year Performance	1,000	The Company has directed its budget and resources to achieve a 100% score.
Current Year Scorecard Performance	1,000 / 1,000 = 100%	As a result of the Company's efforts, it has achieved a 100% score.
New Input Assumption Information	-50 CCM	As a result of new information related to input assumptions, assume there would be a decrease in CCM of 5%, or 50 CCM.
New Current Year Performance with New Input Assumption Information	950 CCM	As a result of the new input assumption information, the Company's current year performance drops to 950 CCM.
TAF Adjustment	(950-1,000)/1,000 = -5% or 50 CCM	The TAF adjusts the Company's current Year Target to be aligned with the new information.
TAF Adjusted Target	1,000 – 50 = 950 CCM	Applying the TAF adjustment (with the new input assumption information) the current year's target would be re-cast with the new information.
Current Year Scorecard Performance	950 / 950 = 100%	As a result of the Company's efforts, and inclusive of the new input assumption information, the Company has still achieved a 100% score.

In this way, the TAF holds the Company whole for the new information that arose through the year that was not otherwise known at the time of setting targets. Said differently, the Company is not retroactively penalized for not knowing the new information at the time of setting the targets.

d) As shown in the example above, the TAF will be applied in the same program year as any adjustments to DSM results based on changes to input assumptions or adjustment factors.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

BOMA INTERROGATORY #3

INTERROGATORY

Topic 2 – DSM Targets

Ref: No reference

Please describe how the customer sales and service function is organized, particularly with respect to program delivery and implementation in the industrial, commercial and institutional sectors including key or national accounts. Are sales staff incented to achieve DSM results in addition to normal Enbridge incentive structures?

RESPONSE

Enbridge employs Energy Solutions Consultants and Channel Consultants within the Commercial (including Institutional) and Industrial sales teams to deliver Enbridge's DSM offers to specific customer segments. The primary focus of the sales groups is work with Key and National Accounts to support the customer's short and long term conservation plans, engage with building owners that have a high potential to implement capital and/or operational improvements and to support the business partner community in implementing conservation measures.

Many of the Commercial and Industrial sales teams are Certified Energy Managers. On the Commercial side, the sector has been divided into ten customer segments where Energy Solution Consultants and Channel Consultants are dedicated to working directly with customers, business partners, and industry participants.

The Commercial and Industrial sales teams have annual targets where sales representatives have access to financial rewards for achieving and exceeding targets which are in addition to standard company rewards.

Witnesses: P. Goldman
R. Kennedy
M. Lister

BOMA INTERROGATORY #7

INTERROGATORY

Topic 2 – DSM Targets

Ref: Exhibit B, Tab 1, Schedule 2, page 9 of 26.

Please indicate if the institutional sector is included in the commercial or industrial sector?

RESPONSE

The institutional sector has been included with the Commercial sector in Exhibit B, Tab 1, Schedule 2.

Witnesses: R. Kennedy
M. Lister

BOMA INTERROGATORY #9

INTERROGATORY

Topic 2 – DSM Targets

Reference: Exhibit B, Tab 1, Schedule 2, page 14 of 26.

> **"***Stated differently, although it is relatively straightforward to measure the natural gas reductions and bill savings resulting from capital or low cost/no cost upgrades to a facility (i.e., from technology changes to cleaning filters or adjusting controls), when the human factor and consequential operational and behavioural impacts are included, many additional assumptions must be accounted for. Accounting for these impacts will often, if not always involve the use of engineering calculations or assumptions, diluting the intended value of measuring natural gas reductions through meter infrastructure."*

Please indicate the source for this requirement. In particular, why is it necessary to differentiate the impacts of technology/measure changes from the impacts of behavioral and operational changes? If the net impact of the combined changes is less than the assumed impact of the measure changes as documented in the approved measures list or manufacturers' estimates, should not those assumptions also be challenged?

RESPONSE

Several key priorities were outlined in the Ministry of Energy's Long Term Energy Plan and in the Conservation Directive and captured in the Framework. The specific priority that this statement relates to is from the Ontario Energy Board's DSM Framework (section 6.2, pg. 25).

> …implement DSM programs that are evidence-based and rely on detailed customer data…

Understanding the impacts related to capital equipment versus operational changes and/or behavior impacts is important for a program of this nature where both Cumulative Cubic meters and participant savings are being used to measure results.

The Audit process, as it should, involves questioning and challenging assumptions. The reference quoted in BOMA's Interrogatory is attempting to illustrate that although using actual metered data on the surface seems relatively straightforward, it is not necessarily the case. Previous Audit recommendations and efforts to establish a clear and accepted methodology to determine and claim savings for Enbridge's Run it Right offer

Witnesses: R. Kennedy
F. Oliver-Glasford
R. Sigurdson

supports this fact. It is important to note that an increase in consumption does not necessarily mean a building is less efficient or that an offer was unsuccessful.

Some of the challenges lie in the fact that evaluating the performance of a building based on the metered consumption does not take into consideration the building condition that can change year over year. Occupancy, hours of operations, units manufactured, etc. will all impact the consumption and need to be considered when using statistical data to evaluate the performance of a building. It has often proved to be challenging to gain the appropriate information necessary from customers in order to make these necessary adjustments. To get at the level of detail required has proven to be overly burdensome, time consuming, and expensive for the customer.

Witnesses: R. Kennedy
F. Oliver-Glasford
R. Sigurdson

BOMA INTERROGATORY #15

INTERROGATORY

Topic 2 – DSM Targets

Ref: Exhibit B, Tab 1, Schedule 4, page 16 of 41.

> "The "Large Volume Customer" CCM target listed in Enbridge's scorecards will count results from Enbridge's Custom, Prescriptive, and Direct Install offers. For the purpose of determining whether a customer's natural gas savings should be captured under this metric, Enbridge will evaluate the customer's average gas consumption over the past 3 years (or best available equivalent data) to determine whether their average annual consumption is over 75,000 m3 for a commercial customer or over 340,000 m3 for an industrial customer".

Some segments of the commercial market are made up of numerous multi-location customers where decision making is to some degree centralized such as schools, retail, hotels and motels, etc. Does Enbridge take this into account when applying these size limits?

RESPONSE

Each individual property is assessed on its own merits with respect to determining the annual consumption regardless of whether or not the decision making is centralized.

Witnesses R. Kennedy
M. Lister
F. Oliver-Glasford
B. Ott
J. Paris

BOMA INTERROGATORY #16

INTERROGATORY

Topic 2 – DSM Targets

Ref: Exhibit B, Tab 1, Schedule 4, page 27 of 41.

> "*RiR and CEM budgets have been allocated between the Resource Acquisition and MTEM budgets".*

How was the allocation done? How will the costs be tracked? How will this impact the allocation of management and accountability with respect to these two programs? Will the CCM savings be counted in Resource Acquisition?

RESPONSE

As noted in the DSM Filing Guidelines,

> Some programs are a mix of market transformation and resource acquisition and seek both outcomes – fundamental changes in markets and direct, measureable energy savings.[1]

With this guidance in mind, Enbridge evaluated the degree to which Run it Right ("RiR") and Comprehensive Energy Management ("CEM") sought market transformational or resource acquisition-like outcomes respectively. The Company has found RiR customers more often pursue outcomes which were proportionately more resource acquisition in nature than market transformational in nature. On this basis Enbridge weighted the RiR budget toward the Resource Acquisition Program, with a smaller portion dedicated to the MTEM Program. In the case of CEM, Enbridge found the opposite to be true and allocated the CEM budget accordingly. As noted in Exhibit B, Tab 1, Schedule 4, page 35, paragraph 43, Enbridge will count CCM results from RiR and CEM on its Resource Acquisition scorecard.

It is Enbridge's intention to track the costs of these two offers by allocating them in the same manner as the Company's forecast budgets have been allocated. Despite the division of RiR and CEM budgets and results between Resource Acquisition and

[1] EB-2014-0134 "Filing Guidelines to the Demand Side Management Framework for Natural Gas Distributors (2015-2020), Dec. 22nd, 2014, p.13

MTEM, Enbridge intends to deliver each offer in a consolidated fashion. Said another way, management and accountability for RiR and CEM will not be divided amongst individuals as a result of Enbridge's decision to allocate budgets and results amongst two separate Programs.

Witnesses: P. Goldman
M. Lister
F. Oliver-Glasford
R. Kennedy
D. Naden
B. Ott

BOMA INTERROGATORY #18

INTERROGATORY

Topic 2 – DSM Targets

Ref: Exhibit B, Tab 1, Schedule 4, page 34 of 41

> *"Given that RiR involves a 12 month monitoring period, the Company believes that this leading metric is an essential component of ensuring that participant enrollment in RiR continues to grow each year even as natural gas reductions are captured from existing participants who have enrolled in past years*".

Has Enbridge considered setting a target based the percentage of available savings achieved/maintained in each year the participant is enrolled?

RESPONSE

The Run it Right Offer provides customers with financial incentives upfront to offset the cost of implementing low cost operational improvements. This is followed by a twelve month monitoring period. The offer, through the application process has limited participants to those buildings where a minimum of 5% savings is estimated to be achievable.

The goal of the offer has not been to reward customers for maintaining or achieving a specific targeted reduction in consumption, but to increase awareness and enhance energy performance. Enbridge Gas Distribution Inc. does not consider it preferable to set a target based on the percentage of available savings because each building and customer may be unique, with different opportunities or challenges to enhance energy performance.

Witnesses: R. Kennedy
M. Lister
F. Oliver-Glasford
B. Ott

BOMA INTERROGATORY #19

INTERROGATORY

Topic 2 – DSM Targets

Ref: Exhibit B, Tab 1, Schedule 4, page 36 of 41.

> *"A home which, as constructed, has features consistent with the builder's IDP and that make it 25% more efficient than a new home built to the 2012 Ontario Building Code if constructed in 2016, and 15% more efficient than a new home built to the yet to be completed 2017 Ontario Building Code."*

Has Enbridge completed or is Enbridge aware of any studies that determined how homes built to OBC 2012 actually perform relative to the energy modelling results? Has Enbridge completed a comparison of the actual results of a home modelled to be 25% more efficient than OBC 2012 to determine how actual results compare to the modelling results?

RESPONSE

All incented homes in the Savings by Design program are tested, measured, and verified leveraging Natural Resource Canada's HOT2000 modeling software to determine their percentage performance above code. Enbridge has not engaged in any studies that determine how homes perform relative to energy modeled results. Such an analysis would be problematic because it would require the use of very specific assumptions, which could vary widely by site specific details, as to the baseline and actual performance of the building. In Enbridge's opinion, in addition to being of questionable value, such an effort would require time and money better spent in delivering programs and services.

Witnesses: S. Bertuzzi
S. Hicks
M. Lister

BOMA INTERROGATORY #58

INTERROGATORY

Topic 2 – DSM Targets

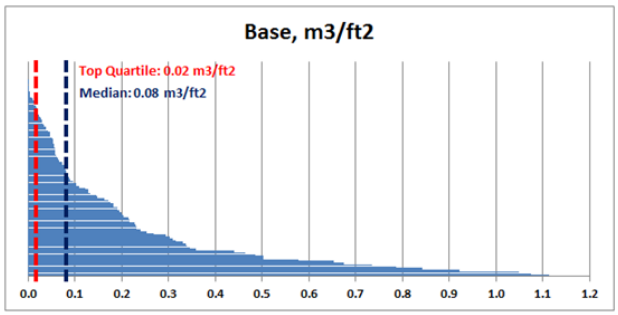
"Score Cards" What metrics is Enbridge using for performance based conservation? Has Enbridge considered developing score card metrics based on addressing the lowest quartile of heating load customers and moving them up to the top quartile over a 5 year period or above the median. The diagram below is from EB-2012-0451 illustrating the results of benchmarking for office buildings.

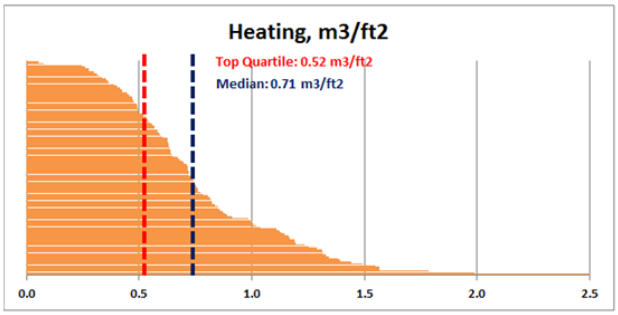
Sector: Office Buildings

Number of buildings: 123
Total building area, ft2: 42,000,827

Gas usage	Savings potential, % at the attainment of	
	Median	Top Quartile
Base	65%	87%
Heating	23%	39%
Total	**29%**	**46%**

Based on 2010 data weather-normalized to Toronto. Data centres have been excluded.





RESPONSE

As per Exhibit B, Tab 1, Schedule 4, pages 34 and 35, Enbridge's Run it Right ("RiR") and Comprehensive Energy Management ("CEM") offers will be measured both on participants and cumulative cubic metres ("CCM") of natural gas saved. These offers seek to reduce natural gas consumption through efforts inclusive of operational and behavioural improvements, and further seek to measure outcomes using metered data.

Enbridge has not proposed the use of a scorecard metric which measures its ability to improve the efficiency of its "lowest" performing customers on a m^3/ft^2 basis to be comparable to the efficiency of its "highest" performing customers by that same

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

measure. The Company has declined to pursue this approach for the following reasons:

- Enbridge does not have m^3/ft^2 information for all of its customers, which number greater than 2 million;
- Enbridge is not enabled with interval, or "smart", meters as electricity LDCs are. As such the Company measures most customer meters on a bi-monthly basis, calling into question the validity of analysis based upon 6 data points per year;
- Analysis of efficiency at a single meter point is highly challenging, raising questions regarding what changes within a building the utility should adjust for (e.g. changes in occupancy, changes in building use, non-gas retrofits such as lighting which influence gas consumption) and the utility's ability to have knowledge of all changes within all of its customers' buildings; and,
- Macro-analysis of customer efficiency on a m^3/ft^2 does not take into account important building characteristics, particularly age and equipment. More importantly, the type of macro-analysis referenced does not take into account or provide any estimate of the possible costs associated with achieving success.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

BOMA INTERROGATORY #62

INTERROGATORY

Topic 2 – DSM Targets

Reference Exhibit B, Tab 1, Schedule 4, pages 11-12. Why are the 2017 targets for large volume customers lower than 2016 targets?

RESPONSE

One element of Enbridge's target development was the use of $/CCM values for each year of the Multi-Year Plan. From 2016 to 2017 the $/CCM for this particular area of the Resource Acquisition Program increased by 2.5%. The reasons for this increased cost of results in 2017 include:

i. Electricity CDM: Overall spending in Ontario's electricity CDM sector is increasing relative to past years' levels which drives electric CDM incentives which according to informal conversations with customers drive are more lucrative than gas incentives. In addition, LDC's are being afforded increased independence and responsibility for the design and delivery of their conservation programs. Even in past years, Enbridge's DSM incentives have often been in competition with electricity CDM incentives, which are typically much higher than DSM incentives, for a given customer's finite pool of capital. By 2017 the Company anticipates that LDC's will have a heightened level of effectiveness as they become comfortable in their new enhanced role designing and delivering CDM programs. Enbridge expects this increased effectiveness, while good for the Province and customers, will have an adverse effect on the Company's ability to secure customer capital for natural gas DSM projects, particularly in the large commercial and industrial sectors.

ii. 2017 Ontario Building Code ("OBC"): While the details of the 2017 OBC are not yet known, it is certain that they will increase the minimum level of efficiency required in many areas of the economy. It stands to reason that this will result in changes to DSM base case calculations, with the likely result of decreased savings for many of the measures installed through Enbridge's DSM Programs.

iii. Increasing Cost of Natural Gas Savings: Enbridge has noted in several areas an increase in the cost of achieving natural gas savings, particularly amongst its largest customers. The phenomenon of the increasing cost of energy efficiency over time is

Witnesses: P. Goldman
R. Kennedy
K. Mark
B. Ott
J. Paris

further discussed in response to CME Interrogatory #5 as found at Exhibit I.T2.EGDI.CME.5.

Witnesses: P. Goldman
R. Kennedy
K. Mark
B. Ott
J. Paris

BOMA INTERROGATORY #64

INTERROGATORY

Topic 2 – DSM Targets

Reference Exhibit B, Tab 2, Schedule 1. How many ESCs does Enbridge have? How many customers must each of them cover? Would more ESCs likely result in larger total energy savings because of being able to focus on fewer customers?

RESPONSE

There are close to thirty members of the Commercial and Industrial sales team all working to deliver Commercial and Industrial offers to the market. Each of the Energy Solution Consultants ("ESCs") and Channel Consultants has a primary focus for either a dedicated segment or a list of customers they are responsible for. As a result, the number of customers each sales representative is accountable for varies depending on the complexity of the customers and the size of the segment.

Increasing the number of ESCs may result in more total energy savings, however, Enbridge believes the priority to generating greater energy savings is through increased financial incentives and direct install offers for those hard to reach Commercial and Industrial customers.

Witnesses: P. Goldman
R. Kennedy
M. Lister

CCC INTERROGATORY #11

INTERROGATORY

Topic 2 - DSM Targets

Reference: (Ex. B/T1/S3/p. 6)

Please explain how the values in the 2015 Resource Acquisition Scorecard were derived. Please provide the scorecards and actual results for 2013 and 2014.

RESPONSE

Section 15.1 of the DSM Framework calls on the gas utilities to "…increase their budgets, targets and shareholder incentive amounts in the same manner as they have done throughout the current DSM Framework (i.e., 2013 updates to 2014 should now apply as 2014 updates to 2015)."

To determine Enbridge's 2014 targets in EB-2012-0394 the Board approved the following increases from the targets of 2013:

- Resource Acquisition
  - 2% for all targets
- Low Income
  - 2% for the Single-Family Part 9 target
  - 7% for the Multi-residential Part 3 target
  - No increase to the target for the percentage of Part 3 participants which enrolled in Run it Right / Utility Management
- Residential Savings by Design
  - 9% for the lower band of the Builder Enrollment target
  - 14% for the middle band of the Builder Enrollment target
  - 11% for the upper band of the Builder Enrollment target
  - 11% for all Completed Unit targets
- Commercial Savings by Design
  - 33% for the lower band target
  - 50% for the middle band target
  - 27% for the upper band target

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

- Home Labelling
    - No increase to the Realtor Commitment target
    - 300% increase to the Ratings Performed target

In keeping with the Board's direction in section 15.1 of the new DSM Framework and the escalation factors approved in EB-2012-0394 to increase DSM targets from 2013 to 2014, Enbridge applied the above noted escalations to its 2014 scorecard targets to establish 2015 targets.

Please see Enbridge's response to GEC Interrogatory #10 found at Exhibit I.T2.EGDI.GEC.10 for scorecards and actual results in 2013 and 2014.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

CCC INTERROGATORY #13

INTERROGATORY

Topic 2 - DSM Targets

Reference: (Ex. B/T1/S3/p. 8)

Please explain how the values in the 2015 Low Income Scorecard were derived. Please provide the scorecards and actual results for 2013 and 2014.

RESPONSE

Please see Enbridge's response to CCC Interrogatory #11 found at Exhibit I.T2.EGDI.CCC.11 for an explanation regarding the development of 2015 scorecard targets.

Please see Enbridge's response to GEC Interrogatory #10 found at Exhibit I.T2.EGDI.GEC.10 for scorecards and actual results in 2013 and 2014.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

CCC INTERROGATORY #14

INTERROGATORY

Topic 2 - DSM Targets

Reference: (Ex. B/T1/S3/p. 12)

Please explain how values in the 2015 Commercial Savings by Design Scorecard were derived. Please provide the scorecards and results for 2013 and 2014.

RESPONSE

Please see Enbridge's response to CCC Interrogatory #11 found at Exhibit I.T2.EGDI.CCC.11 for an explanation regarding the development of 2015 scorecard targets.

Please see Enbridge's response to GEC Interrogatory #10 found at Exhibit I.T2.EGDI.GEC.10 for scorecards and actual results in 2013 and 2014.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

CCC INTERROGATORY #15

INTERROGATORY

Topic 2 - DSM Targets

Reference: (Ex. B/T1/S3/p. 12)

Please explain how the values in the 2015 Home Labeling Scorecard were derived. Please provide the scorecards and results for 2013 and 2014. Please explain how the "Realtor Commitments" targets operate.

RESPONSE

Please see the response to CCC Interrogatory #11 found at Exhibit I.T2.EGDI.CCC.11 for an explanation regarding the development of 2015 scorecard targets.

Please see the response to GEC Interrogator #10 found at Exhibit I.T2.EGDI.GEC.10 for scorecards and actual results in 2013 and 2014.

In relation to Enbridge's Realtor Commitments targets in 2015, Enbridge secures commitments from realtors indicating their participation in the Home Labelling offer and support for the advancement of the use of home energy ratings in the real estate market. Enbridge's targets are based on the number of listings collectively represented by the realtors that commit to the Home Labelling offer Enbridge's 100% and 150% targets are to secure commitments from realtors collectively representing more than 5,000 and 10,000 home listings respectively. Realtors signed to the Home Labelling offer must be new in the year they are counted (i.e., a realtor cannot be counted twice).

Witnesses: S. Bertuzzi
M. Lister

CCC INTERROGATORY #22

INTERROGATORY

Topic 2 - DSM Targets

Reference: (Ex. B/T1/S4/p. 10)

With respect to the RA Scorecard for 2016 please explain, specifically, how the targets were developed in all of the categories. Do these represent stretch targets? How were the target determined for the years 2017 and 2018?

RESPONSE

Stretch is built in as part of the 150% target for all offers.

Please see the response to GEC Interrogatory #14 found at Exhibit I.T2.EGDI.GEC.14 for explanation on target development.

Witnesses: M. Lister
S. Moffat
B. Ott
K. Mark
F. Oliver-Glasford
J. Paris

CME INTERROGATORY #1

INTERROGATORY

Topic 2 – DSM Targets

Ref: General

CME is interested in understanding the extent to which EGD's proposed DSM Plan has been prepared in accordance with the Board's Demand Side Management Framework for Natural Gas Distributors (the "Framework Guidelines"). Does EGD believe that any aspect of its DSM Plan differs from the Board's Framework Guidelines? If so, please identify all elements of the proposed DSM Plan which differ from the framework and guidelines.

RESPONSE

In Enbridge's view, the Multi-Year DSM Plan taken as a whole is in accordance with the DSM Framework and Filing Guidelines. The Company further believes that these documents have proven sufficiently flexible in allowing the utilities to propose DSM Plans which balance the objectives, principles and priorities outlined in the Framework with the needs of shareholders, stakeholders and customers.

By way of example, the Board states on page 18 of the DSM Framework that

> …budget amounts outlined above assume a general program mix where 40% of ratepayer funding for DSM activities is dedicated to the residential class." However, the same page also states in reference to the Board's guidance on budgets that …this is a guideline, and the utilities can propose alternative budgets for approval by the Board, appropriately supported by evidence.

Enbridge has proposed a mix of DSM offers and budgets which dedicates more than 40% of program budget to the residential class. Regarding the residential sector, the Company has submitted evidence in this proceeding outlining its very high proportion of residential customers[1], a high level of customer interest in the market for its Home Energy Conservation offer[2], and a high level of alignment between the Board's guiding principles and key priorities and Enbridge's proposed residential offers.[3] In the

[1] Exhibit B, Tab 2, Schedule 4, page 3, table 2
[2] Exhibit I.T2.EGDI.GEC.7
[3] Exhibit B, Tab 1, Schedule 2

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

Company's view this evidence supports a DSM budget which allocates more than 40% of funding toward residential customers, and is thus in alignment with the Board's appropriately flexible guidance.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

CME INTERROGATORY #5

INTERROGATORY

Topic 2 – DSM Targets

Ref: Exhibit B. Tab 1, Schedule 2, page 11 of 26

EGD identifies "Guiding Principle #9" as confirming that shareholder incentives will be commensurate with performance and efficient use of funds. Does EGD agree that the targets to achieve shareholder incentives should increase commensurate to funding increases? For instance, if a program budget doubles, should the associated targets also double? If EGD does not agree with targets increasing commensurate with budgetary funding, please explain why not.

RESPONSE

Enbridge") does not agree that a doubling of any given offer budget should result in a doubling of targets on a linear basis. This concept of a non-linear relationship between DSM budgets and targets beyond a certain level of funding for each offer has been noted by a number of experts in North America.[1,2] The pool of potential for a specific DSM offer is not unlimited. As utilities deplete the lowest cost opportunities the cost of incremental results can become more expensive. Each customer has its own barriers to participating in DSM, and as the most willing and ideal participants are depleted additional participants require more effort or incentive to drive natural gas reductions.

Enbridge has seen this trend first-hand in its Industrial results over the past 3 years. In 2012, 2013 and 2014 Enbridge's Industrial offers have recorded $/cumulative cubic metres ("CCM") values of $0.0086[3], $0.0117[4] and $0.0120[5] respectively. This powerful trend, which indicates a 40% increase in the cost per cubic metre saved from 2012 to 2014, informs Enbridge's view that the relationship between DSM budgets and targets is not linear.

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[1] Arimura, Newell, and Palmer (November 2009). "Discussion Paper: Cost-Effectiveness of Electricity Energy Efficiency Programs", *Resources for the Future*, pp. 9-48, http://www.rff.org/documents/RFF-DP-09-48.pdf

[2] John Plunkett, Theodore Love, and Francis Wyatt, Green Energy Economics Group, Inc. (2012). *An Empirical Model for Predicting Electric Energy Efficiency Resource Acquisition Costs in North America: Analysis and Application*, http://aceee.org/files/proceedings/2012/data/papers/0193-000170.pdf

[3] EB-2013-0352, Exhibit B, Tab 1, Schedule 1, page 38

[4] EB-2014-0277, Exhibit B, Tab 1, Schedule 1, page 49

[5] 2014 Demand Side Management Draft Annual Report: Enbridge Gas Distribution Inc., Page 46 (Results subject to Audit, review of Audit Committee, and Clearance of Accounts Proceeding)

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

Further as explained in the response to CME Interrogatory #3 found at Exhibit I.T3.EGDI.CME.3, as the Company delves further into the residential sector to accommodate the Board's objective of wider participation, this means that the Company's targets rely more on smaller customers where the incremental CCM achieved are relatively small on a per customer basis. As a result, the budget will naturally increase faster than targets.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

CME INTERROGATORY #10

INTERROGATORY

Topic 2 – DSM Targets

Ref: Exhibit B, Tab 2, Schedule 4. page 1 of 14

For the purpose of demonstrating the forecast rate allocations and bill impacts, EGD has assumed an achievement level of 100% of target, and not 150% on all of its DSM scorecards. CME wants a better appreciation of what the total rate impact exposure is of EGD's DSM plan. In order to achieve such an understanding, CME requires the rate impacts of the DSM budget, including shareholder incentives, to be shown on the assumption that EGD achieving a weighted score of 150% or greater on all of its DSM scorecards and that EGD spends the maximum available budget for every year. Please reproduce Tables 1 through 10 of Exhibit B, Tab 2, Schedule 4, on the basis that EGD spends the maximum budget available, and achieves the maximum shareholder incentive, in every year.

RESPONSE

As requested, Enbridge has recreated the above noted tables to incorporate the full potential shareholder incentive for each year from 2015 to 2020. As noted on page 1 of Exhibit B, Tab 2, Schedule 4 the Company continues to believe that rate impacts which incorporate shareholder incentives at 100% of target achievement are a more appropriate representation given the challenging nature of Enbridge's proposed DSM targets.

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

Table 1: 2015 Rate Allocation of DSM Budget

2015 DSM Budget - Forecasted Rate Allocation ($ millions)				
Rate Class	**DSM Budget less Low Income**	**Low Income Budget**	**Total DSM Budget**	**Shareholder Incentive @ 150% Target ($ million)**
Rate 1	$13.20	$4.67	**$17.86**	$5.25
Rate 6	$14.76	$1.93	**$16.69**	$4.91
Rate 9	$0.00	$0.00	**$0.00**	$0.00
Rate 110	$0.95	$0.07	**$1.02**	$0.30
Rate 115	$0.97	$0.04	**$1.01**	$0.30
Rate 125	$0.02	$0.05	**$0.07**	$0.02
Rate 135	$0.25	$0.00	**$0.25**	$0.07
Rate 145	$0.35	$0.04	**$0.40**	$0.12
Rate 170	$0.36	$0.03	**$0.39**	$0.12
Rate 200	$0.00	$0.02	**$0.02**	$0.01
Rate 300	$0.00	$0.00	**$0.00**	$0.00
TOTAL	**$30.86**	**$6.86**	**$37.72**	**$11.09**

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

Table 2: 2015 System Characteristics and Bill Impacts

2015 System Characteristics and Bill Impact - Forecast Rate Allocation								
Rate Class	**Number of Customers**	**Gas Consumption/ Throughput ($10^6 m^3$)**	**Annual Volume for Typical Customer (m3)**	**Average Annual Effective Rate ($/m3) using Gas Consumption**	**Annual Bill for Typical Customer**	**Average Annual Bill Impact of DSM per Customer**	**Average Monthly Bill Impact of DSM per Customer**	**Average Annual Bill Impact per Customer %**
Rate 1	1,933,935	4,676	2,400	$0.0049	$1,018	$11.86	$0.99	1.2%
Rate 6	164,629	4,695	22,606	$0.0046	$6,382	$103.98	$8.67	1.6%
Rate 9	7	1	-	-	-	-	-	-
Rate 110	186	495	598,568	$0.0027	$128,349	$1,595.04	$132.92	1.2%
Rate 115	31	532	4,471,609	$0.0025	$873,021	$11,023.59	$918.63	1.3%
Rate 125	5	0	-	-	-	-	-	-
Rate 135	42	58	598,567	$0.0056	$112,451	$3,375.33	$281.28	3.0%
Rate 145	80	139	598,568	$0.0037	$122,931	$2,208.96	$184.08	1.8%
Rate 170	34	493	9,976,120	$0.0010	$1,764,592	$10,334.42	$861.20	0.6%
Rate 200	1	169	-	-	-	-	-	-
Rate 300	2	30	-	-	-	-	-	-

Table 3: 2016 Rate Allocation of DSM Budget

2016 DSM Budget - Forecasted Rate Allocation ($ millions)				
Rate Class	**DSM Budget less Low Income**	**Low Income Budget**	**Total DSM Budget**	**Shareholder Incentive @ 150% Target ($ million)**
Rate 1	$28.60	$6.90	**$35.50**	$5.84
Rate 6	$21.62	$2.86	**$24.48**	$4.03
Rate 9	$0.00	$0.00	**$0.00**	$0.00
Rate 110	$1.03	$0.10	**$1.14**	$0.19
Rate 115	$1.04	$0.06	**$1.10**	$0.18
Rate 125	$0.03	$0.08	**$0.10**	$0.02
Rate 135	$0.26	$0.01	**$0.27**	$0.04
Rate 145	$0.39	$0.06	**$0.45**	$0.07
Rate 170	$0.39	$0.05	**$0.45**	$0.07
Rate 200	$0.01	$0.03	**$0.03**	$0.01
Rate 300	$0.00	$0.01	**$0.01**	$0.00
TOTAL	**$53.38**	**$10.15**	**$63.54**	**$10.45**

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

Table 4: 2016 System Characteristics and Bill Impacts

2016 System Characteristics and Bill Impact - Forecasted Rate Allocation								
Rate Class	**Number of Customers**	**Gas Consumption/ Throughput ($10^6 m^3$)**	**Annual Volume for Typical Customer (m3)**	**Average Annual Effective Rate ($/m3) using Gas Consumption**	**Annual Bill for Typical Customer**	**Average Annual Bill Impact of DSM per Customer**	**Average Monthly Bill Impact of DSM per Customer**	**Average Annual Bill Impact per Customer %**
Rate 1	1,968,960	4,709	2,400	$0.0088	$1,018	$21.07	$1.76	2.1%
Rate 6	162,517	4,660	22,606	$0.0061	$6,382	$138.29	$11.52	2.2%
Rate 9	8	1	-	-	-	-	-	-
Rate 110	191	620	598,568	$0.0021	$128,349	$1,277.17	$106.43	1.0%
Rate 115	27	472	4,471,609	$0.0027	$873,021	$12,162.77	$1,013.56	1.4%
Rate 125	5	0	-	-	-	-	-	-
Rate 135	41	56	598,567	$0.0056	$112,451	$3,333.64	$277.80	3.0%
Rate 145	101	163	598,568	$0.0033	$122,931	$1,949.75	$162.48	1.6%
Rate 170	34	453	9,976,120	$0.0011	$1,764,592	$11,430.88	$952.57	0.6%
Rate 200	1	186	-	-	-	-	-	-
Rate 300	2	30	-	-	-	-	-	-

Table 5: 2017 Rate Allocation of DSM Budget

2017 DSM Budget - Forecasted Rate Allocation ($ millions)				
Rate Class	**DSM Budget less Low Income**	**Low Income Budget**	**Total DSM Budget**	**Shareholder Incentive @ 150% Target ($ million)**
Rate 1	$36.19	$7.38	**$43.57**	$6.17
Rate 6	$23.38	$3.06	**$26.44**	$3.74
Rate 9	$0.00	$0.00	**$0.00**	$0.00
Rate 110	$1.11	$0.11	**$1.22**	$0.17
Rate 115	$1.13	$0.06	**$1.19**	$0.17
Rate 125	$0.03	$0.08	**$0.11**	$0.02
Rate 135	$0.28	$0.01	**$0.29**	$0.04
Rate 145	$0.42	$0.07	**$0.49**	$0.07
Rate 170	$0.42	$0.05	**$0.48**	$0.07
Rate 200	$0.01	$0.03	**$0.03**	$0.00
Rate 300	$0.00	$0.01	**$0.01**	$0.00
TOTAL	**$62.97**	**$10.86**	**$73.83**	**$10.45**

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

Table 6: 2017 System Characteristics and Bill Impacts

2017 System Characteristics and Bill Impact - Forecasted Rate Allocation								
Rate Class	**Number of Customers**	**Gas Consumption/ Throughput ($10^6 m^3$)**	**Annual Volume for Typical Customer (m3)**	**Average Annual Effective Rate ($/m3) using Gas Consumption**	**Annual Bill for Typical Customer**	**Average Annual Bill Impact of DSM per Customer**	**Average Monthly Bill Impact of DSM per Customer**	**Average Annual Bill Impact per Customer %**
Rate 1	2,004,109	4,709	2,400	$0.0106	$1,018	$25.35	$2.11	2.5%
Rate 6	163,953	4,660	22,606	$0.0065	$6,382	$146.41	$12.20	2.3%
Rate 9	8	1	-	-	-	-	-	-
Rate 110	191	620	598,568	$0.0023	$128,349	$1,346.92	$112.24	1.0%
Rate 115	27	472	4,471,609	$0.0029	$873,021	$12,851.54	$1,070.96	1.5%
Rate 125	5	0	-	-	-	-	-	-
Rate 135	41	56	598,567	$0.0059	$112,451	$3,526.81	$293.90	3.1%
Rate 145	101	163	598,568	$0.0034	$122,931	$2,051.13	$170.93	1.7%
Rate 170	34	453	9,976,120	$0.0012	$1,764,592	$12,041.15	$1,003.43	0.7%
Rate 200	1	186	-	-	-	-	-	-
Rate 300	2	30	-	-	-	-	-	-

Table 7: 2018 Rate Allocation of DSM Budget

2018 DSM Budget - Forecasted Rate Allocation ($ millions)				
Rate Class	**DSM Budget less Low Income**	**Low Income Budget**	**Total DSM Budget**	**Shareholder Incentive @ 150% Target ($ million)**
Rate 1	$39.80	$7.91	**$47.71**	$6.26
Rate 6	$24.62	$3.28	**$27.89**	$3.66
Rate 9	$0.00	$0.00	**$0.00**	$0.00
Rate 110	$1.18	$0.12	**$1.30**	$0.17
Rate 115	$1.20	$0.07	**$1.27**	$0.17
Rate 125	$0.03	$0.09	**$0.12**	$0.02
Rate 135	$0.30	$0.01	**$0.31**	$0.04
Rate 145	$0.45	$0.07	**$0.52**	$0.07
Rate 170	$0.45	$0.06	**$0.51**	$0.07
Rate 200	$0.01	$0.03	**$0.04**	$0.00
Rate 300	$0.00	$0.01	**$0.01**	$0.00
TOTAL	**$68.04**	**$11.64**	**$79.68**	**$10.45**

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

Table 8: 2018 System Characteristics and Bill Impacts

2018 System Characteristics and Bill Impact - Forecasted Rate Allocation								
Rate Class	**Number of Customers**	**Gas Consumption/ Throughput ($10^6 m^3$)**	**Annual Volume for Typical Customer (m3)**	**Average Annual Effective Rate ($/m3) using Gas Consumption**	**Annual Bill for Typical Customer**	**Average Annual Bill Impact of DSM per Customer**	**Average Monthly Bill Impact of DSM per Customer**	**Average Annual Bill Impact per Customer %**
Rate 1	2,039,257	4,709	2,400	$0.0115	$1,018	$27.51	$2.29	2.7%
Rate 6	165,389	4,660	22,606	$0.0068	$6,382	$153.07	$12.76	2.4%
Rate 9	8	1	-	-	-	-	-	-
Rate 110	191	620	598,568	$0.0024	$128,349	$1,423.01	$118.58	1.1%
Rate 115	27	472	4,471,609	$0.0030	$873,021	$13,585.67	$1,132.14	1.6%
Rate 125	5	0	-	-	-	-	-	-
Rate 135	41	56	598,567	$0.0062	$112,451	$3,729.73	$310.81	3.3%
Rate 145	101	163	598,568	$0.0036	$122,931	$2,165.32	$180.44	1.8%
Rate 170	34	453	9,976,120	$0.0013	$1,764,592	$12,716.75	$1,059.73	0.7%
Rate 200	0	186	-	-	-	-	-	-
Rate 300	2	30	-	-	-	-	-	-

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

Table 9: 2019 Rate Allocation of Bill Impacts

2019 DSM Budget - Forecasted Rate Allocation ($ millions)				
Rate Class	**DSM Budget less Low Income**	**Low Income Budget**	**Total DSM Budget**	**Shareholder Incentive @ 150% Target ($ million)**
Rate 1	$40.59	$8.07	**$48.66**	$6.26
Rate 6	$25.11	$3.34	**$28.46**	$3.66
Rate 9	$0.00	$0.00	**$0.00**	$0.00
Rate 110	$1.21	$0.12	**$1.33**	$0.17
Rate 115	$1.23	$0.07	**$1.29**	$0.17
Rate 125	$0.03	$0.09	**$0.12**	$0.02
Rate 135	$0.31	$0.01	**$0.32**	$0.04
Rate 145	$0.46	$0.07	**$0.53**	$0.07
Rate 170	$0.46	$0.06	**$0.52**	$0.07
Rate 200	$0.01	$0.03	**$0.04**	$0.00
Rate 300	$0.00	$0.01	**$0.01**	$0.00
TOTAL	**$69.40**	**$11.87**	**$81.27**	**$10.45**

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

Table 10: 2019 System Characteristics and Bill Impacts

2019 System Characteristics and Bill Impact - Forecasted Rate Allocation								
Rate Class	**Number of Customers**	**Gas Consumption/ Throughput ($10^6 m^3$)**	**Annual Volume for Typical Customer (m3)**	**Average Annual Effective Rate ($/m3) using Gas Consumption**	**Annual Bill for Typical Customer**	**Average Annual Bill Impact of DSM per Customer**	**Average Monthly Bill Impact of DSM per Customer**	**Average Annual Bill Impact per Customer %**
Rate 1	2,039,257	4,709	2,400	$0.0117	$1,018	$27.99	$2.33	2.8%
Rate 6	165,389	4,660	22,606	$0.0069	$6,382	$155.82	$12.98	2.4%
Rate 9	8	1	-	-	-	-	-	-
Rate 110	191	620	598,568	$0.0024	$128,349	$1,448.18	$120.68	1.1%
Rate 115	27	472	4,471,609	$0.0031	$873,021	$13,825.98	$1,152.16	1.6%
Rate 125	5	0	-	-	-	-	-	-
Rate 135	41	56	598,567	$0.0063	$112,451	$3,795.70	$316.31	3.4%
Rate 145	101	163	598,568	$0.0037	$122,931	$2,203.62	$183.64	1.8%
Rate 170	34	453	9,976,120	$0.0013	$1,764,592	$12,941.69	$1,078.47	0.7%
Rate 200	0	186	-	-	-	-	-	-
Rate 300	2	30	-	-	-	-	-	-

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

Table 11: 2020 Rate Allocation of DSM Budget

2020 DSM Budget - Forecasted Rate Allocation ($ millions)				
Rate Class	**DSM Budget less Low Income**	**Low Income Budget**	**Total DSM Budget**	**Shareholder Incentive @ 150% Target ($ million)**
Rate 1	$41.39	$8.23	**$49.63**	$6.26
Rate 6	$25.62	$3.41	**$29.03**	$3.66
Rate 9	$0.00	$0.00	**$0.00**	$0.00
Rate 110	$1.23	$0.12	**$1.35**	$0.17
Rate 115	$1.25	$0.07	**$1.32**	$0.17
Rate 125	$0.03	$0.09	**$0.12**	$0.02
Rate 135	$0.32	$0.01	**$0.32**	$0.04
Rate 145	$0.46	$0.08	**$0.54**	$0.07
Rate 170	$0.47	$0.06	**$0.53**	$0.07
Rate 200	$0.01	$0.03	**$0.04**	$0.00
Rate 300	$0.00	$0.01	**$0.01**	$0.00
TOTAL	**$70.79**	**$12.11**	**$82.90**	**$10.45**

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

Table 12: 2020 System Characteristics and Bill Impacts

2020 System Characteristics and Bill Impact - Forecasted Rate Allocation								
Rate Class	**Number of Customers**	**Gas Consumption/ Throughput ($10^6 m^3$)**	**Annual Volume for Typical Customer (m3)**	**Average Annual Effective Rate ($/m3) using Gas Consumption**	**Annual Bill for Typical Customer**	**Average Annual Bill Impact of DSM per Customer**	**Average Monthly Bill Impact of DSM per Customer**	**Average Annual Bill Impact per Customer %**
Rate 1	2,039,257	4,709	2,400	$0.0119	$1,018	$28.48	$2.37	2.8%
Rate 6	165,389	4,660	22,606	$0.0070	$6,382	$158.61	$13.22	2.5%
Rate 9	8	1	-	-	-	-	-	-
Rate 110	191	620	598,568	$0.0025	$128,349	$1,473.85	$122.82	1.1%
Rate 115	27	472	4,471,609	$0.0031	$873,021	$14,071.09	$1,172.59	1.6%
Rate 125	5	0	-	-	-	-	-	-
Rate 135	41	56	598,567	$0.0065	$112,451	$3,863.00	$321.92	3.4%
Rate 145	101	163	598,568	$0.0037	$122,931	$2,242.69	$186.89	1.8%
Rate 170	34	453	9,976,120	$0.0013	$1,764,592	$13,171.12	$1,097.59	0.7%
Rate 200	0	186	-	-	-	-	-	-
Rate 300	2	30	-	-	-	-	-	-

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

EP INTERROGATORY #4

INTERROGATORY

Topic 2 – DSM Targets

Reference: Exhibit B, Tab 1, Schedule 3

a) For scorecard tables 3, 5, 7, 8, and 9, please provide the comparable actual achievements of each performance metric for each of the past three years (2012, 2013 and 2014).
b) Please provide the historic results whether or not there were comparable performance metrics in all cases for all historic years. For 2014, note whether the results provided reflect the results of CPSV reviews and/or other feedback from the current auditor.
c) For each Sector please calculate Efficiency Metrics by Year for RA/custom programs (Total spend $/CCM).
d) Where Applicable, please provide Efficiency Metrics ($/CCM) for each DSM Program for each Sector.
e) Please Map DSM Sector Efficiency metrics to the Rate classes
f) Provide a breakdown of the Spend recovered from each rate class- Programs Overhead, LI shareholder DSMVA, incentive etc.

RESPONSE

a. On the following pages please find the charts displaying actual achievements for each performance metric for 2012 to 2014:

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

2014 SCORECARD

Program Type			Performance Band		
Resource Acquisition Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Resource Acquisition	664.37	92%	**744.05**	**992.06**	**1240.08**
Residential Deep Savings	5,213	8%	**560**	**747**	**934**
Commercial/Industrial Deep Savings	---	---	---	---	---

Low Income Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Single Family - Part 9	25.67	50%	**17.7**	**23.6**	**29.5**
Multi-Residential - Part 3	29.80	45%	**48.15**	**64.2**	**80.25**
Part 3 - RIR	74.39%	5%	**30%**	**40%**	**50%**

SBD Residential Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Builders Enrolled	23	60%	**12**	**16**	**20**
# of Completed Units	1,059	40%	**750**	**1000**	**1250**

SBD Commercial Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Commercial New Construction	19	100%	**8**	**12**	**19**

Home Labeling Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Number of Committed Realtors	40,040	70%	**-**	**5,001**	**10,001**
Ratings performed	662	30%	**750**	**1,500**	**2,250**

DHWR Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
# of Units Installed	---	---	---	---	---

***In 2014 MT was 3 separate scorecards (DWHR program was no longer offered in 2014)**
****2014 results include CPSV and Auditor (Optimal) adjustments**
*****However, 2014 results are Pre-Audit Committee values and could still be subject to change**

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

2013 SCORECARD

Program Type			Performance Band		
Resource Acquisition Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Resource Acquisition	766.69	92%	**729.46**	**972.61**	**1215.76**
Residential Deep Savings	1,649	8%	**549**	**732**	**915**
Commercial/Industrial Deep Savings	---	---	---	---	---

Low Income Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Single Family - Part 9	32.90	50%	**17.3**	**23.1**	**28.8**
Multi-Residential - Part 3	27.31	45%	**45.0**	**60.0**	**75.0**
Part 3 - RIR	85%	5%	**30%**	**40%**	**50%**

SBD Residential Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Builders Enrolled	18	60%	**11**	**14**	**18**
# of Completed Units	967	40%	**675**	**900**	**1125**

SBD Commercial Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Commercial New Construction	16	100%	**6**	**8**	**15**

Home Labeling Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Number of Committed Realtors	78,000	70%	**-**	**5,001**	**10,001**
Ratings performed	138	30%	**250**	**500**	**750**

DHWR Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
# of Units Installed	6,465	100%	**2,813**	**3,750**	**4,688**

***In 2013 MT was 4 separate scorecards**

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

2012 SCORECARD

Program Type			Performance Band		
Resource Acquisition Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Resource Acquisition	1029.44	92%	**615.30**	**820.40**	**1025.50**
Residential Deep Savings	209	4%	**120**	**160**	**200**
Commercial/Industrial Deep Savings	25%	4%	**40%**	**45%**	**50%**

Low Income Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Single Family - Part 9	24.71	50%	**12**	**17**	**21**
Multi-Residential - Part 3	44.93	50%	**33**	**45**	**56**
Part 3 - RIR	---	---	---	---	---

Market Transformation Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
DWHR - Units Installed	5,047	44%	**3,000**	**4,000**	**5,000**
SBD Residential Top 20 Builders	3	15%	**1**	**2**	**3**
SBD Residential Top 80 Builders	9	15%	**7**	**9**	**18**
SBD Commercial New Construction	9	20%	**6**	**8**	**15**
Home Rating	8,600	7%	**-**	**5,001**	**10,001**

***In 2012 MT was one single scorecard**

b) On the following pages please find charts showing historic results for programs from 2012 to 2014

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

	Component	Metric	2014 Actual Results [9]	2013 Actual Results	2012 Actual Results
Resource Acquisition	Volumes	*Cumulative Savings (million m³)*	664.37	766.69	970.05
	Residential Deep Savings	*Number of Houses* [1]	5,213	1,649	271
Low Income	Single Family (Part 9)	*Cumulative Savings (million m³)*	25.7	32.9	24.7
	Multi-residential (Part 3)	*Cumulative Savings (million m³)*	29.8	27.3	43.4
	Multi-residential (Part 3) LIBPM [2]	*Percent of Part 3 Participants Enrolled* [3]	74%	85%	N/A [7]
Market Transformation	Drain Water Heat Recovery	*# of Units Installed*	N/A [8]	6,465	5,047
	Residential Savings by Design	*Completed Units*	1,059	967	N/A [7]
		Builders Enrolled [4]	23	18	12
	Commercial Savings by Design	*New Developments Enrolled*	19	16	9
	Home Labelling	*Number Committed Realtors* [5, 6]	40,040	78,000	8,600
		Ratings performed	662	138	N/A [7]

1. Number of houses with at least two major measures and where average annual gas savings across all participants is at least 25% of combined baseline space heating and water heating usage.

2. LIBPM - Low Income Building Performance Management is the Low Income offer complement to the Commercial Run It Right (RIR) offer.

3. Low Income Building Performance Management (LIBPM) percentage of Part 3 buildings enrolled in current year program = (x+y)/(x+y+z):

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

x = # of new LIBPM buildings in the current year that have participated in another aspect of the Low Income program in a previous year of 2012-2014 plan; y = # of new LIBPM buildings participating in current year that have not previously participated in the Low Income program; z = # of buildings in the current year that have implemented custom projects other than LIBPM.

4. Eligible builders based on a minimum of 50 homes built in the prior year.

5. Commitments to make provision for a data field to show home energy ratings for all homes listed by participating realtors (industry-wide commitment to include such a field on MLS or similar listing service and/or realtors' commitment to do so with all the homes they list on their own websites, handouts and other consumer material).

6. Commitment from realtors collectively responsible for more than 5,000 (middle target) or 10,000 (upper target) listings/year.

7. Metric did not apply in this year.

8. Program ended in 2013.

9. 2014 results include CPSV and Auditor (Optimal) adjustments. However, 2014 results are Pre-Audit Committee
values and could still be subject to change.

c, d) On the following pages, please find charts showing the Total spend $/CCM for RA/Custom and Low Income programs:

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

Program Sectors	Total Spending ($)								
	2014 [1]			2013 [2]			2012 [2]		
	Custom	Prescriptive	Total	Custom	Prescriptive	Total	Custom	Prescriptive [5]	Total
Resource Acquisition									
Residential [2]	$0	$8,605,657	$8,605,657	$0	$2,650,017	$2,650,017	$0	$816,709	$816,709
Commercial [3, 6]	$3,573,183	$698,233	$4,271,417	$4,037,306	$819,889	$4,857,195	$7,770,823	$189,818	$7,960,641
Industrial [4, 5]	$2,142,956	$71,900	$2,214,856	$2,604,044	$3,600	$2,607,644	$2,618,877	$0	$2,618,877
Total Resource Acquisition	**$5,716,139**	**$9,375,791**	**$15,091,930**	**$6,641,351**	**$3,473,506**	**$10,114,857**	**$10,389,700**	**$1,006,528**	**$11,396,228**
Low Income									
Single Family - Part 9	$0	$4,494,530	$4,494,530	$0	$4,639,037	$4,639,037	$0	$5,758,684	$5,758,684
Multi Residential - Part 3 [6]	$1,919,180	$11,000	$1,930,180	$634,826	$88,903	$723,728	$1,344,144	$23,800	$1,367,944
Total Low Income	**$1,919,180**	**$4,505,530**	**$6,424,710**	**$634,826**	**$4,727,940**	**$5,362,765**	**$1,344,144**	**$5,782,484**	**$7,126,628**

1. 2014 CCM results are not final and pending review from the Audit Committee. Therefore, 2014 results could be subject to change.
2. 2013 and 2012 Residential spending and CCM results, excludes TAPS
3. Commercial spending and CCM results exclude RIR
4. Industrial custom spending and CCM results include both Agriculture and Industrial Non-Agriculture
5. Industrial prescriptive program did not exist in 2012
6. Commercial and Low Income Part 3 prescriptive results includes Quasi-Prescriptive measures such as HEBOs, School Boilers, Condensing Boilers, and Showerheads

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

	Total CCM (m3)								
	2014 [1]			2013 [2]			2012 [2]		
Program Sectors	Custom	Prescriptive	Total	Custom	Prescriptive	Total	Custom	Prescriptive [5]	Total
Resource Acquisition									
Residential [2]	0	89,690,562	89,690,562	0	38,980,521	38,980,521	0	5,296,300	5,296,300
Commercial [3, 6]	307,222,026	79,068,251	386,290,277	394,236,615	99,764,376	494,000,991	569,295,675	89,541,153	658,836,828
Industrial [4, 5]	177,663,455	7,598,262	185,261,718	221,783,951	791,404	222,575,355	305,915,406	0	305,915,406
Total Resource Acquisition	**484,885,482**	**176,357,075**	**661,242,557**	**616,020,565**	**139,536,301**	**755,556,866**	**875,211,081**	**94,837,453**	**970,048,534**
Low Income									
Single Family - Part 9	0	25,673,482	25,673,482	0	32,904,684	32,904,684	0	24,708,220	24,708,220
Multi Residential - Part 3 [6]	40,144,354	3,263,435	43,407,789	$22,324,148	4,990,007	27,314,154	$32,105,506	11,302,284	43,407,789
Total Low Income	**40,144,354**	**28,936,917**	**69,081,271**	**22,324,148**	**37,894,691**	**60,218,838**	**32,105,506**	**36,010,504**	**68,116,009**

	($/CCM)								
	2014			2013			2012		
Program Sectors	Custom	Prescriptive	Total	Custom	Prescriptive	Total	Custom	Prescriptive	Total
Resource Acquisition									
Residential [2]	$0.0000	$0.0959	$0.0959	$0.0000	$0.0680	$0.0680	$0.0000	$0.1542	$0.1542
Commercial [3, 6]	$0.0116	$0.0088	$0.0111	$0.0102	$0.0082	$0.0098	$0.0136	$0.0021	$0.0121
Industrial [4, 5]	$0.0121	$0.0095	$0.0120	$0.0117	$0.0045	$0.0117	$0.0086	$0.0000	$0.0086
Total Resource Acquisition	**$0.0118**	**$0.0532**	**$0.0228**	**$0.0108**	**$0.0249**	**$0.0134**	**$0.0119**	**$0.0106**	**$0.0117**
Low Income									
Single Family - Part 9	$0.0000	$0.1751	$0.1751	$0.0000	$0.1410	$0.1410	$0.0000	$0.2331	$0.2331
Multi Residential - Part 3 [6]	$0.0478	$0.0034	$0.0445	$0.0284	$0.0178	$0.0265	$0.0419	$0.0021	$0.0315
Total Low Income	**$0.0478**	**$0.1557**	**$0.0930**	**$0.0284**	**$0.1248**	**$0.0891**	**$0.0419**	**$0.1606**	**$0.1046**

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

e) While Enbridge's Rate 1 consists entirely of residential customers, and thus can be easily mapped to the $/CCM of the residential sector, the remainder of Enbridge's rates are not organized in a manner that facilitates the exercise requested. Enbridge's other General Service rate class is Rate 6. Rate 6 contains a wide variety of customer types ranging from commercial customers, such as office, institutional, or retail customers, to industrial customers. With such a variety of customer types, mapping specific offers to Rate 6 is not possible, since the majority of Enbridge's DSM offers will be present in this rate class to some degree. The remainder of Enbridge's rate classes are contract rates which are based on consumption quantities and patterns as opposed to customer type, and similarly cannot be mapped to specific $/CCM values by sector.

f) Please find charts on the following pages outlining breakdown of spend towards rate class for 2012 to 2014.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

2014 Clearance of Accounts

Rate Class	DSMIDA	LRAM	DSMVA	TOTAL
Rate 1	$0	$0	$0	$0
Rate 6	$0	$0	$0	$0
Rate 9	$0	$0	$0	$0
Rate 110	$0	$0	$0	$0
Rate 115	$0	$0	$0	$0
Rate 125	$0	$0	$0	$0
Rate 135	$0	$0	$0	$0
Rate 145	$0	$0	$0	$0
Rate 170	$0	$0	$0	$0
Rate 200	$0	$0	$0	$0
Rate 300	$0	$0	$0	$0
Total	$0	$0	$0	$0

2014 Clearance of Accounts not finalized yet

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

2013 Clearance of Accounts

Rate Class	DSMIDA	LRAM	DSMVA	TOTAL
Rate 1	$2,094,687	N/A**	-$702,878	$1,391,809
Rate 6	$2,007,512	N/A**	-$2,373,653	-$366,141
Rate 9	$231	$0*	-$260	-$29
Rate 110	$122,874	-$15,264	-$479,323	-$371,714
Rate 115	$180,342	$7,045	$877,122	$1,064,508
Rate 125	$8,645	$0*	-$9,734	-$1,089
Rate 135	$42,874	$1,932	$175,933	$220,739
Rate 145	$54,402	-$24,585	-$441,826	-$412,010
Rate 170	$23,049	-$19,444	-$643,163	-$639,558
Rate 200	$2,997	$0*	-$3,374	-$377
Rate 300	$576	$0*	-$649	-$73
Total	$4,538,188	-$50,317	-$3,601,806	$886,065

** Rates 9, 125, 200, & 300 do not have any LRAM allocation since customers are not eligible for DSM programs*

**** Rate 1 and Rate 6 are not included in the LRAM amount for clearance above as these rate classes are covered under the Average Use True-Up Variance Account (AUTUVA)**

Note: Numbers may not add up due to rounding

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

2012 Clearance of Accounts

Rate Class	DSMIDA	LRAM	DSMVA	TOTAL
Rate 1	$4,185,890	N/A**	$3,599,494	$7,785,384
Rate 6	$3,661,646	N/A**	-$835,707	$2,825,939
Rate 9	$0	$0*	$562	$562
Rate 110	$158,700	-$2,692	-$620,416	-$464,408
Rate 115	$284,782	$6,809	$718,588	$1,010,179
Rate 125	$0	$0*	$21,087	$21,087
Rate 135	$96,579	$1,441	$252,440	$350,460
Rate 145	$106,548	-$28,753	-$324,047	-$246,252
Rate 170	$115,096	-$17,457	-$314,206	-$216,567
Rate 200	$0	$0*	$7,310	$7,310
Rate 300	$0	$0*	$1,406	$1,406
Total	$8,609,241	-$40,652	$2,506,510	$11,075,099

**** Rates 9, 125, 200, & 300 do not have any LRAM allocation since customers are not eligible for DSM programs***

**** Rate 1 and Rate 6 are not included in the LRAM amount for clearance above as these rate classes are covered under the Average Use True-Up Variance Account (AUTUVA)**

DSMIDA revised to reflect the Board decision to apply a 20% reduction to the large industrial DSMIDA (May 2014)

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

ENERGY PROBE INTERROGATORY #10

INTERROGATORY

Topic 2 – DSM Targets

Reference.: Exhibit B, Tab 1, Schedule 3, Tables 6 and 7, Pages 9-10

a) Please provide a version of Tables 6 and 7 including 2014 Estimates/Actuals.

b) Please indicate if the proposed change to the Builders enrolled metric was discussed/approved by the Audit committee and/or DSM Consultative. If not, explain why not.

RESPONSE

a) The information requested is available in the response to Energy Probe Interrogatory #2, filed at Exhibit I.T2.EGDI.EP.2.

b) Enbridge has reviewed the reference provided in this interrogatory and is unclear as to what proposed change Energy Probe is referring to. The builders enrolled metric has been in place since 2012 and was approved by the Board in (EB-2011-0295, Exhibit B, Tab 1, Schedule 4, page 67 of 85 and in EB-2012-0394, Exhibit B, Tab 1, Schedule 4, page 44 of 50).

Witnesses: S. Bertuzzi
M. Lister
B. Ott
R. Sigurdson

ENERGY PROBE INTERROGATORY #17

INTERROGATORY

Topic 2 – DSM Targets

Reference.: Exhibit B, Tab 1, Schedule 4, Page 8, Tables 1-5 and Table 7 and pages 15/16

Preamble: As a gas utility with a very significant residential customer base, Enbridge believes a robust DSM offer for the residential market is paramount. It does not seem commensurate however, that high levels of effort and spending in this sector should result in a comparatively lower shareholder incentive. Placing greater value on CCM achieved through small consumers will help to maintain focus on this essential market segment.

a) Please map the Residential RA budgets in Tables 1-5 and the Offers in Table 6: 2016 to 2020 to the Residential Rate classes. Clarify what is/is not included in the offers/ budgets.

b) Please provide an equivalent format RA Scorecard for 2015 and compare and discuss the basis of the changes 2016-2020.

c) Please confirm the classes and customers in the Small Volume Customer group and what offers are counted in the 2016-2020 Scorecard.

d) Please provide the forecast 2015-2020 annual and cumulative Residential RA M^3 savings.

e) Please provide the responses in live Excel format and please include in the Excel Book a chart/graph showing the Residential RA Budgets, Annual Savings and $/CCM for the 6 year period.

RESPONSE

a) Enbridge's residential Resource Acquisition offers, and MTEM residential offers map specifically to Rate 1, the Company's residential rate class. While the Company's Low Income Winterproofing offer is targeted to Rate 1 customers, the costs of this offer are allocated to rates according to the LEAP allocation methodology. Details regarding residential budgets can be found throughout Exhibit B, Tab 1, Schedule 4,

Witnesses: M. Lister
K. Mark
F. Oliver-Glasford
B. Ott
J. Paris

while details regarding what is or is not included in residential offers can be found in Exhibit B, Tab 2, Schedule 1.

b) Enbridge's 2015 Resource Acquisition scorecard can be found at Exhibit B, Tab 1, Schedule 3, Table 3. The most notable differences between the 2015 and 2016 Resource Acquisition scorecards is the introduction of a Small Volume Customer CCM metric and an increased weighting on the Home Energy Conservation participant metric. The rationale for these changes is discussed in detailed in Exhibit B, Tab 1, Schedule 4, pages 15 to 17.

c) The Small Volume Customer group is defined as commercial facilities with annual gas consumption under 75,000 m3, and industrial facilities with annual gas consumption under 340,000 m3. The offers counted within this scorecard metric include the Custom, Direct Install, and Prescriptive offers.

d) Please see Enbridge's response to Board Staff IR#7, filed as Exhibit I.T2.EGDI.STAFF.7 for an overview of forecast annual and cumulative natural gas savings.

e) For $/CCM values please see Enbridge's response to Energy Probe IR#14, filed as Exhibit I.T3.EGDI.EP.14. The referenced tables provided by Enbridge can be exported directly into an excel format.

Witnesses: M. Lister
K. Mark
F. Oliver-Glasford
B. Ott
J. Paris

ENERGY PROBE INTERROGATORY #19

INTERROGATORY

Topic 2 – DSM Targets

Reference.: Exhibit B, Tab 1, Schedule 4, pp. 10-14: Tables 8-12

Small volume customer target:

a) Please explain how each of the lifetime savings targets was developed and provide all mathematical calculations in live Excel spreadsheets.

b) Please indicate how much of the savings in each year is forecast to come from HEC, adaptable thermostats, Small C&I prescriptive measures as well as other program categories.

c) Please clarify if the Company is proposing changes to address how savings from new furnaces are estimated – e.g. annual savings, CCM or measure life?

d) Please provide a chart that shows 2015-2020 small volume CCM, participants and deep savings.

Residential Deep Retrofit targets:

e) Is the Company proposing to change the current list of measures that would count towards the minimum requirement of two major measures? [Footnote 2 Number of participants with at least 2 major measures (average annual gas savings across all participants must be at least 15% of combined baseline space heating and water heating usage for any incentives to be earned). If so, provide details and rationale.

RESPONSE

a) For details regarding the setting of budgets and targets please see the response to GEC Interrogatory #16, filed at Exhibit I.T2.EGDI.GEC.16

b) Please find below the chart that outlines how savings are forecasted to come from each program:

Witnesses: S. Bertuzzi
P. Goldman
R. Kennedy
M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott
J. Paris

Target Scenarios						
Resource Acquisition Targets	**Metric**	**2016**	**2017**	**2018**	**2019 (2% Escalator)**	**2020 (2% Escalator)**
Large C&I Customers	*CCM*	*604,195,262*	*600,879,000*	*614,148,900*	*615,719,228*	*618,104,330*
Large Custom	*CCM*	541,170,423	538,200,087	550,085,776	551,492,300	553,628,608
Large Prescriptive	*CCM*	63,024,839	62,678,913	64,063,124	64,226,928	64,475,723
Large DI	*CCM*	0	0	0	0	0
Small C&I Customers	*CCM*	*163,672,568*	*165,954,000*	*156,033,535*	*159,154,161*	*162,337,299*
Small Custom	*CCM*	32,895,470	33,354,000	31,360,151	31,987,345	32,627,103
Small Prescriptive	*CCM*	70,418,437	71,400,000	67,131,822	68,474,439	69,843,952
Small DI	*CCM*	60,358,661	61,200,000	57,541,562	58,692,377	59,866,244
Small Commercial New Construction	*CCM*	0	14,620,000	17,960,200	19,548,431	23,236,432
Energy Leaders Fund	*CCM*	----	----	----	----	----
Residential Thermostats	*CCM*	23,864,839	47,655,000	71,482,500	74,847,871	77,026,478
Residential Home Energy Conservation (HEC)	*Participants*	7,508	10,000	12,346	12,948	13,478
	CCM	102,622,499	136,680,000	168,740,741	176,970,719	184,222,043
Total CCM Forecast		**894,355,168**	**965,788,000**	**1,028,365,875**	**1,046,240,410**	**1,064,926,582**

c) No, Enbridge has not proposed any changes to address how savings from new furnaces are estimated.

d) Please see chart from answer b).

e) No, Enbridge is not proposing any changes to the current list of measures that would count towards the minimum requirement of two major measures.

Witnesses: S. Bertuzzi
P. Goldman
R. Kennedy
M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott
J. Paris

ENERGY PROBE INTERROGATORY #20

INTERROGATORY

Topic 2 – DSM Targets

Reference.: Exhibit B, Tab 1, Schedule 4, Pages 19-21 - Low Income Budgets and Targets

Single family:

a) Please explain how each of the lifetime savings targets was developed and provide all mathematical calculations in live Excel spreadsheets.

b) Please explain why in 2017 through 2020, the savings stays the same or declines while the budget increases.

c) Please provide the efficiency Metric $/CCM (100%) 2015-2020 (Chart form please)

Multi-family:

d) Please explain how each of the lifetime savings targets was developed and provide all mathematical calculations in live Excel spreadsheets.

e) Please provide the efficiency Metric $/CCM (100%) 2015-2020 (Chart form please).

f) Please provide a Table that shows forecast Annual Savings and split between social housing vs. market rate multi-family buildings? Clarify if/how many of the latter are/may be eligible under the LI MF Program.

g) Please Indicate for each year 2012- 2014, the average Efficiency metric of $/CCM savings for Social Housing multi-family buildings vs. Private market rate multifamily buildings?

Witnesses: M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott
J. Paris

RESPONSE

Single Family:

a) Please see Enbridge's response to GEC Interrogatory #16, filed as Exhibit I.T2.EGDI.GEC.16.

b) The offer has enjoyed a high penetration rate in social housing for single family homes in the past three years. The proposed targets for the plan period are aggressive and will require a determined effort to realize the remainder of the potential in social housing and to also pursuing the private low income sector. The targets and increased budgets reflect the difficulty and challenges in securing private single family home savings from 2017 and beyond.

c) Below please find the $/CCM (100%) 2015 to 2020:

	$/CCM					
Low Income	**2015 $/CCM**	**2016 $/CCM**	**2017 $/CCM**	**2018 $/CCM**	**2019 $/CCM**	**2020 $/CCM**
New Construction	N/A	$223,450	$171,333	$164,667	$178,000	$273,200
Multi-Family Homes - Part 3	0.0321	0.0556	0.0551	0.0547	0.0543	0.0540
Single Family Homes - Part 9	0.1931	0.1992	0.2058	0.2119	0.2183	0.2248

2015 Cost Effectiveness based on 2015 Roll Over submission for budgets and targets

d) The CCM target was developed from 3 year historical result averages (2012 to 2014). The CCM breakdown would be based on the contribution from custom projects, prescriptive and direct install offers calculated on a 15 year measure life.

Year	Custom Projects	Direct Install	Prescriptive	TOTAL M3	TOTAL CCM
2015	3,180,000	1,000,000	400,000	4,580,000	68,699,995
2016	2,140,740	1,500,000	290,556	3,931,296	58,969,445
2017	2,339,644	1,500,000	290,556	4,130,200	61,953,003
2018	2,787,888	1,393,944	464,648	4,646,480	69,697,203
2019	2,861,589	1,428,793	476,264	4,766,646	71,499,693
2020	2,936,747	1,464,512	488,171	4,889,430	73,341,454

Witnesses: M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott
J. Paris

e) Below please find the efficiency Metric $/CCM (100%) 2015 to 2020:

	$/CCM					
Low Income	**2015 $/CCM**	**2016 $/CCM**	**2017 $/CCM**	**2018 $/CCM**	**2019 $/CCM**	**2020 $/CCM**
New Construction	N/A	$223,450	$171,333	$164,667	$178,000	$273,200
Multi-Family Homes - Part 3	0.0321	0.0556	0.0551	0.0547	0.0543	0.0540
Single Family Homes - Part 9	0.1931	0.1992	0.2058	0.2119	0.2183	0.2248

2015 Cost Effectiveness based on 2015 Roll Over submission for budgets and targets

f) The tables below show the forecast Annual Savings and split between social housing vs. market rate multi-family buildings from 2015 to 2020.

	2015 [1]			2016		
Low Income Multi-Residential Part 3	**CCM**	**Total Cost**	**$/CCM**	**CCM**	**Total Cost**	**$/CCM**
Social Assisted Housing	41,200,000	$1,324,337	$0.0321	23,587,781	$1,311,611	$0.0556
Private Rental	27,500,000	$883,963	$0.0321	35,381,671	$1,967,417	$0.0556
Total Multi-Residential Part 3	**68,700,000**	**$2,208,300**	**$0.0321**	**58,969,452**	**$3,279,028**	**$0.0556**

1. 2015 results are based on the 2015 Roll Over Budget

	2017			2018		
Low Income Multi-Residential Part 3	**CCM**	**Total Cost**	**$/CCM**	**CCM**	**Total Cost**	**$/CCM**
Social Assisted Housing	24,781,200	$1,367,248	$0.0552	27,898,847	$1,526,413	$0.0547
Private Rental	37,171,800	$2,050,873	$0.0552	41,798,273	$2,286,883	$0.0547
Total Multi-Residential Part 3	**61,953,000**	**$3,418,121**	**$0.0552**	**69,697,121**	**$3,813,296**	**$0.0547**

Witnesses: M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott
J. Paris

	2019			2020		
Low Income Multi-Residential Part 3	**CCM**	**Total Cost**	**$/CCM**	**CCM**	**Total Cost**	**$/CCM**
Social Assisted Housing	28,599,878	$1,555,825	$0.0544	29,316,570	$1,585,859	$0.0541
Private Rental	42,899,817	$2,333,737	$0.0544	44,024,883	$2,381,494	$0.0541
Total Multi-Residential Part 3	**71,499,695**	**$3,889,562**	**$0.0544**	**73,341,453**	**$3,967,353**	**$0.0541**

The table below shows the likely number of eligible market rate multi-family buildings:

	2015	2016	2017	2018	2019	2020
# of eligible Market Rate Part 3	**700**	**1,068**	**1,340**	**1,340**	**1,340**	**1,340**

g) Below please find charts showing the average $/CCM savings for Social Housing multi-family buildings vs. Private market rate multifamily buildings.

	2014 [1]				2013 [2]				2012 [2]			
Low Income Multi-Residential Part 3	**Gross Gas Savings**	**CCM**	**Total Cost**	**$/CCM**	**Gross Gas Savings**	**CCM**	**Total Cost**	**$/CCM**	**Gross Gas Savings**	**CCM**	**Total Cost**	**$/CCM**
Social Assisted Housin	826,526	16,239,930	$1,744,464	$0.1074	1,558,408	27,314,154	$723,728	$0.0265	2,739,985	43,407,789	$1,367,944	$0.0315
Private Rental [2,3]	907,930	13,561,228	$185,716	$0.0137	0	0	$0	$0.0000	0	0	$0	$0.0000
Total Multi-Residential	**1,734,457**	**29,801,158**	**$1,930,180**	**$0.0648**	**1,558,408**	**27,314,154**	**$723,728**	**$0.0265**	**2,739,985**	**43,407,789**	**$1,367,944**	**$0.0315**

1. 2014 results are Pre-Clearance, and could be subject to change
2. 2013 and 2012 projects were composed entirely of social housing. There were no low income private rentals in 2013 and 2012.
3. Results include Low Income Prescriptive Showerheads

Witnesses: M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott
J. Paris

ENERGY PROBE INTERROGATORY #21

INTERROGATORY

Topic 5 – Program Types

Reference.: Exhibit B, Tab 2, Schedule 1, Page 48 - Low Income New Construction

a) Please describe in detail the basis of "# of project applications".

b) Please clarify if the Program applies only to Social Housing or may include other Housing. Please define eligibility criteria.

c) Please indicate whether to qualify the application will include a formal agreement or commitment to build to a certain performance standard? Please provide this/these requirement(s).

d) Please Indicate if to qualify clarify if there a minimum requirement for the size of a project (units or square footage).

e) Provide the analysis of the size of the market that this program is designed to address.

f) Please indicate how many (potentially eligible) low income new construction projects were built each in Enbridge's service areas in the last 5 years (include Units/square footage).

g) Please indicate how many potentially eligible low income new construction projects are planned expected to be built in Enbridge's service areas in the next 5 years (include Units/square footage).

h) Please explain why the Scorecard should not be based on number of units/square footage built to levels below 2012 Building Code.

i) Please explain in more detail how the efficiency level will be determined for each of SF/Rows and MF e.g. Part 9 HOTCAN.

j) Please explain why for Part 3 Incentives are Based solely #units rather than Square footage (Units can be 1-3 bedrooms and vary in area.)

k) Please explain what happens to required levels and incentives under new 2017 Building Code.

Witnesses: M. Lister
E. Lontoc
J. Paris

RESPONSE

a) A Project Application for the Low Income New Construction Program will have the same meaning as a public funded affordable housing program, such as the Canada-Ontario Investment in Affordable Housing Program ("IAH"), for which a "project" has been qualified for. In every case, a project application will provide housing to multiple households or housing units.

b) New construction projects that meet the eligibility criteria for public funding assistance for the purpose of creating new affordable housing are eligible to participate in the Low Income New Construction offer. Builders and/or developers of new construction affordable housing include social housing providers, charitable and non-profit groups, faith organizations and the private housing sector.

c) The Enbridge offer will require that applicants meet an energy efficiency performance level above the current Ontario Building Code ("OBC") standards.

   For multi-residential buildings, the program offering proposes a minimum of 15% above current OBC standards.

   For single family homes, Energy Star for Homes will be the qualifying standard. Energy Star for Homes is approximately 20% more energy efficient than those built to code requirement.

d) To be considered "affordable", the housing units must be modest in size, design, and amenities in relation to comparable units in the immediate neighborhood. For rental buildings, the rents for the majority of units in a housing project must be no more than 80% the average rent levels, based on CMHC rental market survey published semi-annually, at time of occupancy. For homeownership, the units must be priced below the average selling price for comparable units in the market area (usually the MLS average for the municipality).

   The design of affordable housing projects or developments can vary in several ways such as number of housing units, building design to address the special needs of residents served, etc. The size of the projects can also so vary from region to region depending on the existing building typology in the municipalities. The offer proposes to be inclusive, in that it will cater to the full spectrum of project types within the affordable housing continuum.

e) In the past three years, approximately 2,500 housing units were created in Ontario under the IAH Program. Neither MMAH nor CMHC is able to provide a report that provides a breakdown by region, number of project applications, nor the square footage of the units.

Witnesses: M. Lister
E. Lontoc
J. Paris

Based on stakeholder feedback, Enbridge is assuming that the pace of new construction creation for the next five years will be similar to that of the past three years. For budgetary purposes, the Company has used 50 units per housing project.

Enbridge's market projections are based on the today's economic and political conditions. The pilot offer to be rolled out in 2015 in addition to updated external reports will solidify the Company's assumptions and better inform the 2016 and beyond program offering.

f) Please refer to response to question e) above.

g) Please refer to response to question e) above

h) The offering will promote building performance of new construction housing above current building code levels.

i) In Ontario, HOT2000 is the modelling tool used to obtain the energy rating of a home. The table below shows the home energy ratings relative to their energy efficiency:

Typical Energy Efficiency Ratings

Type of House	Rating
New House build to building code standards	65-72
New house with some energy-efficiency improvements	73-79
Energy-efficient new house	80-90
House requiring little or no purchased energy	91-100

Source: http://www.nrcan.gc.ca/energy/efficiency/housing/new-homes/5035

j) "Housing unit" is a standard form of measurement and reporting metric in the affordable housing sector. Aligning Enbridge's program rules to that of the customer's makes for simplicity and ease of communication.

The incentive structure for transitional housing such as shelters and supportive housing will be reviewed and addressed as part of the pilot. This type of housing is typically approximately the same size as a small multi-residential building with several bedrooms inclusive of shared or common bathrooms, living and kitchen facilities.

Witnesses: M. Lister
E. Lontoc
J. Paris

From a tracking perspective, the square footage of participant buildings will be recorded.

k) The 2015 pilot will include an impact analysis of the anticipated building code changes in 2017, including a review of the qualifying building performance thresholds currently set at a minimum of 15% above the current code standards.

Witnesses: M. Lister
E. Lontoc
J. Paris

ENERGY PROBE INTERROGATORY #26

INTERROGATORY

Topic 2 – DSM Targets

Reference.: Exhibit B, Tab 1, Schedule 5, Page 4, Tables 1-5

a) Please provide a chart showing the scenarios in Table 2 (RA budgets and CCM).

b) Please add lines/bars showing CCM/$ and the amount/cost recovered from the residential rate classes (Rate 1, 6 separately and total).

c) Please provide a chart showing the scenarios in Table 4 (MTEM budgets and CCM.

d) Please add lines/bars showing CCM/$ and the amount/cost recovered from the residential rate classes (Rate 1 and 6 separately and total).

e) Please provide Table that shows for each Scenario the Shareholder Incentive broken out between RA and MT (and other).

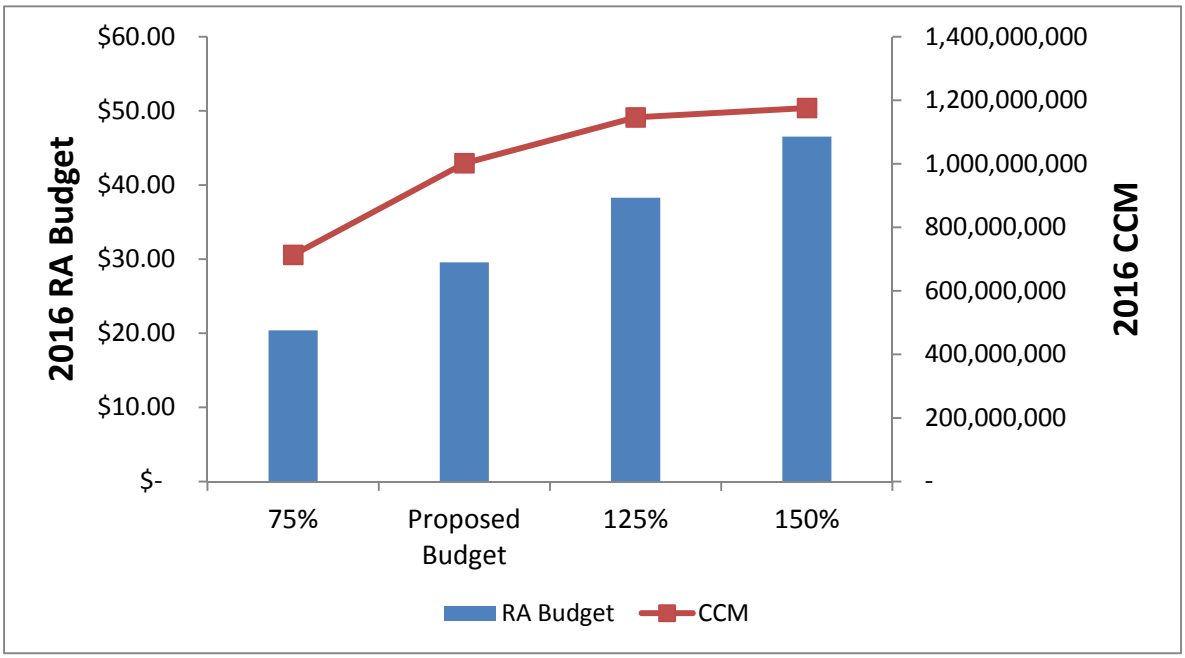
f) Please provide the base rate class budgets and additional Shareholder Incentive i.e. total cost for each rate class.

Please indicate under each scenario, the Low Income budgets targets and associated allocation to each rate class

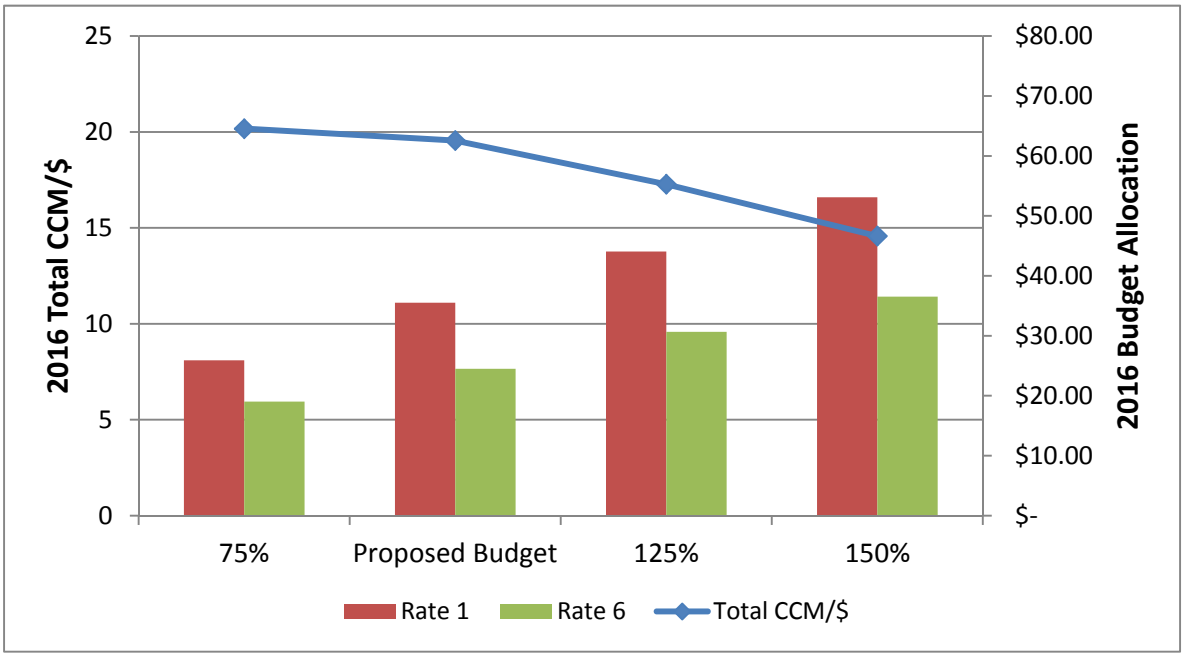
RESPONSE

a) Table 2 of Exhibit B, Tab 1, Schedule 5 provides an overview of the 2016 budgets and Cumulative Cubic Meters ("CCM") requested. As requested, please see the chart below.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

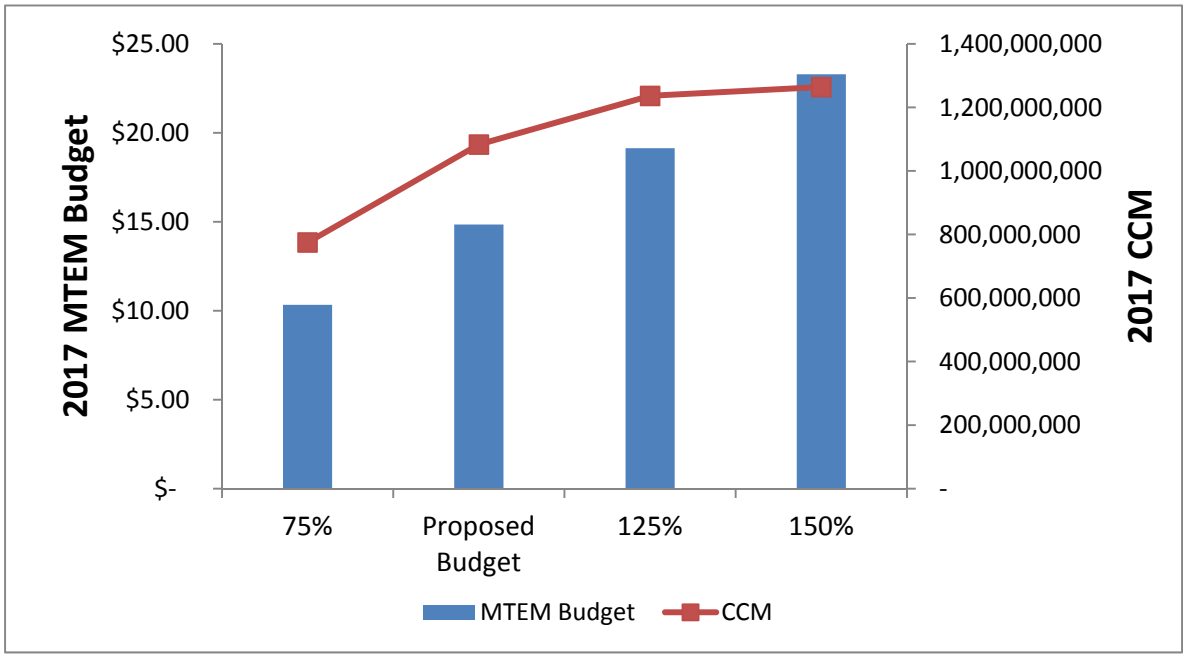


b) Please see the table below for the corresponding CCM/$ and Rate 1 and Rate 6 budget allocations.



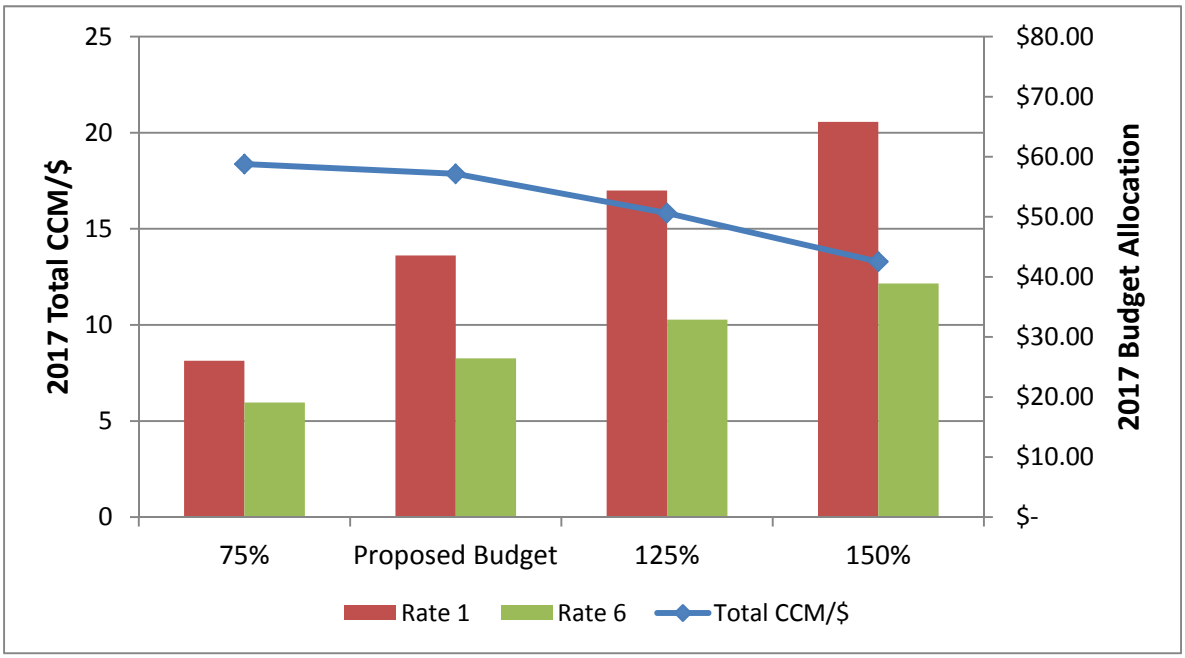
Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

c) Table 4 of Exhibit B, Tab 1, Schedule 5 provides an overview of the 2017 budgets and CCM requested. As requested, please see the chart below. Please note that a relative small amount of the total CCM achieved in a given year are achieved through Enbridge's MTEM Program.



d) Please see the table below for the corresponding CCM/$ and Rate 1 and Rate 6 budget allocations. Please note that a relative small amount of the total CCM achieved in a given year are achieved through Enbridge's MTEM Program.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott



e) For each of the scenarios the maximum shareholder incentive is $10.45 M, which represents a 150% weighted scorecard achievement. For each year the 150% incentives levels available to the Company, for each of the scenarios, are the same. This is because the percentage weight assigned to each Program remains the same and the total incentive level has the same cap. Please see Exhibit B, Tab 1, Schedule 4, Tables 1 through 5 for a breakdown of Enbridge's potential shareholder incentives amongst its 3 Programs.

f) Please see Exhibit B, Tab 2, Schedule 4, for an overview of Enbridge's rate allocation, inclusive of a breakout of shareholder incentive costs and Low Income program costs.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

ENERGY PROBE INTERROGATORY #34

INTERROGATORY

Topic 2 – DSM Targets

Reference.: Exhibit C, Tab 1, Schedule 1, Pg. 16, Table ES-1; Pgs 113- 116, Tables 5-16, 5-19, 5-20 and 5-22

Preamble: Navigant Study Outlook is to 2024. These questions seek to match the Budgets, Achievable Potential etc. to those filed by EGD (2015-2020) in this Application

a) Please position the Scenarios in ES-1 and Table 5-19 to that filed by EGD in this Application.

b) Please explain differences in Budget in Tables ES-1 and Table 5-19.

c) Please provide a version of Table 5-20 and highlight the scenario(s) that correspond to the Portfolios filed by EGD in this Application.

d) Please provide in the new version the split between RA and MT/other budgets and Savings.

e) Please provide a version of Table 5-16 for the Scenario(s) matching the current EGD Application. Please add rows that show the Shareholder incentive.

f) Please provide the results of Navigant's analysis of the Shareholder incentive across each of the jurisdictions surveyed.

g) Please provide a version of Table 5-22 (peak day demand) for the Scenario corresponding closely to the current EGD application.

RESPONSE

a) Since the budget scenarios, particularly for the residential sector, in Table 5 to19 did not align well with the Enbridge DSM Plan, Navigant re-calibrated its model for each individual sector. Enbridge provided Navigant with its 5-year budget totals by sector for the years 2016 to 2020, and Navigant re-calibrated its model to replicate those 5-year budget totals at the sector level. The levers used in the

Witnesses: F. Oliver-Glasford
B. Ott
C. Welch

calibration process were incentive levels and marketing effectiveness parameters. These model inputs were made consistent with the approach described in the Navigant report.

Table 3 provides a comparison of the simulated 5-year budget totals to Enbridge's proposed 5-year totals. At the sector-level, the simulated 5-year budget totals are within 1% of the proposed. At the porftfolio-level, the simulated 5-year budget totals differ by less than 2% due to differences between Navigant's and Enbridge's assumed portfolio-level variable administrative costs. Navigant notes that the portfolio-level, 5-year proposed budget total shown below does not include non-CCM programs, which Navigant did not model.

Table 1. Simulated DSM Plan Annual Budgets and Comparison with Proposed Budgets (million $/year)

	Residential	Low Income	Commercial	Industrial	Portfolio
2015	18.6	9.6	12.1	6.2	58.2
2016	18.3	9.6	12.3	6.3	58.3
2017	18.2	9.7	12.3	6.4	58.7
2018	18.3	10.0	12.5	6.5	59.6
2019	18.4	10.2	12.5	6.6	60.4
2020	18.4	10.5	12.5	6.6	60.9
2021	18.3	10.9	12.3	6.6	61.1
2022	18.2	11.2	12.1	6.5	61.2
2023	17.9	11.5	11.8	6.4	61.1
2024	17.6	11.7	11.5	6.5	61.1
2015-2024 Total	182.2	104.8	122.0	64.5	600.6
2016-2020 Total	91.7	50.0	62.1	32.3	297.9
Proposed 2016-2020 Total*	91.5	50.0	61.9	32.2	302.1

**The Proposed 2016-2020 Total does not include spending from non-CCM programs*

Source: Navigant and Enbridge

Table 4 presents the annual incremental achievable gas savings potential for the simulated DSM Plan scenario.

Witnesses: F. Oliver-Glasford
B. Ott
C. Welch

Table 2. Simulated DSM Plan Annual Incremental Achievable Gas Savings Potential (million m3/year)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Totals
Residential	24.9	24.0	23.6	23.5	23.5	23.4	23.2	23.0	22.5	22.0	234
Low Income	5.3	4.9	4.8	4.7	4.7	4.8	4.9	4.9	5.0	5.1	49
Commercial	48.5	48.9	49.0	49.4	49.5	49.2	48.5	47.6	46.3	44.9	482
Industrial	35.4	35.8	36.2	36.7	37.0	37.0	36.7	36.3	35.6	36.1	363
Total	114.0	113.6	113.6	114.4	114.9	114.5	113.4	111.7	109.5	108.2	1,128

Source: Navigant

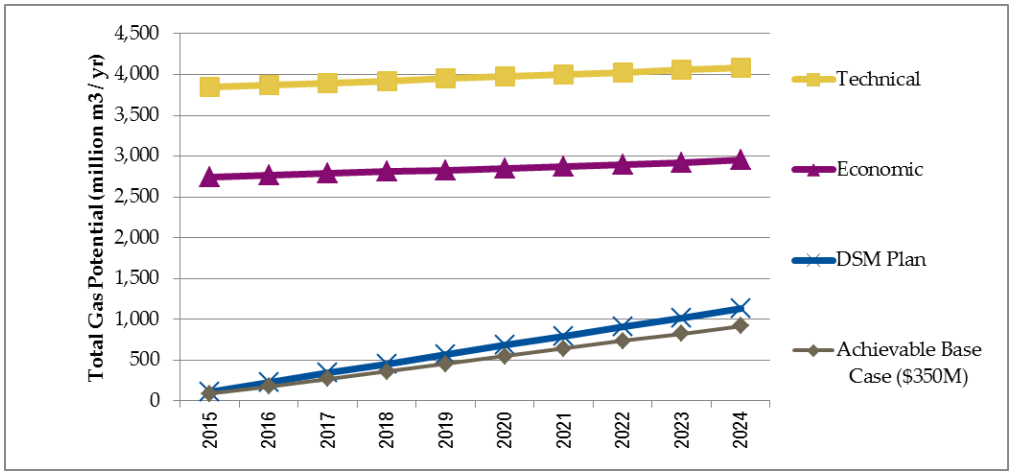
Table 5 and Figure 2 position the DSM Plan scenario in context with the technical, economic, and Base Case scenario's achievable potential.

Table 3. Gas Savings Potential Including the Simulated DSM Plan (million m3/year)

Year	Technical	Economic	Cumul. First-Year Achievable - DSM Plan	Cumul. First-Year Achievable - Base Case	Increm. Annual Achievable - DSM Plan	Increm. Annual Achievable - Base Case
2015	3,851	2,746	114	91	114	91
2016	3,874	2,766	228	181	114	90
2017	3,898	2,787	341	272	114	90
2018	3,922	2,808	456	363	114	91
2019	3,948	2,830	571	456	115	93
2020	3,974	2,852	685	549	114	93
2021	4,001	2,876	798	642	113	93
2022	4,029	2,900	910	735	112	93
2023	4,058	2,924	1,020	828	110	93
2024	4,087	2,950	1,128	920	108	93

Source: Navigant

Figure 1. Gas Savings Potential Including the Simulated DSM Plan (million m3/year)



Source: Navigant

Navigant also provides the TRC ratios and the net benefits for the simulated DSM Plan in Table 6 and Table 7, respectively.

Table 4. TRC Ratios for the Simulated DSM Plan

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Residential	2.6	2.6	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8
Low Income	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1
Commercial	2.6	2.7	2.7	2.7	2.6	2.6	2.5	2.5	2.5	2.4
Industrial	7.1	7.2	7.3	7.3	7.3	7.3	7.3	7.2	7.2	7.1
Portfolio	3.4	3.4	3.5	3.5	3.5	3.5	3.4	3.4	3.4	3.4

Source: Navigant

Table 5. Net Benefits for the Simulated DSM Plan (million $/year)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Totals
Residential	213	223	234	244	254	258	262	266	268	270	2,493
Low Income	39	41	43	45	47	48	50	52	53	55	474
Commercial	308	326	340	353	362	360	358	355	351	344	3,458
Industrial	568	597	625	650	669	680	685	686	683	697	6,541
Portfolio	1,117	1,176	1,230	1,280	1,320	1,334	1,342	1,346	1,342	1,352	12,839

Source: Navigant

Witnesses: F. Oliver-Glasford
B. Ott
C. Welch

b) As described above, Navigant calibrated the DSMSim model to align with the 5-year budget totals. Although the total 5-year budgets line up well, the gas savings, mix of technologies, and percentage of spending from incentives versus administrative costs will differ between the simulated DSM Plan and Enbridge's proposed plan. Navigant outlines possible causes for the differences below.

1. Navigant's incentive levels are formulaically determined (as discussed in the Navigant report), while Enbridge's may reflect more detailed judgement on a measure-by-measure basis.
2. Navigant's model may use different assumptions about customers' willingness to adopt efficient measures and the rate of adoption over time.

Navigant's model is a potential model and not a program design model. Details associated with program design that are not typically accounted for in a potential study (e.g., marketing channels, delivery mechanisms, etc.) can drive differences between program designs and potential study results.

c) Navigant has added the results from the simulated DSM Plan to Table 8 (Table 5 to 20 from the report). In the DSM Plan, the commercial sector is closest to Scenario F, the industrial to Scenario J, the low-income to Scenario C, and the residential roughly corresponds to Scenario J.

Table 6. Cumulative (10-Year) Budgets* and Achievable Potential by Sector & Budget Scenario for the DSM Plan in 2024

	Commercial		Industrial		Low Income		Residential	
Scenario	Budget ($ million)	Savings (million m3/yr)	Budget ($ million)	Savings (million m3/yr)	Budget ($ million)	Savings (million m3/yr)	Budget ($ million)	Savings (million m3/yr)
A	65	425	23	300	74	39	32	118
Base Case	77	438	27	308	87	44	40	130
C	88	449	30	316	99	48	48	141
D	99	461	33	323	114	52	55	152
E	111	472	37	330	130	56	63	163
F	124	483	40	337	150	61	71	174
G	137	495	44	344	175	66	80	184
H	150	506	48	351	204	71	90	195
I	164	517	52	358	232	76	100	206

Witnesses: F. Oliver-Glasford
B. Ott
C. Welch

J	227	532	70	365	256	78	144	222
K	401	574	133	388	256	78	317	264
L	564	608	201	409	256	78	542	319
DSM Plan	122	482	64	363	105	49	182	234

**Excludes portfolio-level administrative costs*
Source: Navigant

d) Enbridge's DSM Potential Study was not used to establish the potential for the Company's specific Market Transformation offers. As such, the budgetary split between Resource Acquisition and MTEM are assumed to remain constant.

e) Navigant has provided the budget breakdown for the simulated DSM Plan in Table 9. Given that the model provided is based on an average of proposed DSM sector budgets across multiple years, as opposed to specific year over year budgets, actual proposed Market Transformation and total admin costs have not been included due to an unsuitable comparison.

Program	Budget Type	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Residential	Incentives	17,871	17,576	17,486	17,607	17,684	17,665	17,553	17,386	17,147	16,852
	Admin.	721	709	712	725	739	750	759	765	766	764
	Sub-Total	18,592	18,285	18,198	18,332	18,423	18,415	18,312	18,150	17,913	17,616
Low Income	Incentives	9,051	9,061	9,204	9,459	9,731	10,017	10,309	10,602	10,879	11,136
	Admin.	526	498	491	496	508	524	543	563	583	602
	Sub-Total	9,578	9,559	9,695	9,955	10,239	10,541	10,852	11,165	11,462	11,737
Commercial	Incentives	10,832	10,930	10,952	11,049	11,085	11,018	10,860	10,648	10,378	10,065
	Admin.	1,309	1,347	1,376	1,416	1,448	1,468	1,475	1,475	1,466	1,450
	Sub-Total	12,142	12,277	12,329	12,465	12,533	12,486	12,336	12,123	11,844	11,515
Industrial	Incentives	5,344	5,418	5,484	5,561	5,611	5,612	5,566	5,494	5,394	5,476
	Admin.	849	877	905	935	962	981	993	999	1,001	1,036
	Sub-Total	6,193	6,295	6,388	6,496	6,573	6,593	6,559	6,493	6,395	6,512

f) Navigant did not conduct an inter-jurisdictional analysis of shareholder incentives as part of the DSM Potential Study, as this was not in scope.

g) Table 10 provides the peak day gas demand savings for the simulated DSM Plan.

Witnesses: F. Oliver-Glasford
B. Ott
C. Welch

Table 7. Simulated DSM Plan's Peak Day Gas Demand Annual Achievable Potential by Sector (thousand m3/day/year)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Totals
Residential	218	209	205	204	204	203	201	199	195	191	2,028
Low Income	45	41	39	39	39	39	40	40	41	42	406
Commercial	532	537	538	542	544	541	533	523	510	495	5,294
Industrial	168	170	172	175	176	177	175	173	170	173	1,730
Total	964	957	954	960	963	959	949	935	916	899	9,458

Source: Navigant

Witnesses: F. Oliver-Glasford
B. Ott
C. Welch

ENERGY PROBE INTERROGATORY #38

INTERROGATORY

Topic 2 – DSM Targets

Reference.: Exhibit C, Tab 1, Schedule 1, Pg. 16 Table E-2.

Please provide a version of Figure E-2 from the Navigant Report that shows both EGD and Union Gas based on both 2012 spend and 2016 proposed spend.

RESPONSE

With regret, Enbridge is unable to provide the above requested figures for a number of reasons. First, development of the DSM Potential Study produced by Navigant was a highly complex exercise taking place over the course of over a year, involving hundreds if not thousands of inputs, and detailed communications between Enbridge staff, Navigant, and intervenors. To take these inputs and outcomes and apply them to another utility with significant differences to Enbridge is highly likely to produce dubious outcomes. Enbridge further questions the appropriateness of attempting to prepare a DSM potential analysis on behalf of another utility.

Secondly, the above noted request calls on Enbridge to produce figures using annual spending figures for 2012 and 2016 as singular years. Enbridge's DSM Potential Study encompasses different budget scenarios which run for ten years, from 2015 to 2024. For an analysis of DSM potential at differing spending levels, Enbridge directs interested parties to see Table 5-19 on page 132 of Exhibit C, Tab 1, Schedule 1, where twelve different budget scenarios have been provided over a ten year period.

Witnesses: S. Mills
B. Ott
C. Welch

FRPO INTERROGATORY #1

INTERROGATORY

Topic 2 – DSM Targets

Reference: Exhibit B, Tab 1, Schedule 3, Page 8 of 19

For each of the years 2012 to 2014, please provide the actual m3 savings from Part 3 multi-family buildings broken down by:

a) Social and Assisted Housing
b) Private rental

RESPONSE

The actual m3 savings, which Enbridge has interpreted to mean gross annual gas savings, achieved by social and assisted housing, and private rental multi-residential buildings respectively are outlined below. 2014 results are subject to change as a result of the work of the auditor, discussions with the Audit Committee and a Clearance of Accounts proceeding before the Board.

	2014	2013	2012	3 Year Total
Low Income Multi-Residential Part 3	**Gross Gas Savings**	**Gross Gas Savings**	**Gross Gas Savings**	**Gross Gas Savings**
Social Assisted Housing	826,526	1,558,408	2,739,985	5,124,920
Private Rental	907,930	0	0	907,930
Total Multi-Residential Part 3	**1,734,457**	**1,558,408**	**2,739,985**	**6,032,850**

Witnesses: E. Lontoc
K. Mark

FRPO INTERROGATORY #2

INTERROGATORY

Topic 2 – DSM Targets

Reference: Exhibit B, Tab 1, Schedule 3, Page 8 of 19

Please provide Enbridge's perspective on why the company has not proposed a metric for private rental participation or savings?

RESPONSE

Enbridge's goal is to achieve its target from the affordable housing sector. To accomplish this, it will seize opportunities where they exist while continually exploring and expanding its efforts towards underserved markets and niches including, most notably, the private rental sub-sector.

The 2012 to 2014 Low Income Program saw a slowdown in retrofit activity from the social housing sub-sector as a result of stimulus funding and retrofit fatigue from the past five years. As a result, the Company is hopeful for growth in the private rental sub-sector given their low participation in DSM programs in the past, and the comprehensive offer that is targeted to drive participation.

Consistent with the Company's approach to the Home Winterproofing Program offer for residential customers, Enbridge will be tracking and reporting on results from the private and social housing sectors respectively.

Witnesses: M. Lister
E. Lontoc
F. Oliver-Glasford

FRPO INTERROGATORY #3

INTERROGATORY

Topic 2 – DSM Targets

Reference: Exhibit B, Tab 2, Schedule 1, Page 37 of 100

Enbridge evidence states: "*The social and assisted housing segment represents approximately 12% of the total multi-residential housing sector within the Enbridge franchise area. Additionally, an estimated 8% of commercial private sector multi-residential buildings are occupied by residents that meet low income thresholds. The majority of multi-residential buildings are small to mid-sized buildings consuming less than 300,000 m3 annually. To date, approximately 42% of social and assisted housing has participated in an Enbridge incentive program.*"
Based upon the foregoing numbers and in comparison to the social and assisted housing, what percentage of private sector multi-residential buildings have participated?

RESPONSE

Approximately 28% of the private low income buildings have participated in an Enbridge incentive program.

Witnesses: M. Lister
E. Lontoc

GEC INTERROGATORY #7

INTERROGATORY

Reference: Exh. B/T1/S3 p. 6:

Enbridge's proposed roll-over budget has just $1.873 million allocated to residential resource acquisition. It also has a target (mid-point) of just 762 participants in its residential retrofit program.

a. How many participants has Enbridge had in the residential program in each month of 2014 and in each month (to date) of 2015?
b. How much has Enbridge spent on the residential program in each month of 2014 and in each month (to date) of 2015?
c. If Enbridge's resource acquisition accomplishments in 2015 were identical to its best current estimates of its 2014 accomplishments, what would be its weighted average score for its 2015 Resource Acquisition Scorecard? How much of the maximum incentive would it earn?
d. Given the reality that Enbridge's home retrofit program's 2014 participation levels and spending were on the order of six times greater than the proposed middle scorecard target and budget for 2015:
    i. What is Enbridge planning to do with this program in 2015? Will it continue to offer it throughout the year? Will it stop or scale back marketing to limit budget over-runs? Or will it employ other tactics to minimize spending (and participation) in 2015?
    ii. If it scales back efforts in 2015, will that make it harder to ramp up the program when increased budget dollars become available in 2016 and beyond? If not, why not?

RESPONSE

a) and b) Below are the tables showing monthly participants and related spend for 2014 and 2015 YTD

Witnesses: S. Bertuzzi
M. Lister

2014	# of Participants	Monthly Total ($mils)	Cumulative Total ($mils)
January	0	0	0
February	163	0.27	0.27
March	83	0.14	0.41
April	562	0.93	1.33
May	162	0.27	1.60
June	245	0.40	2.00
July	310	0.51	2.52
August	301	0.50	3.01
September	276	0.46	3.47
October	444	0.73	4.20
November	561	0.93	5.13
December	2106	3.47	8.60
Total	**5213**		8.60

2015	# of Participants	Monthly Total ($mils)	YTD Cumulative Total ($mils)
February	661	1.09	1.09
March	683	1.13	2.22
April	533	0.88	3.10
May*	479	0.79	3.89
Total	**2356**	3.89	7.77

* May participants show results to May 15th

c)

Program Type	Metric	2014 Pre-Audit Results applied to 2015 scorecard	Weight	Performance Band			Plan
Resource Acquisition				Lower	Middle	Upper	Score
Commerical/Industrial/Residential	CCM	655.80	92%	758.9	1011.9	1264.9	30%
Residential deep savings	Participants	5,213	8%	571	762	952	1268%
						Weighted Score	129%
			RA DSMI		$ 2,593,097	$ 6,482,744	$ 4,826,995
						Maximum Incentive	Forecast using 2014 est. results

Witnesses: S. Bertuzzi
M. Lister

d)

i. Enbridge will run out of budget to support the program in 2015. As a result, Enbridge will at a minimum scale back the program to limit budget over-runs. The Company will look to allocate as much budget as possible in order to keep the offer available to customers for as long as possible.

ii. It is not an ideal situation to have to scale back or stop an offering mid-year and then ramp it up again in the following year. Enbridge does anticipate more effort than would otherwise be required to ramp up the program again beginning in 2016.

Witnesses: S. Bertuzzi
M. Lister

GEC INTERROGATORY #10

INTERROGATORY

Reference: Exh. B/T1/S3:

For scorecard tables 3, 5, 7, 8, and 9, please provide the comparable actual achievements of each performance metric for each of the past three years (2012, 2013 and 2014). Please provide the historic results whether or not there were comparable performance metrics in all cases for all historic years. For 2014, note whether the results provided reflect the results of CPSV reviews and/or other feedback from the current auditor.

RESPONSE

Below are the actual results for each performance metric for the past three years (2014, 2013, and 2012)

	Component	Metric	2014 Actual Results [9]	2013 Actual Results	2012 Actual Results
Resource Acquisition	Volumes	*Cumulative Savings (million m^3)*	664.37	766.69	970.05
	Residential Deep Savings	*Number of Houses* [1]	5,213	1,649	271
Low Income	Single Family (Part 9)	*Cumulative Savings (million m^3)*	25.7	32.9	24.7
	Multi-residential (Part 3)	*Cumulative Savings (million m^3)*	29.8	27.3	43.4
	Multi-residential (Part 3) LIBPM [2]	*Percent of Part 3 Participants Enrolled* [3]	74%	85%	N/A [7]

Witnesses: K. Mark
S. Moffat
B. Ott
J. Paris
R. Sigurdson

Market Transformation	**Drain Water Heat Recovery**	*# of Units Installed*	**N/A**[8]	**6,465**	**5,047**
	Residential Savings by Design	*Completed Units*	**1,059**	**967**	**N/A**[7]
		Builders Enrolled[4]	**23**	**18**	**12**
	Commercial Savings by Design	*New Developments Enrolled*	**19**	**16**	**9**
	Home Labelling	*Number Committed Realtors*[5, 6]	**40,040**	**78,000**	**8,600**
		Ratings performed	**662**	**138**	**N/A**[7]

1. Number of houses with at least two major measures and where average annual gas savings across all participants is at least 25% of combined baseline space heating and water heating usage.

2. LIBPM - Low Income Building Performance Management is the Low Income offer complement to the Commercial Run It Right (RIR) offer.

3. Low Income Building Performance Management (LIBPM) percentage of Part 3 buildings enrolled in current year program = (x+y)/(x+y+z):

   x = # of new LIBPM buildings in the current year that have participated in another aspect of the Low Income program in a previous year of 2012-2014 plan; y = # of new LIBPM buildings participating in current year that have not previously participated in the Low Income program; z = # of buildings in the current year that have implemented custom projects other than LIBPM.

4. Eligible builders based on a minimum of 50 homes built in the prior year.

5. Commitments to make provision for a data field to show home energy ratings for all homes listed by participating realtors (industry-wide commitment to include such a field on MLS or similar listing service and/or realtors' commitment to do so with all the homes they list on their own websites, handouts and other consumer material).

6. Commitment from realtors collectively responsible for more than 5,000 (middle target) or 10,000 (upper target) listings/year.

7. Metric did not apply in this year.

8. Program ended in 2013.

9. 2014 results are subject to change based on the work of the auditor, Audit Committee and a Clearance of Accounts proceeding before the Board.

Witnesses: K. Mark
S. Moffat
B. Ott
J. Paris
R. Sigurdson

GEC INTERROGATORY #13

INTERROGATORY

Reference: Exh. B/T1/S4:

For scorecard tables 8, 15 and 22, please provide the Company's comparable actual achievements of each performance metric for each of the past three years (2012, 2013 and 2014). Please provide the data whether or not the performance metrics proposed in proposed new plan were metrics in the past.

RESPONSE

Please see Enbridge's response to Energy Probe Interrogatory #2, filed as Exhibit I.T3.EGDI.EP.2.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

GEC INTERROGATORY #14

INTERROGATORY

Reference: Exh. B/T1/S4 pp. 10-14:

Most of the proposed Resource Acquisition performance metrics are not round numbers. They are very precise, to the tenth of a million lifetime m3 saved. Also, the targets do not appear to increase linearly with budget.

a. Regarding the large volume customer target:
   i. Please explain how each of the lifetime savings targets were developed.
   ii. Also, please provide all mathematical calculations used to develop them.
   iii. To the extent that such calculations were made in Excel spreadsheets or other electronic form, please provide the electronic files in their original format with formulas included.
   iv. Please explain why the target for 2017 is lower than for 2016 when the budget increased.

b. Regarding the small volume customer target:
   i. Please explain how each of the lifetime savings targets were developed.
   ii. Also, please provide all mathematical calculations used to develop them.
   iii. To the extent that such calculations were made in Excel spreadsheets or other electronic form, please provide the electronic files in their original format with formulas included.
   iv. How much of the savings in each year is forecast to come from HEC, adaptable thermostats, small C&I prescriptive measures and other program categories?
   v. Regarding savings from HEC, is the Company proposing any changes to address how savings from new furnaces are estimated – either in annual savings or in assumptions about measure life? If so, please explain.

c. Regarding the Residential Deep Retrofit targets:
   i. Please explain how each of the participant targets were developed.
   ii. Also, please provide all mathematical calculations used to develop them.
   iii. To the extent that such calculations were made in Excel spreadsheets or other electronic form, please provide the electronic files in their original format with formulas included.
   iv. Is the Company proposing to change the current list of measures that would count towards the minimum requirement of two major measures? If so, how?

Witnesses: S. Bertuzzi
P. Goldman
R. Kennedy
M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott
J. Paris

RESPONSE

a) i – iii Please see the response to GEC Interrogatory #16, filed at Exhibit I.T2.EGDI.GEC.16.

iv. Please see Enbridge's response to BOMA Interrogatory #62, filed as Exhibit I.T2.EGDI.BOMA.62.

b) i – iii Please see the response to GEC Interrogatory #16, filed at Exhibit I.T2.EGDI.GEC.16.

iv. Please see the chart on the following page that lists the savings from all RA programs for 2016 to 2020.

Witnesses: S. Bertuzzi
P. Goldman
R. Kennedy
M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott
J. Paris

Target Scenarios						
Resource Acquisition Targets	**Metric**	**2016**	**2017**	**2018**	**2019**	**2020**
Large C&I Customers	*CCM*	*604,195,262*	*600,879,000*	*614,148,900*	*615,719,228*	*618,104,330*
Large Custom	*CCM*	541,170,423	538,200,087	550,085,776	551,492,300	553,628,608
Large Prescriptive	*CCM*	63,024,839	62,678,913	64,063,124	64,226,928	64,475,723
Large DI	*CCM*	0	0	0	0	0
Small C&I Customers	*CCM*	*163,672,568*	*165,954,000*	*156,033,535*	*159,154,161*	*162,337,299*
Small Custom	*CCM*	32,895,470	33,354,000	31,360,151	31,987,345	32,627,103
Small Prescriptive	*CCM*	70,418,437	71,400,000	67,131,822	68,474,439	69,843,952
Small DI	*CCM*	60,358,661	61,200,000	57,541,562	58,692,377	59,866,244
Small Commercial New Construction	*CCM*	0	14,620,000	17,960,200	19,548,431	23,236,432
Energy Leaders Fund	*CCM*	----	----	----	----	----
Residential Thermostats	*CCM*	23,864,839	47,655,000	71,482,500	74,847,871	77,026,478
Residential Home Energy Conservation (HEC)	*Participants*	7,508	10,000	12,346	12,948	13,478
	CCM	102,622,499	136,680,000	168,740,741	176,970,719	184,222,043
Total CCM Forecast		**894,355,168**	**965,788,000**	**1,028,365,875**	**1,046,240,410**	**1,064,926,582**

v. No, Enbridge is not proposing any changes to the way that new furnace savings are estimated.

c) i – iii Please see the response to GEC Interrogatory #16, filed at Exhibit I.T2.EGDI.GEC.16.

iv Enbridge is not proposing to change the current list of measures that would count towards the minimum requirement of two major measures.

Witnesses: S. Bertuzzi
P. Goldman
R. Kennedy
M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott
J. Paris

GEC INTERROGATORY #15

INTERROGATORY

Reference: Exh. B/T1/S4 pp. 19-21:

Most of the proposed Low Income performance metrics are not round numbers. They are very precise, to the tenth of a million lifetime m3 saved. Also, the targets do not appear to increase linearly with budget.

a. Regarding the single family savings metric:
   i. Please explain how each of the lifetime savings targets were developed.
   ii. Also, please provide all mathematical calculations used to develop them.
   iii. To the extent that such calculations were made in Excel spreadsheets or other electronic form, please provide the electronic files in their original format with formulas included.
   iv. From 2017 through 2020, the savings goal either stays the same or declines slightly while the budget increases slightly. What is the explanation?

b. Regarding the multi-family savings metric:
   i. Please explain how each of the lifetime savings targets were developed.
   ii. Also, please provide all mathematical calculations used to develop them.
   iii. To the extent that such calculations were made in Excel spreadsheets or other electronic form, please provide the electronic files in their original format with formulas included.
   iv. What portion of the savings in each year is forecast to come from social housing vs. private market multi-family buildings?
   v. Historically, what has been Enbridge's average lifetime m3 savings per incentive dollar spent on social housing multi-family buildings vs. private market multifamily buildings?

Witnesses: S. Bertuzzi
P. Goldman
R. Kennedy
M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott
J. Paris

c. Regarding the new metric for low income new construction projects called "# of project applications".

i. Please define, in detail, what this requirement is.

ii. Would the application include a formal agreement or commitment to build to a certain performance standard?

iii. Is there a minimum requirement for the size of a project in order to count towards the metric? If not, why not?

iv. What is the size of the market that this metric is designed to address? How many low income new construction projects which would be eligible to participate in the program are planned and/or built each in Enbridge's service territory?

v. How did Enbridge select the proposed target levels? Did it perform any analysis? If so, please provide such analyses?

vi. The number of applications required to meet the low, middle and high targets is proposed to grow from 2016 through 2018, then declines in 2019 and again in 2020. Why?

RESPONSE

a) For details regarding Low Income budgets and targets please see the response to GEC Interrogatory #16, filed at Exhibit I.T2.EGDI.GEC.16

i - iv) Please see Energy Probe Interrogatory #19, filed at Exhibit I.T2.EGDI.EP.19.

b)

I - iii. For details regarding budgets and targets please see the response to GEC Interrogatory #16, filed at Exhibit I.T2.EGDI.GEC.16

iv. Below please see the charts showing the forecast Annual Savings and split between social housing vs. market rate multi-family buildings from 2015 to 2020

Witnesses: S. Bertuzzi
P. Goldman
R. Kennedy
M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott
J. Paris

	2015 [1]			2016		
Low Income Multi-Residential Part 3	**CCM**	**Total Cost**	**$/CCM**	**CCM**	**Total Cost**	**$/CCM**
Social Assisted Housing	41,200,000	$1,324,337	$0.0321	23,587,781	$1,311,611	$0.0556
Private Rental	27,500,000	$883,963	$0.0321	35,381,671	$1,967,417	$0.0556
Total Multi-Residential Part 3	**68,700,000**	**$2,208,300**	**$0.0321**	**58,969,452**	**$3,279,028**	**$0.0556**

1. 2015 results are based on the 2015 Roll Over Budget

	2017			2018		
Low Income Multi-Residential Part 3	**CCM**	**Total Cost**	**$/CCM**	**CCM**	**Total Cost**	**$/CCM**
Social Assisted Housing	24,781,200	$1,367,248	$0.0552	27,898,847	$1,526,413	$0.0547
Private Rental	37,171,800	$2,050,873	$0.0552	41,798,273	$2,286,883	$0.0547
Total Multi-Residential Part 3	**61,953,000**	**$3,418,121**	**$0.0552**	**69,697,121**	**$3,813,296**	**$0.0547**

	2019			2020		
Low Income Multi-Residential Part 3	**CCM**	**Total Cost**	**$/CCM**	**CCM**	**Total Cost**	**$/CCM**
Social Assisted Housing	28,599,878	$1,555,825	$0.0544	29,316,570	$1,585,859	$0.0541
Private Rental	42,899,817	$2,333,737	$0.0544	44,024,883	$2,381,494	$0.0541
Total Multi-Residential Part 3	**71,499,695**	**$3,889,562**	**$0.0544**	**73,341,453**	**$3,967,353**	**$0.0541**

v) Below please find charts showing the average efficiency metric of $/CCM savings for Social Housing multi-family buildings vs. private market rate multifamily buildings.

Witnesses: S. Bertuzzi
P. Goldman
R. Kennedy
M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott
J. Paris

	2014 [1]				2013 [2]				2012 [2]			
Low Income Multi-Residential Part 3	Gross Gas Savings	CCM	Total Cost	$/CCM	Gross Gas Savings	CCM	Total Cost	$/CCM	Gross Gas Savings	CCM	Total Cost	$/CCM
Social Assisted Housin	826,526	16,239,930	$1,744,464	$0.1074	1,558,408	27,314,154	$723,728	$0.0265	2,739,985	43,407,789	$1,367,944	$0.0315
Private Rental [2,3]	907,930	13,561,228	$185,716	$0.0137	0	0	$0	$0.0000	0	0	$0	$0.0000
Total Multi-Residential	1,734,457	29,801,158	$1,930,180	$0.0648	1,558,408	27,314,154	$723,728	$0.0265	2,739,985	43,407,789	$1,367,944	$0.0315

1. 2014 results are Pre-Clearance, and could be subject to change

2. 2013 and 2012 projects were composed entirely of social housing. There were no low income private rentals in 2013 and 2012.

3. Results include Low Income Prescriptive Showerheads

c)

i. This metric will utilize the same eligibility criteria as used for qualifying public funding assisted programs to construct new affordable housing units in the Enbridge service area. These programs include the Canada-Ontario Innovation in Affordable Housing ("IAH") Program and Canada Mortgage and Housing Corporation's ("CMHC") Affordable Housing Programs such as the Seed Funding and Project Development Programs. Project Application will have the same meaning as the public funded affordable housing program such, as IAH, for which a project has been qualified for. In every case, a project application will provide housing to multiple households or housing units.

ii. Yes, the application will include a commitment to build to a certain performance standard.

iii. No, there is no minimum requirement for the size of a project in order to count towards the metric as this may be counter to the objective of ensuring municipalities can participate.

iv. The majority of the 10 year municipal planning goals do not specify the target number of new houses created on an annual basis. As such it is difficult to ascertain the size of the market.

Witnesses: S. Bertuzzi
P. Goldman
R. Kennedy
M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott
J. Paris

v. The proposed target levels forecasted were based on conversations with municipal stakeholders, government entities and key contacts within CMHC.

vi. Enbridge is working on the same program cycle as IAH. Their program terminates in 2020 and the Company anticipates a wind down in the program in conjunction with theirs.

Witnesses: S. Bertuzzi
P. Goldman
R. Kennedy
M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott
J. Paris

GEC INTERROGATORY #16

INTERROGATORY

Reference: Exh. B/T1/S4 pp. 29-33:

Many of the proposed performance metrics are not round numbers. They are very precise, to the tenth of a million lifetime m3 saved. Also, the targets do not appear to increase linearly with budget.

a. For each metric:
   i. Please explain how it was developed.
   ii. Also, please provide all mathematical calculations used to develop them.
   iii. To the extent that such calculations were made in Excel spreadsheets or other electronic form, please provide the electronic files in their original format with formulas included.

b. Regarding the Home Health Report savings metric:
   i. What is the forecast number of households participating in each year?
   ii. How does the savings target (middle) for 2016 compare, on a per household basis, to the savings Enbridge has experienced to date through its pilot program?
   iii. The budget nearly doubles from 2016 to 2017, but the savings target only goes up by about 25%. Why does it not increase linearly?
   iv. Isn't it OPower's historic experience in other jurisdictions that savings per household increase over time (e.g. a household will save more in the second year of receiving reports than in the first year)? If not, please provide references to support a different conclusion. If so, by what percent do Opower savings for a given household increase from year 1 to year 2 to year 3 to year 4 of participation?
   v. Why do the savings targets for 2018 drop back down to nearly the 2016 levels even though the budget increases stays constant from 2017 to 2018?
   vi. Why do savings targets for 2019 and 2020 decline even further – to the point
   vii. where the 2020 target is more than 25% lower than the 2016 target – when the proposed budgets continue to grow modestly?

c. Regarding the Comprehensive Energy Management metric:
   i. Would Enbridge agree that CEM is typically a multi-year process and requires a multi-year commitment?

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
B. Ott
P. Goldman
M. Lister
F. Oliver-Glasford
J. Paris

ii. If so, are the participant metrics for each year referencing only the number of new commitments to the program, or is the Company expecting to count participant from 2016 which continue to work with the program for several years towards 2017 and future year's targets?

d. Regarding the Residential Savings by Design metrics:

i. Approximately how many new single family homes are built in Enbridge's service territory each year?

ii. Approximately how many of those new homes are built by builders who have already participate in Enbridge's program in the past?

iii. Why do the metrics go down from 2016 to 2017 when the budget remains constant?

e. Regarding the Commercial Savings by Design metric:

i. What is Enbridge's estimate of the size of the eligible market? Approximately how many new developments that are of sufficient size to participate in Enbridge's program are initiated each year in its service territory?

ii. Why does the number of new enrollments drop in half from 2016 to 2017?

iii. Historically, what has been the average size (in square feet, square meters or other relevant metric) of the new developments enrolled in Enbridge's program?

RESPONSE

a) Below please find a chart that outlines the rationale for all budgets and targets:

Resource Acquisition Offers	2016 Targets at 100%	3 Year Average	Target Rational	Budget Rational
Large C&I Customers (CCM)	*604,195,262*	*688,801,130*	The 2016 Target was proposed using multiple factors - The 3 year trend; CCM results have decreased from 964M CCM in 2012 to 566M CCM in 2014. Results are trending downward and although the number of projects per year is increasing, the savings per project are decreasing - The increase in target for 2016 over 2014 and anticipated 2015 results is also based on assumption that an increase in incentive and collaboration with LDCs will deliver more projects - The 2012 - 2014 results included legacy new construction projects, which was an average of 61M CCM annually - The potential study suggested 39M M3 annually was achievable in the Commercial sector and 27M M3 in the Industrial sector	The program budgets were based on an evaluation of the cost to run the Custom offer today as well as factoring in the increase in the Commercial tiered incentive. Relatively low gas price results in projects with low ROI. Increase in incentive level will make these projects more attractive. It will also make them more competitive against electricity saving projects
Large Custom	541,170,423	666,056,130		
Large Prescriptive	63,024,839	47,403,050		
Large DI	0	0		

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
B. Ott
P. Goldman
M. Lister
F. Oliver-Glasford
J. Paris

Small C&I Customers (CCM)	*163,672,568*	*54,347,034*	The 2016 Target was proposed using multiple factors; - The Direct Install target is largely a new customers that would not install the high efficient technology without the Direct Install Offer from Enbridge - Assumption is that the increased incentive will drive more results - The separate bucket for small Commercial will encourage a focus on small volume customers that typically yield little savings compared to large customers	The budget was based on looking at the cost to run the offer today and factoring in the increase in expected results, the increase in the prescriptive incentives and the cost to run the Direct Install Offer Higher incentives for this sector is necessary to improve ROI which plays a crucial role to this customer base.
Small Custom	32,895,470	22,745,000		
Small Prescriptive	70,418,437	31,602,034		
Small DI	60,358,661	0		
Home Energy Conservation	7,508	2,357	The launch of the program in 2012 had a target of 160 and in 2014 Enbridge reached preliminary results of 5213. Enbridge looked at the market potential, understanding paticipation in previous NRCan program, results to date and opening the program franchise wide for 2016. Therefore Enbridge came up with a target of 7508 for 2016 with increasing targets year over year. The target is also tied to budget with keeping the overall RA portfolio whole in spending.	Enbridge determined the budget by looking at all of Resource Acquisition to determine targets for Residential, Commercial and Industrial. Being the Home Energy Conservation program has been in the market since 2012, Enbridge has a paticiptant cost of $1650/participant and leveraged similar cost/participant values in developing for 2016 and beyond.
Adaptive Thermostats	9,000	n/a	Adapative thermostats is new to the portfolio in 2016. Enbridge reviewed a report done by Navigant to determine an appropriate growth rate of 0.5% in 2016; 1% in 2017, 1.5% in 2018; 2% for 2019 and 2020. The proposed growth rate is a 2.3% increase over Navigant study.	The budget for Adaptive thermostats was determined by the cost of the thermostat and an approriate incentive amount to entice customers to adopt this technology while ensuring CCM is provided to the RA portfolio. Enbridge looked at the previous programmable thermostat offer and applied the same logic to this new program.

Low Income Offers	2016 Targets at 100%	3 Year Average	Target Rational	Budget Rational
Part 9	29	25.3 CCM	The Part 9 CCM target was developed from 3 year historical result averages (2012 to 2014). It is based on weatherization savings on an assumption of 225 m3 per home.	In both the case of Part 9 and Part 3 Low income programming the historic incentive provided to secure CCM savings was taken into consideration in addition to the understanding that future results will need to include private housing.
Part 3	59	33.5 CCM	The Part 3 CCM target was developed from 3 year historical result averages (2012-2014). In addition, the market outlook was taken into consideration as savings decline on the social housing side. The degree to which private multi residential side and increasing the scope of the program outside of Toronto can fill this gap has yet to be seen.	
Low Income New Construction	5	NA	The proposed target levels forecasted were based on conversations with municipal stakeholders, government entities and key contacts within CMHC	The incentives designed for Low Income New Construction were informed partly on Enbridge's understanding of the new construction market through the Savings By Design offer while also using knowledge of the Low Income market.

MTEM Offers	2016 Targets at 100%	3 Year Average	Target Rational	Budget Rational
Energy Compass	No targets Filed	N/A	There is no DSMIDA associated with Energy Compass	This is an enabling free services Enbridge offer for customers
School Energy Competition	50 Participants	N/A	The target was based on considering the number of schools and school boards in Enbridge's franchise area, in addition to what the Company felt was a reasonable number of schools to enroll and compete in the competition	The budget was built based on the cost to run the offer; including design of curriculum, an Energy Management Information System for participants, awards and all other related program costs
Run it Right	75 Participants	80	The RiR offer had a large number of buildings (121) enroll in 2012 however the Offer was redesigned to put tighter controls on participants and standardize the building assessment process. In 2013 there were 46 participants and 19 in 2014. The target was based on the 3 year average and adding 20% increase to the target.	The budget was based on re-evaluating the current offer, taking into consideration costs that will need to be incurred to upgrade meters on behalf of customers and design the Offer based on the forecasted participants
Small Commercial & Industrial Behavioral Program	No targets Filed	N/A	N/A	N/A
Comprehensive Energy Management	6	N/A	The complexity of the offer limits potential number of participants as well as Enbridge's ability to deliver it. Target was set such that each of 6 Enbridge's Industrial Energy Solutions Consultant will deliver one participant in 2016	The budget for CEM was derived based on anticipated cost per participant. It includes incentives toward installation of Energy Management Information System, technical support and gas savings.
Savings by Design - Residential Homes Built	653	2,501	Enbridge determined the target for this metric based on the builders that have participated in the program to date and by the number of homes they could potentially reach. Each builder that builds 50 homes are awarded an incentive however they can also build beyond the incentive level.	Enbridge applied the same budget logic as in 2012. Builder x 50 homes x $2000/year = $100,000 / builder for completing homes 25% beyond code and 15% above 2017 code.

Savings by Design – Commercial	15	30	The new target is approximately 50% higher than the three year average as the program has been successful. In 2017, the target decreases due to new 2017 code implementation and then an escalator was applied yearly.	Enbridge applied the same budget logic as in 2012.
Opower - My Home Health Record	n/a	19,5M CCM	The following represents the manner in which the My Home Health Record program will be rolled out to Enbridge residential customers. 2015: 500,000 participants, 2016: 1,000,000 participants, 2017: 1,000,000, 2018: 2019: 1,350,000 participants 1,350,000 participants participants. Savings methodology is further discussed in response to	Enbridge based the budget on reaching planned number of customers in each year.
Home Rating	42213	596	The offer evolved from reaching realtors to homeowners therefore the three year average does not apply when creating targets for the offer from 2016 and beyond. Enbridge will encourage customers buying and selling homes to participate in an energy audit to understand the rating of their home.	Enbridge based the budget on reaching customers with an energy audit paid by Enbridge to determine the rating on their home. The target was developed based on previous dollars spent on this program with a new target to reach.
New Construction Commissioning	n/a	20	The new offer looked at the potential lost new construction opportunities that could not be reached through the SBD program because they are either past the pre-design phase and ensure that systems installed are being operated at the highest performance level. The target took into consideration how many potential new build projects are in this optimal phase to reach through this offer. As the offer is new, a target of 20 was deemed as reasonable to achieve.	The budget was determined by taking the number of projects that can participate through this offer by the costs of energy modelling and fixed costs to reach the participants to this offer.

b) i. through vii. Please see the response to BOMA Interrogatory #44, filed at Exhibit I.T5.EGDI.BOMA.44.

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
B. Ott
P. Goldman
M. Lister
F. Oliver-Glasford
J. Paris

c) i. Yes, CEM is a multi-year process and a multi-year commitment.

ii. Participants are not accumulated through time. Only new additions are counted every year.

d) i. Please refer to Exhibit 1.T5.EGDI.EP.23

ii. Please refer to Exhibit 1.T5.EGDI.EP.23

iii. Please refer to Exhibit 1.T5.EGDI.EP.23

e) i. The table below provides a view of the potential size of the eligible market.

Year 2014	*# projects*	*Average Sq.*
Residential (Multi Res)	206	62,604
Civil	9	25,811
Commercial	76	119,837
Community	48	36,640
Educational	63	36,618
Government	32	18,238
Industrial (light)	31	31,699
Medical	25	64,870
Military	5	69,853
Retail	143	23,800
University	5	256,350
taken from Reeds report		

ii. The number of new enrollments drop in half from 2016 to 2017 due to the upcoming change in the Ontario building code on January 1, 2017, and the new SBD parameters of achieving 15% more energy efficient than the 2017 building code, Enbridge proposes a program reset, with a target decrease during the transition of the 2017 code as builders/developers will be focused on the completion of their current builds as opposed to starting new or entering programs.

iii. The chart below shows the historical average size in square feet of the new developments that have participated in Enbridge's program.

2014 BUILDER	PROJECT SIZE SQ.FT
Athena	158,445
Honda	216,158
Domicile	200,133
Minto-Upperwest	286,551
OCSB (school board)	48,063
Liberty Developments	384,999
Jarlette Health Care	75,381
Peel District School Board	208,781
Rockport Group	221,527
Stanton Renaissance	385,148
Times Group	149,734
Toronto Catholic District School Board	54,240
Homestead	162,323
Montreal Rd. Development	142,170
Windmill	197,637
CEPEO (school board)	40,902
OAG (Ottawa Art Gallery)	164,572
Carleton Residence	258,333
Mackenzie Health	1,192,652
Average Sq. Ft. for 2014	186,394
*This does not include Mackenzie Health as it is an outlier due to size	
2013 BUILDER	PROJECT SIZE SQ.FT
Guizzetti	150,765
Technicore	101,000
Minto – Beechwood	220,000
Hawesbury	225,000
Giant Tiger	23,700
Windmill Union Lofts	40,000
Martinway	206,000
Ottawa Carlton District School Board	65,000
Solitudes	24,640
Geranium HR	104,000
Windmill (Ottawa)	60,000
Pegah	110,000

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
B. Ott
P. Goldman
M. Lister
F. Oliver-Glasford
J. Paris

Cole & Associates (Ottawa)	64,992
Riverside Developments	132,600
Medallion	283,000
Zappitelli	1,300,000
Average Sq. Ft. for 2013	120,713
*This does not include Zappitelli as it is an outlier due to size	
2012 BUILDER	PROJECT SIZE SQ.FT
Zancor	411,000
Windmill	60,000
501 Alliance/Strashin	265,000
Niagara 1st Place	99,500
NRPA	195,000
Solmar HR	279,861
Durham College	306,340
Niagara Falls Transit	110,884
Average Sq. Ft. for 2012	215,948

The SBD Commercial (2012 to 2015) offer had a minimum of 100,000 square foot parameter as indicated in the above historic average size of new developments enrolled. Enbridge is proposing a change to the square foot threshold due to potential size of the eligible market as indicated in e) i. Enbridge has made considerable efforts to target all new construction projects and lowering the square foot threshold provides an opportunity to entice smaller new construction projects to participate in the offer.

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
B. Ott
P. Goldman
M. Lister
F. Oliver-Glasford
J. Paris

GEC INTERROGATORY #19

INTERROGATORY

Reference: Exh. B/T1/S5:

Regarding the sensitivity scenarios analyzed:

a. Please provide a program by program and measure by measure build-up (including annual savings, measure life, net to gross assumptions, and participation level by program and measure), in Excel spreadsheet form (with formulas intact), showing how the different budget levels and different CCM savings levels were achieved for each year from 2016 through 2018.

b. If not included in the spreadsheet referenced in "a" above, please provide the NPV of TRC benefits, TRC costs and TRC net benefits achieved for each scenario. In providing such estimates, please identify which programs – if any – the Company did not subject to TRC screening.

c. Would the Company agree that net to gross ratios are at least significantly a function of or affected by program design, including financial incentive levels? If not, why not? If so, when developing sensitivity scenarios, did the Company adjust program and/or measure net to gross ratios? If not why not?

RESPONSE

a) Enbridge did not develop its DSM budgets, targets, or scenario analyses based upon a specific measure by measure build up. Rather, Enbridge used a combination of past results, exhibited trends in achievement, knowledge of and experience in the market, the DSM Potential Study, the Ontario Energy Board's (the "Board") guidance in the DSM Framework, and other inputs as appropriate to propose offer-level targets which it found to be highly challenging, but achievable at the 100% target level. For a breakdown of Enbridge's Program budg ets please see Exhibit B, Tab 1, Schedule 4, tables 7, 14 and 21. For a more granular analysis of the Enbridge's Cumulative Cubic Meter ("CCM") targets please see responses to GEC Interrogatory #16 at Exhibit I.T2.EGDI.GEC.16. For more information on how the sensitivity analysis scenarios were built see GEC Interrogatory #42 at Exhibit I.T2.EGDI.GEC.42.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

b) Enbridge did not generate Total Resource Cost ("TRC") values for each of the scenarios developed and provided in Exhibit B, Tab 1, Schedule 5. On page 12 of the DSM Framework the Board stated that

> "…DSM target sensitivity analysis, which shows the relation of various natural gas savings levels at differing budget amounts, will be helpful in reviewing and assessing the overall multi-year DSM plans proposed by the gas utilities and [the Board] expects this information to be included in the multi-year plan."

Enbridge has proposed for the Board's consideration an innovative and holistic DSM Plan, which it believes is highly responsive to the DSM Framework. In response to the Board's direction outlined above Enbridge made modifications to its proposed budgets and targets which generated alternative natural gas saving possibilities at a high level. Enbridge did not effectively develop 4 separate DSM Plans inclusive of customized inputs or program design elements.

In specific response to the last sentence of b) above, Enbridge did not subject Low Income New Construction, or any Market Transformation and Energy Management ("MTEM") offer to Total Resource Costs Plus ("TRC-Plus") or PACT screening.

c) Enbridge agrees, as a general comment, that net to gross ratios are likely impacted by program design. As noted above, Enbridge did not modify program design elements in developing its target sensitivity analyses, which were generated as a specific outcome to a specific request from the Board in its DSM Framework and Filing Guidelines.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

GEC INTERROGATORY #31

INTERROGATORY

Reference: Exh. B/T3/S5:

The Ontario government has indicated that it favours a cap and trade carbon pricing mechanism and that it will direct a portion of revenues from the sale of emission permits toward efficiency improvement. Should the government apply carbon cap and trade revenues toward energy efficiency, what mechanism does the company propose to consider amendments to the plan's energy savings targets and budgets if the government's mechanism initiation does not happen to align with the three year review?

RESPONSE

Without greater detail on the Ontario government's recent decision to participate in a Cap and Trade system pursuant to Western Climate Initiative guidelines, it would be premature to speculate on alignment between Enbridge's savings targets or budgets and the timing, breadth or scope of this initiative. As it stands, the current cycle for Cap and Trade compliance under the Western Climate Initiative expires on December 31, 2017. At the outset, this would not be totally incongruent with the timing of the proposed mid-term review of Enbridge's DSM Plan (to be completed by June 1, 2018, per EB-2014-0134).

Witnesses: F. Oliver-Glasford
B. Ott

GEC INTERROGATORY #39

INTERROGATORY

Topic 2 - DSM Targets

Reference C/T1/S1 Conservation Potential Study

Please provide the spreadsheet Appendix C with Measure costs and savings inputs to the study.

RESPONSE

Enbridge has provided the requested Appendix in excel format as an attachment to this response directly to GEC via email, copying the Board. Should any other interested party wish to receive this document the Company requests they contact Enbridge directly.

Witnesses: S. Mills
B. Ott
C. Welch

GEC INTERROGATORY #40

INTERROGATORY

Topic 2 - DSM Targets

Reference C/T1/S1 Conservation Potential Study

a) Please provide the detailed study outputs spreadsheet circulated January 15th to intervenors, and referred to at C/T1/S2, p.36.

GEC wants to understand better the OUTPUTS spreadsheet. Please confirm that the example below properly describes the model output.

On Base Case row 38 (Commercial ERV/HRVs in discretionary retrofit) column AX shows 2.9 million m3 as the Technical Potential in 2015 - that is if all of the ERVs/HRVs in the market were replaced in 2015 with an efficient unit. Column BH with the same number shows all of these savings pass TRC and are economic. Column CB shows 94,430 m3 of "annual incremental achievable potential". Similar numbers follow for the next 9 years. Does this mean the model is assuming that roughly 3% of the economic potential is achievable in each year?

b) Is that reading the model output correctly? If not, please explain.

Column B indicates the study treated Commercial ERVs/HRVs as a discretionary retrofit measure and assumes a 15 year measure life. If they turn over in 15 years this suggests almost 7% of the units in the market are being replaced each year.

c) Why was this opportunity not evaluated as a "replace on burnout" program opportunity?

d) Does Enbridge now promote Commercial HRV/ERV replacements as a discretionary retrofit (early retirement) or as a replacement at end of life?

Witnesses: R. Kennedy
F. Oliver-Glasford
B. Ott
C. Welch

RESPONSE

a) Enbridge has provided the requested spreadsheet as an attachment to this response directly to GEC via email, copying the Board. Should any other interested party wish to receive this document the Company requests they contact Enbridge directly.

b) GEC has interpreted the results correctly. Table 11 includes the technical and achievable potential and shows cumulative first-year and annual incremental achievable potential as a percentage of the technical potential for the Base Case scenario. On average, annual incremental achievable potential is 3.4% of the technical potential. With a 15-year measure life, 6.7% of the technical potential is in need of replacement every year. Thus, if Navigant had represented the technology as a replace-on-burnout measure, the model results correspond to about a 50% adoption rate for efficient technologies.

Table 1. Select Base Case Results for Commercial ERV/HRV

	Cumulative Technical	Cumulative Achievable	Increm. Annual Achievable	Cumul. Achiev. as % of Technical	Increm. Achiev. as % of Technical
2015	2,986,213	94,430	94,430	3.16%	3.16%
2016	2,971,282	190,230	95,799	6.40%	3.22%
2017	2,956,425	286,648	96,418	9.70%	3.26%
2018	2,941,643	385,927	99,279	13.12%	3.37%
2019	2,926,935	486,858	100,931	16.63%	3.45%
2020	2,912,300	588,550	101,691	20.21%	3.49%
2021	2,897,739	690,238	101,688	23.82%	3.51%
2022	2,883,250	791,696	101,458	27.46%	3.52%
2023	2,868,834	892,392	100,696	31.11%	3.51%
2024	2,854,490	992,046	99,653	34.75%	3.49%

Source: Navigant

c) These measures were characterized to be consistent with the OEB list of approved measures as referenced in the report. For the commercial market, the approved decision types for Energy Recovery Ventilation are for new construction or for retrofit installations.

Witnesses: R. Kennedy
F. Oliver-Glasford
B. Ott
C. Welch

d) Enbridge does not differentiate between retrofit and replacement as per the terminology used in the question above. The promotion of HRV/ERV's, as is the case for all prescriptive and custom projects, is done broadly within the commercial market. There are multiple strategies employed to reach customers, business partners, associations and industry events to promote the adoption of energy efficiency. There are no barriers to participating in the prescriptive offer based on the categorization used above for replacement or retrofit in the case of HRV/ERV's.

Witnesses: R. Kennedy
F. Oliver-Glasford
B. Ott
C. Welch

GEC INTERROGATORY #41

INTERROGATORY

Topic 2 - DSM Targets

Reference C/T1/S1 Conservation Potential

Apart from the Conservation Potential Study, please provide copies of all research efforts, whether completed in-house or externally, characterizing DSM measure savings or other screening inputs or DSM market information such as market size and share.

RESPONSE

Given the breadth of the above request, best efforts have been made to collect as many reports as possible. While the information gathered has served to inform the Company's thinking and general direction with regard to program design, evaluation and marketing, Enbridge does not specifically endorse any particular portion of this information, nor has the Company attempted to tie any one study directly to any part of its proposed DSM Plan.

The Company has assembled 122 reports which total nearly 10,000 pages in aggregate in response to GEC's request. Given the voluminous nature of this response Enbridge does not wish to burden the public record of this proceeding with such a large quantity of content which may or may not prove relevant. Aside from mere logistics, the Company is also concerned that within the 10,000 pages assembled, which Enbridge staff have not reasonably had the chance to examine freshly and in full within the context of this proceeding, customer information could be contained in the form of case studies or other formats. For these reasons the Company invites GEC and other interested parties to request these documents directly from Enbridge, subject to claims of confidentiality. Should parties wish to introduce portions of the assembled reports on the public record in this proceeding they would be invited to do so provided that matters of confidentiality are properly considered and addressed prior to the introduction of said evidence.

Witnesses: S. Mills
F. Oliver-Glasford
B. Ott
R. Sigurdson

SEC INTERROGATORY #5

INTERROGATORY

Topic 2 - DSM Targets

Reference: Ex. B/1/3, p. 6

With respect to the proposed 2015 Resource Acquisition scorecard:

a. Please confirm that Enbridge does not expect to be able to achieve the lower bound for lifetime cubic meters. Please advise where Enbridge is on that metric as of May 31, 2015. Please provide Enbridge's current estimate of its 2015 full year achievement on that metric.

b. Please advise the date in 2015 in which Enbridge has already passed the upper bound for participants in residential deep savings. Please provide Enbridge's current estimate of its 2015 full year achievement on that metric.

RESPONSE

a) In combination with the CCM savings from Commercial, Industrial, and Residential programs Enbridge is currently forecasting to slightly surpass the lower bound metric for lifetime cubic meters. As of May 13, 2015 Enbridge had accumulated 66.2 million CCM towards the forecasted goal of 784.2 million CCM in comparison to the lower bound target of 758.9 million CCM.

b) Enbridge surpassed the upper bound target of 952 participants in residential deep savings in February / March 2015. Current projections based on available budget suggest a forecast of 5,100 – 5,200 deep savings participants is achievable.

Witnesses: S. Bertuzzi
M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

VECC INTERROGATORY #2

INTERROGATORY

Topic 2 – DSM Targets

Ref: B-1-1 Page 1

Preamble: Between 1995 and 2013 Enbridge's customers have saved approximately 8.8 billion cubic metres of natural gas.

a) Please provide a table that shows the annual natural gas savings (m3) and annual DSM Program costs ($) for the years 1995 to 2014.

RESPONSE

Please see below a table showing Enbridge's net annual natural gas savings and DSM spending by year from 1995 to 2014. Please note that the calculation of 8.8 billion m^3 includes the impacts of annual savings which persisted over multiple years within the 1995 to 2014 period. Future natural gas savings which have not, but will take place as a result of DSM efforts prior to 2015 have not been represented within the 8.8 billion m^3 figure noted above.

Witnesses: K. Mark
S. Moffat
B. Ott

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Annual Net Savings (million m3)	3.87	18.82	18.60	36.18	52.05	58.86	79.60	78.76	77.54	62.70
DSM Spending (millions)*	$2.17	$2.87	$2.92	$3.57	$6.48	$9.28	$12.29	$10.94	$11.86	$13.06

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Annual Net Savings (million m3)	91.42	89.52	91.92	80.29	74.32	65.65	77.25	60.14	47.74	43.54
DSM Spending (millions)*	$19.20	$19.29	$21.38	$23.03	$25.42	$24.00	$27.24	$30.61	$27.84	$32.51

*Includes program administration and overheads.

**2014 DSM results are subject to audit and Clearance of Accounts proceeding. As a result 2014 DSM results are subject to change.

VECC INTERROGATORY #11

INTERROGATORY

Topic 2 – DSM Targets

Ref: B-1-4 Page 39 Table 27

a) Please provide Enbridge's Natural Gas Savings Goal for 2015 by CCM Contributor.

RESPONSE

Enbridge's response to CCC Interrogatory #11 found at Exhibit I.T2.EGDI.CCC.11 outlines the percentages by which the Company escalated its 2014 targets to create 2015 targets in alignment with the Board's direction in section 15.1 of the DSM Framework. Enbridge's achievement is measured at the scorecard level, with Cumulative Cubic Meter ("CCM") results falling into three buckets in 2015; Resource Acquisition, Low Income: Multi-Residential and Low Income: Single Family. These values are outlined in Exhibit B, Tab 1, Schedule 3 in Tables 3 and 5.

Witnesses: M. Lister
K. Mark
F. Oliver-Glasford
B. Ott

BOARD STAFF INTERROGATORY #9

INTERROGATORY

Topic 3 – DSM Budgets

Ref: Exhibit B / Tab 1 / Schedule 3 / pp. 13-16

Preamble:
Enbridge proposed an incremental budget of $4.92 million in 2015 to address the guiding principles and key priorities set out in the DSM Framework.

Questions:

a) Please confirm that Enbridge is not proposing to use the $4.92 million of incremental budget to address the guiding principles and set aside an additional $4.92 million (i.e. the 15% overspend provision) that it can access to pursue the upper band of its targets.

b) Please advise whether Enbridge has started working on the projects listed in Table 10 (Exhibit B / Tab 1 / Schedule 3 / p. 13). If so, please provide the spending to date.

RESPONSE

a) Enbridge is proposing to spend $4.92 million as its 2015 Incremental Budget while maintaining the ability to spend up to an additional $4.92 million to aggressively pursue offers which prove to be very successful; both of which are contemplated in the DSM Filing Guidelines.

The Company's position is informed by section 11.2 of the DSM Filing Guidelines which outlines three provisions enabling access to the DSMVA. The first two provisions establish that the DSMVA may be accessed in the event that the utility has achieved its weighted scorecard target (100%) on a pre-audit basis, provided that additional funds are used to produce results in excess of the 100% weighted scorecard targets. The third provision reads as follows:

> The DSMVA funds were used in 2015 to begin implementing the key priorities outlined in the DSM framework during the transition to the gas utilities' new multi-year DSM plans. This level of funding is incremental to any DSMVA amounts used in relation to (A) or (B) above after 100% of weighted scorecard targets are met.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

It is clear to Enbridge that the funds made available for the 2015 Incremental Budget are separate and incremental to any other DSMVA funds that may, or may not, be spent in pursuit of DSM results beyond the 100% target of a weighted scorecard.

b) Enbridge has commenced work on many of its 2015 Incremental Budget items, incurring costs for some, but not all, of these initiatives. Please see below a table outlining spending within the 2015 Incremental Budget as of June 2, 2015 with commentary where appropriate:

Budget Item	Estimated Cost	Spending as of June 2nd	Comments
My Home Health Record Residential Behaviour Program (Opower)	$2,650,000	$25,000	Majority of costs relate to home energy reports to be deployed in latter half of 2015.
Integrated Resource Planning (IRP) Study	$300,000	$0	As outlined in Exhibit C, Tab 1, Schedule 1, Enbridge intends to select a successful consultant toward the end of 2015.
Potential Study Update	$50,000	$0	Pending developments in the Board and IESO's Potential Study Working Group.
Green Button Initiative	$300,000	$0	Pending developments in the Green Button Working Group as outlined in Exhibit B, Tab 4, Schedule 4.
Comprehensive Energy Management	$370,000	$54,000	
Low Income New Construction	$250,000	$0	The Company has made commitments to spend approximately $25,000 for initial setup costs. Enbridge is in discussion with a participant for 2015, with an expected cost implication of approximately $50,000.
Collaboration and Innovation Fund	$1,000,000	$20,000	Enbridge is in many conversations with LDC's regarding pilot activities as outlined in Exhibit B, Tab 4, Schedules 1 and 2. The Company's discussions to date could drive upwards of $250,000 in 2015 spending through the CIF.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

BOARD STAFF INTERROGATORY #10

INTERROGATORY

Topic 3 – DSM Budgets

Ref: Exhibit B / Tab 1 / Schedule 4

Question:

a) Please file a table that provides Enbridge's budget, by program, for each year over the 2012 to 2020 period.

Response

Below please find a table showing Enbridge's DSM budget by program from 2012 to 2020.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

Program	2012	2013	2014	2015	2016	2017	2018	2019	2020
Resource Acquisition	$19,051,400	$18,410,953	$18,799,289	$19,175,275	$34,631,993	$40,101,520	$45,050,090	$45,962,966	$46,894,100
Low Income	$7,025,000	$7,160,375	$7,237,331	$7,382,078	$11,895,411	$12,469,998	$13,252,254	$13,519,903	$13,792,905
Market Transformation (& MTEM)	$4,833,600	$6,016,872	$6,122,144	$6,244,587	$13,508,323	$17,055,364	$17,177,787	$17,521,695	$17,872,481
Collaboration & Innovation Fund					*$1,000,000*	*$1,000,000*	*$1,000,000*	*$1,021,616*	*$1,043,663*
2015 Incremental Budget				*$4,920,291*					

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

BOARD STAFF INTERROGATORY #11

INTERROGATORY

Topic 3 – DSM Budgets

Ref: Exhibit B / Tab 1 / Schedule 3 / p. 5
Exhibit B / Tab 1 / Schedule 4 / pp. 3-5
Exhibit B / Tab 1 / Schedule 5 / pp. 1-2

Preamble:

Enbridge's proposed 2015 low-income budget is $7.4 million (which represents 23% of the total budget). In 2016, the low-income budget decreases to 20% of the total budget and for the 2017 to 2020 period it falls to about 18% of the total budget.

Enbridge, in its sensitivity analysis, noted that the entire low-income program is scalable. However, the correlation between budgets and targets may not be linear.

Questions:

a) Please specify the 2014 low-income budget in aggregate and as a percentage of the total 2014 budget.

b) Please provide rationale for decreasing the proportional allocation of the overall DSM budget to Low-Income programs (over the 2015-2020 period) given the OEB's key priority to expand the Low-Income program offerings across the province.

c) Please estimate the changes to the targeted savings on the 2016 Low-Income Scorecard if the proposed Low-Income budget was increased to represent 25%, 30%, or 40% of the total program budget.

RESPONSE

a) Enbridge's total 2014 Low Income budget, inclusive of overheads, was $7,237,331. This represented 23% of the Company's total 2014 DSM budget.[1]

b) In the Company's view an analysis of the proportion of the total DSM budget dedicated to Low Income over the Multi-Year DSM Plan is somewhat misleading, in that it may imply a declining commitment to this important sector. The Company will be increasing its Low Income budgets from $7.4 million to $11.9 million from 2015 to 2016, eventually bringing the total Low Income budget to nearly double what it is in 2015 by the end of the Multi-Year Plan. Enbridge's commitment is further demonstrated by its proposal for a brand new Low Income new construction offer to further aid this sector in energy efficiency. Enbridge has also proposed annual funding for energy literacy beginning in 2017. It is envisioned that a substantial portion of this budget may be dedicated to multi-lingual or other campaigns which in particular emphasize engagement with Low Income consumers. Finally, the proportion of low income budget to the total budget also reflects other Board priorities. In particular, the proposed budgets reflect a large increase in DSM activity geared to the residential sector. In short, Enbridge's ramp up of its overall DSM budget in response to the Ontario Energy Board's guiding principles and key priorities results in a declining portion of the total budget being dedicated to Low Income, but this is not indicative of a declining commitment to this essential customer segment.

c) Please see below an illustrative sensitivity analysis which the Company has prepared in response to c) above.

[1] EB-2012-0394, Exhibit B, Tab 1, Schedule 2, p.3, Table 3

2016 Low Income Scorecard Target Scenarios [1]								
Low Income Offer	**Original 2016 Low Income Budget**	**LI Budget accounts for 25% of Portfolio Budget**	**LI Budget accounts for 30% of Portfolio Budget**	**LI Budget accounts for 40% of Portfolio Budget**	**Original 2016 CCM Targets**	**CCM Targets at 25% Portfolio Budget Level**	**CCM Targets at 30% Portfolio Budget Level**	**CCM Targets at 40% Portfolio Budget Level**
New Construction	$1,116,697	$1,650,982	$1,981,179	$2,641,572	5	7	9	12
Multi-Family Homes - Part 3	$3,279,028	$4,847,885	$5,817,462	$7,756,616	58,969,452	68,644,338	80,081,710	93,790,474
Single Family Homes - Part 9	$5,756,064	$8,510,064	$10,212,077	$13,616,103	28,892,118	33,632,335	39,236,082	45,952,699
TOTAL	**$10,151,789**	**$15,008,932**	**$18,010,718**	**$24,014,291**	**87,861,570**	**102,276,673**	**119,317,793**	**139,743,173**

1. Low Income budget scenarios based on a total 2016 portfolio budget of $60,035,727, which includes total program costs and overheads, but excludes Incremental costs of evaluation, the collaboration and innovation fund, and the DSM IT chargeback.

BOARD STAFF INTERROGATORY #12

INTERROGATORY

Topic 3 – DSM Budgets

Ref: EB-2014-0134 / Report of the Board / Section 6.2
Exhibit B / Tab 2 / Schedule 4 / pp. 1-14

Preamble:

The DSM Framework noted that the gas utilities can propose fee-for-service DSM programs to large volume customers.

Questions:

a) Please explain why Enbridge decided not to offer a fee-for-service DSM program to its large volume customers (Rate 125).

b) Please explain why any portion of the DSM budget (exclusive of the low-income related amounts) is allocated to customers in Rate 125 and Rate 200 (during the 2015-2020 period).

RESPONSE

a) Enbridge did not see a need or demand in the market at this time. To the degree that Enbridge contemplates working with these customers in the future, the Company believes that the utility's role should focus on providing technical support and enabling entities in the market. If customers in Rate 125 expressed an interest in Enbridge offering a fee-for-service offer, the Company would pursue those discussions.

b) There are no DSM budget amounts allocated to Rates 125 and 200 other than those related to Low Income amounts. The second and third columns in Tables 1, 3, 5, 7, 9 and 11 currently read "DSM Budget less Low Income" and "Low Income Budget" respectively. In retrospect these titles are misleading in that the "Low Income Budget" is inclusive of program spending only and does not account for Low Income overheads. These overhead costs are included in the second column titled "DSM Budget less Low Income" of the above noted tables and are the reason that Rates 125 and 200 have DSM costs allocated to them for the 2015 to 2020 period. So in summary, the column entitled "DSM Budget less Low Income" should be best understood to express "DSM Budget less Low Income Program Spend".

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

BOARD STAFF INTERROGATORY #13

INTERROGATORY

Topic 3 – DSM Budgets

Ref: Exhibit B / Tab 1 / Schedule 3 / p. 5
Exhibit B / Tab 2 / Schedule 2 / p. 5

Preamble:
Enbridge set out its estimated process and impact evaluation budget for the 2016 to 2020 period at Exhibit B / Tab 2 / Schedule 2 / p. 5.

Questions:

a) Please provide the total proposed evaluation budget for the 2015 program year.

b) Please advise how Enbridge proposes to handle changes to the evaluation budget (for the 2015-2020 period) if the OEB orders a different approach (than is anticipated) for evaluation and audit.

RESPONSE

a) As per EB-2015-0049 Enbridge's 2015 DSM budget under the 2015 Rollover is based upon the Board's direction in Section 15.1 of the DSM Framework which provides that for 2015, Enbridge is to generate a budget "…in the same manner as they have done throughout the current DSM Framework." For the purposes of the 2013 DSM Update which the Company filed with the Board for the years 2013 and 2014 (EB-2012-0394) and which was the subject of a complete settlement and acceptance by the Board, a 2% GDP-IPI figure was used to update the budget in both years. Accordingly, the Company has derived its 2015 Evaluation budget by increasing its 2014 Evaluation budget of $915,697 by 2%. Therefore the 2015 Evaluation budget is $934,011.

b) The Evaluation budget and related resourcing may need to be re-visited once the Board's governance structure is issued.

Witnesses: R. Idenouye
S. Moffat
B. Ott
K. Mark
F. Oliver-Glasford
R. Sigurdson

BOMA INTERROGATORY #1

INTERROGATORY

Topic 3 – DSM Budgets

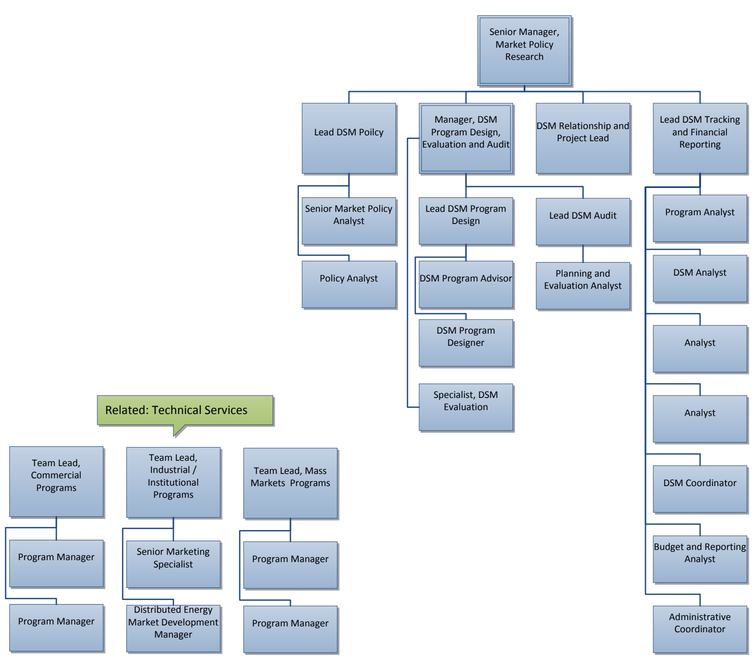
Ref: No Reference

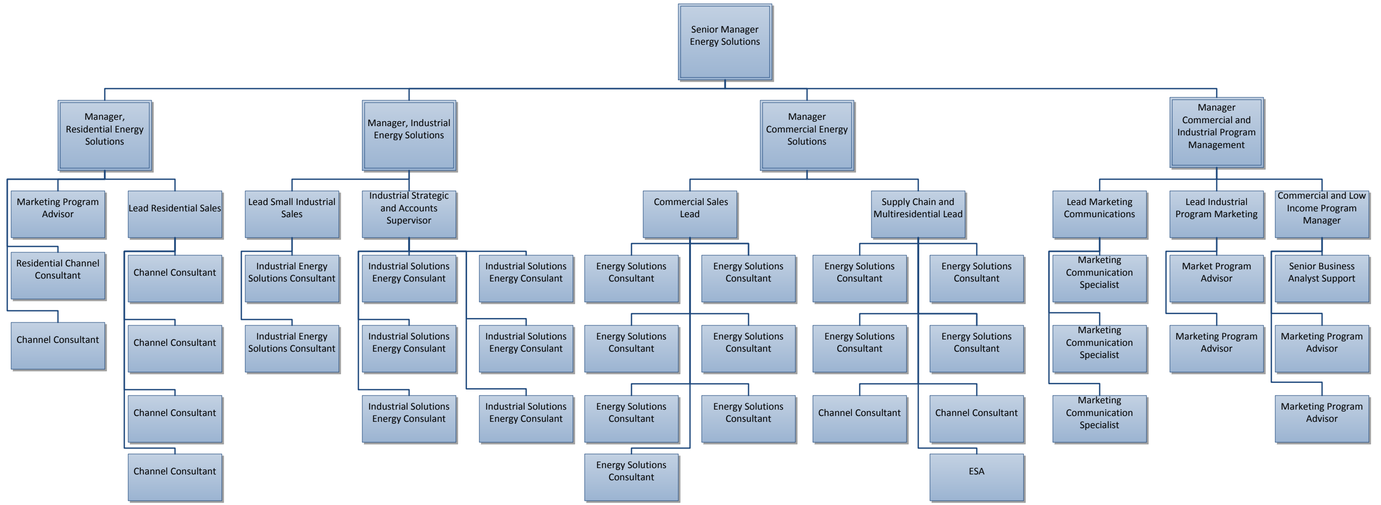
Please provide an organizational chart with titles for the unit(s) responsible for the all functions association with Demand Side Management (DSM) at Enbridge including but not limited to: research, pre-program screening and evaluation, program design, program delivery, marketing, customer sales and service, technical services, post program audit and evaluation, as well as the units responsible for planning future gas utility infrastructure.

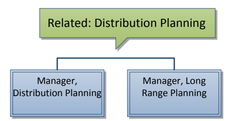
RESPONSE

Please see the attached organizational chart with position titles for the units responsible for functions associated with DSM.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott


Senior Manager, Market Policy Research
Lead DSM Poilcy
Manager, DSM Program Design, Evaluation and Audit
DSM Relationship and Project Lead
Lead DSM Tracking and Financial Reporting
Senior Market Policy Analyst
Policy Analyst
Lead DSM Program Design
DSM Program Advisor
DSM Program Designer
Specialist, DSM Evaluation
Lead DSM Audit
Planning and Evaluation Analyst
Program Analyst
DSM Analyst
Analyst
Analyst
DSM Coordinator
Budget and Reporting Analyst
Administrative Coordinator
Related: Technical Services
Team Lead, Commercial Programs
Team Lead, Industrial / Institutional Programs
Team Lead, Mass Markets Programs
Program Manager
Program Manager
Senior Marketing Specialist
Distributed Energy Market Development Manager
Program Manager
Program Manager


Senior Manager Energy Solutions
Manager, Residential Energy Solutions
Manager, Industrial Energy Solutions
Manager Commercial Energy Solutions
Manager Commercial and Industrial Program Management
Marketing Program Advisor
Residential Channel Consultant
Channel Consultant
Lead Residential Sales
Channel Consultant
Channel Consultant
Channel Consultant
Channel Consultant
Lead Small Industrial Sales
Industrial Energy Solutions Consultant
Industrial Energy Solutions Consultant
Industrial Strategic and Accounts Supervisor
Industrial Solutions Energy Consulant
Industrial Solutions Energy Consulant
Industrial Solutions Energy Consulant
Industrial Solutions Energy Consulant
Industrial Solutions Energy Consulant
Industrial Solutions Energy Consulant
Commercial Sales Lead
Energy Solutions Consultant
Energy Solutions Consultant
Energy Solutions Consultant
Energy Solutions Consultant
Energy Solutions Consultant
Energy Solutions Consultant
Supply Chain and Multiresidential Lead
Energy Solutions Consultant
Energy Solutions Consultant
Energy Solutions Consultant
Channel Consultant
Channel Consultant
ESA
Lead Marketing Communications
Marketing Communication Specialist
Marketing Communication Specialist
Marketing Communication Specialist
Lead Industrial Program Marketing
Market Program Advisor
Marketing Program Advisor
Commercial and Low Income Program Manager
Senior Business Analyst Support
Marketing Program Advisor
Marketing Program Advisor


Related: Distribution Planning
Manager, Distribution Planning
Manager, Long Range Planning

BOMA INTERROGATORY #2

INTERROGATORY

Topic 3 - DSM Budgets

Ref: No reference

Please provide a description of the interrelationships of the function listed in IR 1 including an outline of where the responsibilities for setting and achieving the company's DSM targets reside.

RESPONSE:

Almost all of the main areas within DSM including Program Management, Tracking and Reporting, EMV, Policy, Sales, Technical Support and Business Intelligence, are involved in the setting of targets for DSM. Primary in setting targets are the sector leads, in close coordination with policy, tracking and reporting, and with advice from the evaluation and audit team. The accountability to achieve the targets on an operational, day-to-day basis resides with the Energy Solutions team (i.e., the Program Management and Sales Departments).

As Enbridge moves forward, the Company expects to have more frequent interaction with supply planning, indicated by the two roles identified in the bottom right corner of the Organizational Structure shown in BOMA Interrogatory #1, filed as Exhibit I.T3.EGDI.BOMA.1.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

BOMA INTERROGATORY #5

INTERROGATORY

Topic 3 – DSM Budgets

Ref: Exhibit B, Tab 1, Schedule 2, page 7 of 26.

Please provide an estimate of the savings and budget had the Board's DSM Framework allowed for a $3.00 per month impact for a typical residential customer.

RESPONSE

Enbridge has provided an illustrative scenario of what its DSM budgets and targets could have been had the Board called for a monthly bill impact of DSM of approximately $3.00 for a typical residential customer. For clarity, had the Board specified $3.00 per month as the appropriate impact of DSM costs for a typical residential customer Enbridge would not necessarily have submitted budgets which realized customer impacts of $3.00 per month. Rather, the Company believes that the Multi-Year Plan it has submitted provides an appropriate balance of DSM costs and benefits.

Illustrative DSM Budgets and Targets with Approximate $3.00/mo Residential Bill Impact Limit		
Year	**Budget ($ millions)**	**Cumulative Cubic Metres**
2015	**$37,722,230**	**774,359,281**
2016	**$78,113,708**	**1,126,063,341**
2017	**$92,042,882**	**1,248,819,895**
2018	**$101,280,131**	**1,351,881,769**
2019	**$103,305,733**	**1,417,187,174**
2020	**$105,371,848**	**1,444,423,122**
2020 Natural Gas Savings Goal (m^3)		**7,362,734,582**

Witnesses: M. Lister
K. Mark
F. Oliver-Glasford

BOMA INTERROGATORY #11

INTERROGATORY

Topic 3 – DSM Budgets

Ref: Exhibit B, Tab 1, Schedule 3, page 4 of 19.

Given that Enbridge's 2012 update for 2014 and 2015 (EB-2012-0394) had already included an escalation for an anticipated increase in DSM budgets arising from the province's Long Term Energy Plan (LTEP), why did Enbridge include an additional escalation for 2015. Please provide a table illustrating the base budget for 2015, separating the embedded escalation in EB-2012-0394, from the escalation resulting from the guidelines as well as the incremental budget for new initiatives for the DSM Budget and the Shareholder Incentives for 2012, 2013, 2014 and 2015. Please confirm that Enbridge added the 15% suggested in the DSM Framework, to the previously escalated budget for 2015. Please confirm if Enbridge is also assuming that the allowed +15% variance continues.

RESPONSE

Enbridge 2013 DSM Update application (EB-2012-0394) established the financial package, namely budgets, targets and shareholder incentives, for 2013 and 2014. EB-2012-0394 did not contemplate 2015 budgets or targets. Subsequent to EB-2012-0394 section 15.1 of the Board's 2015-2020 DSM Framework called on the gas utilities to roll-forward their 2014 DSM Plans into 2015 and to,

> …increase their budgets, targets and shareholder incentive amounts in the same manner as they have done throughout the current DSM framework (i.e. 2013 updates to 2014 should now apply as 2014 updates to 2015).

In escalating Enbridge's DSM budget from 2013 to 2014 in EB-2012-0394 the Board specifically approved the use a GDP-IPI escalation factor of 2%, noting that this value would be used regardless of actual inflation rates ultimately realized in future years.[1] In keeping with the Board's direction in the new DSM Framework, Enbridge applied a 2% escalation to its 2014 budget of $32.16 million to establish a 2015 DSM budget of $32.80 million.

[1] EB-2012-0394, Exhibit B, Tab 2, Schedule 9, page 8

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

Section 15.1 of the DSM Framework also invited the natural gas utilities to,

> …increase overall spending by up to 15%...and use these additional funds to begin to incorporate and address the guiding principles and key priorities outlined in the DSM Framework.

In light of the Board's new principles and priorities, and in recognition that the utilities must be proactive in order to responsibly increase their budgets in response to the Minister's March 31, 2014 Directive to enable all cost-effective DSM, Enbridge has proposed the use of the entire 15% increase provided for under section 15.1 of the DSM Framework (i.e., $4.92 million).

As requested, the table below outlines all of the above referenced figures.

2014 DSM Budget	$32,158,764
2% Escalation	$643,175
Base 2015 DSM Budget	$32,801,939
2015 Incremental Budget	$4,920,291
Total 2015 DSM Budget	**$37,722,230**

As an aside to the above noted figures, in its 2015 rates application Enbridge noted that the Minister's March 31, 2014 Directive and the Draft DSM Framework and Filing Guidelines all indicated that DSM budgets in 2015 and beyond were likely to exceed DSM budgets of past years. In response to this likelihood and in the interest of stable rate-making the Company proposed the inclusion of $35 million in 2015 rates as a placeholder to account for the DSM budget.[2] Subsequent to this submission the DSM Framework made available a 2015 Incremental Budget of $4.92 million, indicating that the Company's pre-emptive proposal for 2015 rates was prudent.

Finally, yes, Enbridge confirms that the 15% available (if applicable) through the Demand Side Variance Account) continues, over and above the "Incremental Budget" discussed above. For more on this, please also see the response to Board Staff Interrogatory #9 found at Exhibit I.T3.EGDI.STAFF.9.

[2] EB-2014-0276, Exhibit D1, Tab 4, Schedule 1, page 2

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

BOMA INTERROGATORY #20

INTERROGATORY

Topic 3 – DSM Budgets

Ref: Exhibit B, Tab 1, Schedule 6, page 9 of 9.

> *"...the replacement of the DSM IT systems is necessitated by the demands and rigours of the DSM Framework and the resulting significant expansion of the Company's DSM activities..."*

Please describe the planned features and benefits of the new DSM IT system and provide the business case to support the expenditure.

RESPONSE

Please see the attached document "Project Plan - DSM IT Solution for the Multi-Year Plan" which explains the need for this system and its principle features and benefits.

Witnesses: S. McGill
E. Reimer
P. Tharmalingam

Filed: 2015-06-23
EB-2015-0049
Exhibit I.T3.EGDI.BOMA.20
Attachment
Page 1 of 7

Project Plan
DSM IT Solution for the Multi-Year Plan
Created By: Business Intelligence
June 23, 2015

Summary

The Information technology and tools utilized by Enbridge DSM serve several purposes that further conservation and benefit customers. The tool performs a relationship management function, a program development and delivery function and a tracking, reporting and verification function. The two main current applications (SRM and DARTS), were designed and built to meet the Company's business requirements over five years ago when the DSM business was largely built on a Resource Acquisition platform. Since their implementation, the main applications have been heavily customized and supplemented with shadow systems and manual workarounds to fit innovative and changing business needs. These challenges call increasingly on nimble systems in support of flexible approaches to conservation in a business that has undergone three framework changes since major DSM IT system decisions were last made. The Company has undertaken a review of its DSM IT infrastructure to determine if it is practical and cost effective to update and enhance them as well as a Request for Information ("RFI") process to investigate potential replacement solutions and high level costs.

The OEB's Demand Side Management Framework for Natural Gas Distributors (2015-2020) issued in December 2014 (the "new DSM Framework") requires fundamental changes in the types and variety of DSM programs that Enbridge will pursue in the future. This will result in material changes in both the nature and scope of the Company's conservation programs. The Company's IT systems are essential to the efficient and effective delivery of these programs. Internal reviews of the existing DSM IT applications have identified issues with their stability and practicality.

Current State

Challenges and limitations of current applications are as follows;

1. A large number of DSM business processes are performed outside the core DSM systems, within a large number of informal systems. Due to the limitation of existing systems to handle complex processes, the business relies upon many ad-hoc (mostly Excel based) tools to meet its needs and this has resulted in:
    a. Stranded information
    b. Large number of physical project files and documentation
    c. Duplicate systems of record
    d. A high reliance on manual processes

2. Inability of the applications to enable business to utilize multiple sales channels and explore new ways to extend the reach and increase DSM impact. Current technology utilized by DSM doesn't allow for advanced lead creations, third party information sharing and campaign management.

This leads to missed opportunities and limits the utility's ability to reach a wider customer base (e.g. small commercial, small industrial and residential sectors).

3. Inflexibility of core systems to change and scale up to meet evolving needs, particularly in sectors like residential, small commercial and small industrial.

4. The existing systems are outdated and need to be upgraded with significant effort and resources in order to meet Canadian Anti-SPAM Legislation ("CASL"), Privacy and other IT security standards and policies.

5. The current SRM System is currently not compatible with existing Company non-DSM IT systems. Upgrading SRM to operate with its limitations beyond 2016 is cost prohibitive.

Activity	Total $ (Approx.)
Overdue Point Upgrade	$1.0M
Upgrade to Current Internet Explorer	$800k
Integration with MS Outlook	$600k
TOTAL	**$2.4M***

*High level estimates based on preliminary analysis.

The current IT systems that support the Company's DSM business functions are not capable of meeting the requirements of the OEB's new DSM Framework without a considerable investment in the upgrading and enhancement of these systems. The extent to which manual workarounds and ad hoc data gathering and reporting tools will be required to meet the new Framework's objectives will be extensive, costly and limit the Company's ability to meet these objectives.

Future State

In order to prepare for the new DSM Framework, the company has undertaken a process to identify and document current and future DSM IT System requirements resulting from the implementation of this framework. This work has highlighted the critical and urgent need to upgrade or replace the Company's current DSM IT Systems. It was recognized that minor enhancements and further customization of the existing DSM applications would prove inadequate to support Enbridge's DSM requirements moving forward.

Requirements of the new DSM Framework and the limitations and challenges of current systems are the driving forces behind the need to replace the current DSM Systems as explained below;

1. The Company anticipates a significant increase in the number of DSM programs, projects and program participants. The Company's current technology has been determined to be insufficient to meet the needs of the business. During the RFI process it became evident that current and future needs of the Company's DSM programs will require a significant step change that takes advantage of IT technologies now available that are built specifically for energy conservation program management.

2. In order to meet the requirements of the new DSM Framework, the Company will need the capability to identify and reach segments of the market that have not participated in conservation programs in the past. To do this will require technology that will enable advance lead creation and campaign management functionalities. Technologies currently in use are aging with limited support as they reach the end of their lifecycle and their ability to meet business requirements are severely limited.

3. New requirements, rules and calculations around conservation measures such as TRC Plus, Enhanced PAC, multi-year budget and savings calculations cannot be readily achieved through the use of the DSM IT systems now used by the Company.

4. As IESO/LDC system upgrade decisions are made with respect to DSM/CDM collaboration and the Company's new DSM IT System starts to take shape, it is a desired outcome that we have the capability to exchange data with the IESO and LDC's and other third parties to build complete energy consumption profiles for customer segments. Current systems utilized by Enbridge don't have the capacity to meet these needs.

Currently there is limited integration between the Company's various DSM related systems. This results in significant manual effort to reconcile data across multiple sources. Not only this is very inefficient but this also leaves opportunity for inconsistencies in reporting. As the Board proposes to be more involved in the Evaluation, Monitoring and Verification ("EM&V") process and with an expected increase in stakeholder involvement in the review/ audit process, the new DSM IT System will provide for a significant increase in the detail and frequency of the reports produced. Current systems are not equipped to handle these requirements. In addition to resolving the aforementioned limitations and

issues of the current applications, a future state solution(s) is/are expected to have the following capabilities;

1. A solution that is built on DSM/ Energy conservation platform will provide the necessary fit in terms of the functionalities offered. A solution of this type will also be more easily configurable, flexible, adaptable and scalable to meet changing DSM related business requirements as new programs are rolled out or changes are made to existing programs.

2. An integrated solution that connects various sources of information and provides business the ability to automate data quality/ integrity tests. This not only enables the utility to better identify customer segmentation and market potential but also ensures EM&V process is simplified, efficient and more accurate. As the Board proposes to play a larger role in EM&V process, the utility will be required to provide more and more timely data/ information. The efficiency and the accuracy of meeting these demands will require the capabilities of the new DSM IT System.

3. Ability to support advanced level of analytics and reporting. As the company moves further towards data driven decision making and targeted marketing in order to increase customer participation, it is crucial to have systems that are advanced and integrated and have the ability to handle increased needs in this area. The Company's new DSM IT System will provide for the consolidation of data from multiple sources, advanced and automated reporting, ad hoc querying and a more complete and enhanced view of the customer and the Company's interactions with them.

4. The new DSM IT System will have sufficient flexibility and synergies that will help promote and support DSM/CDM collaboration. Both the Independent Electricity System Operator ("IESO") and Union Gas Ltd. ("Union") are currently undertaking similar IT evaluation exercises and are finalizing plans to implement similar solutions.

5. Enable business to be "technology-ready" to respond to changes in DSM requirements and offer the reliability and performance required to handle large volumes of data and multiple user access. The Company's new DSM IT System will be user-friendly and accessible to increase efficiency and productivity. The system will be able to accommodate the implementation of new or modified DSM programs without major redesign or reprogramming.

6. The Company's new DSM IT System will support compliance with security, privacy, corporate & external governance & control requirements.

The new IT solution will not only enable Enbridge to meet the guidelines of the new DSM Framework but it will also provide several benefits to various stakeholders as summarized below.

1. Utilizing targeted microsites and portals the company can further enhance its ability to educate customers on DSM programs. Customer data can be accessed and used through these portals to determine eligibility and potential of participating in different programs. The proposed future state will potentially enable customers to view the status of their DSM applications, incentives, and participation history.

2. The audit process will be enhanced and made more efficient by integrating the systems that track and report DSM program related data.

3. Automated interfaces, centralized data depository and enhanced analytics will result in significant improvement in data quality and integrity.

4. The Company will be able to enhance the support it provides to business partners and DSM delivery agents. Business partners like builders and energy auditors will be able to streamline the exchange of their DSM-related data with Enbridge through a convenient, secure portal where they can learn more about DSM programs and leverage pre-built calculators and other tools to create leads and follow-up on them.

Conclusion

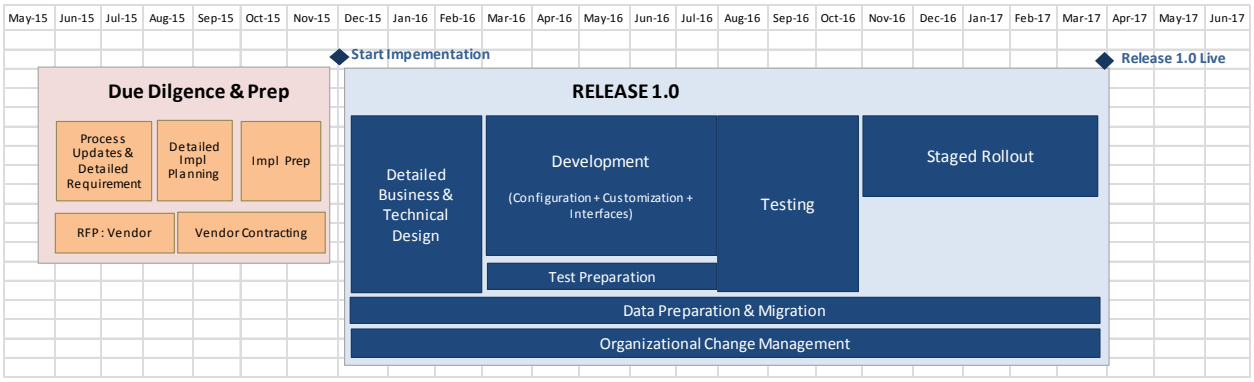
The overall conclusion of the exercise the Company has undertaken to assess the capabilities of its current IT systems used to support its DSM programs is that it would not be practical or cost effective to attempt to update and enhance these systems to the point where they provide required functionalities.

The DSM systems review undertaken by the Company highlights not only the need but also the criticality and urgency of updated technology. As part of the system review, the Company investigated the following solution vendors and their products.

- Nexant Inc.
- Microsoft Dynamics
- Oracle Salescloud
- SalesForce
- Sugar CRM
- Energy Orbit
- ANB Systems
- CGI Technologies
- Energy Platforms
- SAP

Based on the timeline outlined in Chart 1, the Company should begin preparatory activities such as detailed system requirements gathering, design and the and vendor selection (RFP) process in 2015 in order to be in a position to utilize this new technology in early 2017. The proposed plan outlined below balances the multiple facets of a new system implementation, the need to maintain current technology in the interim, resource requirements and the preferred point in the calendar for the implementation of this system.

Chart 1 – Release 1.0 Timeline



Currently, requirements and processes in Table 1 are in scope for the first release with the expected roll-out date of Q1 2017.

Table 1 – In-Scope – Release 1.0

DSM Program Research, Evaluation and Design
DSM Program Marketing
Account, Contact and Interaction Management
DSM Sales - Lead/Opportunity Management & Forecasting
Project Initiation & Program/Project Submission
Participant Validation
DSM Incentive Processing
DSM Tracking & Reporting (cost effectiveness screening and tests)
DSM Evaluation and Verification (support Audit process)
Market Segment Analysis and Prospecting

Detailed system requirements will be identified as the Company progresses through the “due-diligence” phase of Release 1.0. Also, as details of the new DSM Framework are finalized there will be additional functionalities required of the IT systems.

The implementation of Release 1.0 will provide the core platform to enable the Company to move forward with subsequent system releases that capture future business requirements as they become defined.

Table 2 - Out of Scope - Release 1.0

Collaboration Electric LDCs and CDM Programs
Green Button Initiative
Integrated Resource Planning Activities
Financing options such as On-Bill Financing
Fee for Service Model
Pay for Performance Model
Implementation of Behavioral Programs
External Audit Tool

Table 3 shows the high level budget estimate resulting from Enbridge's DSM System investigation for the implementation of Release 1.0. The Company expects to revisit the proposed budget of $5.2 million and the timeline as it embarks on the process of replacing its DSM IT Systems. At present Enbridge does not anticipate a significant increase in DSM O&M expenditures beyond those incurred today as a result of implementing a new system.

Table 3

Activity	Total $ (Approx.)
Due Diligence & Preparation	$600K
Release 1.0	$4.6M
TOTAL	**$5.2M***

* High level estimate. To be confirmed during the "Due-Diligence" phase and pending OEB decision.

Acronyms

CASL	Canadian Anti-Spam Legislation
CDM	Conservation and Demand Management
DARTS	Data Analysis Reporting and Tracking System
EM&V	Evaluation, Monitoring and Verification
LDC	Local Distribution Company
PAC	Participant Administration Cost
SRM	Stakeholder Relationship Management
TRC	Total Resource Cost

BOMA INTERROGATORY #53

INTERROGATORY

Topic 3 – DSM Budgets

Reference Exhibit B, Tab 4, Schedule 1, page 3 of 11. What role do Enbridge's Energy Sales Consultants play in the delivery of the Low Income Program?

RESPONSE

An Enbridge Energy Solutions Consultant ("ESC") is assigned to provide account management services to affordable housing customers.

All ESCs promote the low income program as opportunities arise during their customer and business partner interactions.

Witnesses: R. Kennedy
M. Lister
E. Lontoc

CCC INTERROGATORY #2

INTERROGATORY

Topic 3 - DSM Budgets

Reference: (Ex. B/T1/S1/p. 7)

Please explain how EGD has determined that the rate impact on residential customers of its DSM initiatives will not exceed $2.00 per month. How have the monthly impacts been calculated? Please include all assumptions.

RESPONSE

Enbridge incorporated the Ontario Energy Board's guidance that the total cost of DSM to a typical residential customer should be no greater than "…approximately $2.00/month."[1] into the development of its Multi-Year DSM Plan.

As outlined in Exhibit B, Tab 2, Schedule 4, Enbridge undertook the following analysis, using assumptions as noted, to determine the impact of DSM to the monthly bill of a typical residential customer:

- DSM costs were allocated to Rate 1 based on the offers in market which target or benefit residential customers, in addition to Low Income costs (as determined through LEAP rate allocation) and DSM portfolio costs;
- Enbridge incorporated the DSMI available to the Company at 100% of target achievement in Rate 1, in proportion to rate allocation noted above;
- The Company divided the total DSM costs allocated to Rate 1 by the total throughput forecast for Rate 1 within each year of the Multi-Year DSM Plan to determine an "Average Annual Effective Rate ($/m^3)";
- Enbridge multiplied the Average Annual Effective Rate by the annual consumption of a typical residential customer to determine an average annual bill impact of DSM; and,
- The Company divided the average annual impact of DSM to a residential customer's bill by 12, to determine an average monthly bill impact.

[1] EB-2014-0134 "Report of the Board: Demand Side Management Framework for Natural Gas Distributors (2015-2020)" Dec.22nd, 2014, p.17

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

Table 8 in Exhibit B, Tab 2, Schedule 4, notes that the average monthly bill impact of DSM to a typical residential customer in 2018 is forecast to be $2.13 without adjusting for inflation. If an inflation rate of 1.6% were assumed, this amount would equal $2.04 in present day dollars. In Enbridge's view a delta of $0.04 is within the definition of "approximately" $2 per month.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

CCC INTERROGATORY #4

INTERROGATORY

Topic 3 - DSM Budgets

Reference: (Ex. B/T1/S3/p. 5)

EGD is proposing a budget of $37.3 million for 2015. Please explain what happens if EGD does not spend the money allocated for each program and/or budget category as proposed. If EGD underspends, for example in the category of Residential Resource Acquisition programs, will the money be returned to ratepayers? If EGD underspends it overhead budget does the money get returned to ratepayers? From EGD's perspective what degree of flexibility should be allowed regarding the $37.3 million? Can money be moved among the various categories during 2015? If so, please explain what parameters EGD is proposing with respect to moving budget dollars from category to category (for example from RA to MT, from Residential to Industrial etc.)

RESPONSE

If Enbridge does not spend the money as proposed (and presumed approved) and it achieves greater than 100% total weighted scorecard results, then in conjunction with the application for the DSM Cost-Efficiency Incentive Deferral Account ("DSMCEIDA"), the Company would seek to have any under-spend re-allocated to the 2016 budget.

As with the 2012 to 2014 Framework and Enbridge's position for the 2016 to 2020 Framework, Enbridge believes that budget can be moved with no constraints within scorecard items. That is, budget can and should be flexible within the RA scorecard to achieve the greatest results possible. Regarding the movement of funds between scorecards (i.e., from RA to MT for example), the following reference from pages 14 to 15 of the Board's DSM Filing Guidelines is applicable:

> …if the gas utilities decide to re-allocate funds among existing, approved DSM programs, the gas utilities should inform the Board, as well as their stakeholders, in the event that cumulative fund transfers among Board-approved DSM programs exceed 30% of the approved annual DSM budget for an individual DSM program…This level of guidance is meant to ensure that adequate flexibility in DSM program and portfolio design is maintained, while recognizing that the gas utilities are ultimately responsible and accountable for their actions. This flexibility should ensure that the gas utilities can continuously react to and adapt with current and anticipated market developments.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

CCC INTERROGATORY #5

INTERROGATORY

Topic 3 - DSM Budgets

Reference: (Ex. B/T1/S3/p. 5)

EGD is proposing a budget of $6.6 million for "overheads" in 2015. Please provide a detailed explanation as to what is included in the overhead budget (all components). How was the overhead budget derived? What were the overhead budgets and actual expenditures for each of the years 2010-2014? Are overhead amounts used in screening and evaluation? If not, why not? If so, how are they incorporated? Do overheads decline over time?

RESPONSE

The overhead budget encompasses salaries and portfolio costs. An explanation of the items found in the overhead budget is as follows: Salaries, Employee training and development, Office Supplies, Consulting costs, sponsorships and memberships.

Enbridge's 2013 DSM Update application (EB-2012-0394) established the financial package, namely budgets, targets and shareholder incentives, for 2013 and 2014. Subsequent to EB-2012-0394 section 15.1 of the Board's 2015-2020 DSM Framework called on the gas utilities to roll-forward their 2014 DSM Plans into 2015 and to,

> …increase their budgets, targets and shareholder incentive amounts in the same manner as they have done throughout the current DSM framework (i.e. 2013 updates to 2014 should now apply as 2014 updates to 2015).

In escalating Enbridge's DSM budget from 2013 to 2014 in EB-2012-0394 the Board specifically approved the use a GDP-IPI escalation factor of 2%, noting that this value would be used regardless of actual inflation rates ultimately realized in future years.[1] In keeping with the Board's direction in the new DSM Framework, Enbridge applied a 2% escalation to its 2014 overhead budget of $6.47 million to establish a 2015 DSM overhead budget of $6.6 million.

[1] EB-2012-0394, Exhibit B, Tab 2, Schedule 9, page 8

Witnesses: K. Mark
F. Oliver-Glasford
J. Paris
S. Moffat
B. Ott
R. Sigurdson

Below please find a chart that outlines the budgeted overheads and actual spends for 2010 to 2014:

Overheads Budget				
2010	2011	2012	2013	2014
$ 6,300,000.00	$ 6,078,067.00	$ 5,883,661.00	$ 6,692,218.00	$ 6,773,686.00

Overheads Actuals				
2010	2011	2012	2013	2014
$5,855,520.58	$ 5,988,693.41	$ 5,688,091.65	$ 6,714,021.48	$ 6,470,676.60

Overheads are considered at the Program level of TRC Plus and PAC screening and evaluation, and are not considered at the offer level.

Overheads do not decline over time. The Company anticipates that in conjunction with an increasing number of programs, and work load, overheads will necessarily have to increase in absolute dollar terms.

Witnesses: K. Mark
F. Oliver-Glasford
J. Paris
S. Moffat
B. Ott
R. Sigurdson

CCC INTERROGATORY #6

INTERROGATORY

Topic 3 - DSM Budgets

Reference: (Ex. B/T1/S2/p. 13)

Please provide the amount of the budget for 2015 and beyond that will be allocated to the development on on-bill financing. What rate classes are these amounts allocated to?

RESPONSE

There is no specific budget allocation for on-bill financing. The Company has anticipated using the Collaboration and Innovation fund towards further market research and Stakeholdering.

Witnesses: M. Lister
E. Lontoc
F. Oliver-Glasford
J. Paris

CCC INTERROGATORY #8

INTERROGATORY

Topic 3 - DSM Budgets

Reference: (Ex. B/T1/S3/p. 5)

For 2015 please provide the budget allocations to each rate class. Please include program budgets, overheads, low-income allocations, shareholder incentive amounts (assuming the maximum is paid out), and the incremental $4.920 million.

RESPONSE

Please see response to CME Interrogatory #10 found at Exhibit I.T2.EGDI.CME.10.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

CCC INTERROGATORY #9

INTERROGATORY

Topic 3 - DSM Budgets

Reference: (Ex. B/T1/S3/p. 5)

The Board in its Report capped the shareholder incentive for each utility at $10.45 million. Why is EGD seeking to increase the amount to $11.1 million for 2015?

RESPONSE

Please see response to CME Interrogatory #8 found at Exhibit I.T3.EGDI.CME.8.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

CCC INTERROGATORY #10

INTERROGATORY

Topic 3 - DSM Budgets

Reference: (Ex. B/T1/S3/ p. 4)

Please provide actual expenditures made to date in 2015 in the following categories – program budgets (amounts for each program), overheads, and the activities funded by the proposed incremental budget.

RESPONSE

A current snapshot of expenditures towards programs in 2015 to date is shown on the following page:

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

Program type	Metrics	ACTUAL YTD (in millions)
Resource Acquisition	Commercial	$0.26
	Industrial	$0.35
	Residential	$2.87
	Residential Deep Savings (8%) # of Participants	
Total Resource Acquisition		**$3.49**
Low Income	Single Family Homes CCM (50%) Part9	$0.31
	Multi-Family Homes CCM (45%) Part3	$0.10
	Multi-Family Homes CCM (5%) Part3 - RiR - % with RiR	
Total Low Income		**$0.41**
Market Transformation	Residential New Construction SBD	$0.58
	SBD # Units	
	Commercial New Construction SBD	$0.19
	Residential Label (Home Rating)	$0.01
	Home Rating : # voluntary reports	
Total Market Transformation		**$0.78**
	Sub-total	**$4.69**

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

A current snapshot of expenditures towards overheads in 2015 to date is $2.56 M.

In order to view a current snapshot of expenditures towards the incremental budget in 2015 please refer to Board Staff Interrogatory #9 found at Exhibit I.T3.EGDI.STAFF.9.

:

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

CCC INTERROGATORY #16

INTERROGATORY

Topic 3 - DSM Budgets

Reference: (Ex. B/T1/S3/p. 14)

For each of the proposals/initiatives being undertaken in 2015 with the incremental budget of $4.92 million please provide a detailed budget and a full description of each specific activity.

RESPONSE

Below Enbridge has provided for each Incremental Budget item a one page summary which describes the initiative, identifies alignment with the Board's guiding principles and key priorities, and additional detail regarding budget. As noted on page 17 of Exhibit B, Tab 1, Schedule 3 the budgets provided are Enbridge's current estimate of costs.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

My Home Health Record (Opower)

Overview

The primary goals for this large scale program, targeted towards residential customers, are to:

- Help customers reduce consumption;
- Drive participants into additional DSM programs that would benefit them; and,
- Promote “energy literacy”.

Enbridge has chosen to partner with Opower to deliver My Home Health Record (MHHR) to the residential market, on the basis of the successes that Opower has had in delivering these programs on behalf of other utilities around the continent, and around the world.

Data from other jurisdictions, and from Opower in particular, shows that a key driver in attaining behavioural change relates to not only communicating what alternatives are available to customers, but also, what their peers are doing in relation to similar circumstances. With this information customers have been shown to engage more proactively either as a way to outperform, or catch up with, their neighbours.

Cost Breakdown/Rationale

$2M – Licensing Fee/data analytics/marketing
$650K – for 2 mailers in 2015. No carryover is anticipated for these funds.

Alignment with Board Priority/Guiding Principle

“Design programs so they achieve high participation levels…” p.8 DSM Framework

“Provide a greater level of customer-specific educational information…” p.5 DSM Filing Guidelines

“Benchmark energy usage…and compare usage with other similar customers…” p.6 DSM Filing Guidelines

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

Integrated Resource Planning Study

Overview

Least Cost Planning, also known as Integrated Resource Planning (IRP), began as a conversation in Ontario's regulatory environment in the early 1990's.

Page 36 of the DSM Framework directs the gas utilities to "…each conduct a study, completed as soon as possible and no later than in time to inform the mid-term review of the DSM Framework". Further the "Board expects the gas utilities to consider the role of DSM in reducing and/or deferring future infrastructure investments far enough in advance of the infrastructure replacement or upgrade so that DSM can reasonably be considered as a possible alternative."

The Company has filed a Scope of Work for the above noted study as Exhibit C, Tab 1, Schedule 3.

Cost Breakdown/Rationale

Enbridge reached out to U.S electric utilities that have completed these types of studies and found that the cost ranged between $250k and $400k.

Based on that finding, the amount of $300k was deemed to be an appropriate placeholder for this undertaking. It is likely that a portion of these funds will not be spent in 2015, and will require some carryover into 2016.

Alignment with Board Priority/Guiding Principle

"Implement DSM Programs that can help reduce and/or defer future infrastructure investments…" p.26 DSM Framework

"The Board expects the gas utilities to consider the role of DSM in reducing and/or deferring future infrastructure investments…the gas utilities should each conduct a study, completed as soon as possible.." p. 36 DSM Framework

"Ensure DSM is considered in gas utility infrastructure planning at the regional and local levels"…p 9 DSM Framework

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

Potential Study Update

Overview

In 2014, Enbridge engaged Navigant Consulting, Inc. to complete an energy efficiency resource assessment of its' service territories. The study objective was to assess the system-wide technical, economic and achievable potential for gas energy savings from energy efficiency over the 10-year forecast horizon from 2015 to 2024. This effort produced a baseline calibration of end use gas consumption to actual gas consumption by end use category within Enbridge's service territories. Additionally, Navigant characterized over 20 key parameters for each gas savings measure that was analyzed (e.g., baseline assumption, cost, savings, market saturation, etc.). These efforts provided input data to Navigant's Demand Side Management Simulator (DSMSim™) model, which calculated technical, economic, and achievable savings potential for each measure and then aggregated the results.

The results from the 2014 potential study provided high level guidance and direction to policy makers, stakeholders and Enbridge on the level of savings that can reasonably be achieved at different DSM budget levels.

The purpose for the update to the potential study is to incorporate more recent market potential data that may come available as well as address perceived gaps in the 2014 study if appropriate.

Cost Breakdown/Rationale

The cost of the 2014 Potential Study was $345,000. The cost of the update is estimated to be approximately 15% of the cost of the full study. The Board is currently overseeing next steps for the Potential Study. The funds requested for the update will likely be spent at that time, and may therefore require a carryover into 2016.

Alignment with Board Priority/Guiding Principle

"The mid-term review will be informed by a study of achievable potential for natural gas efficiency in Ontario to be completed by June 1, 2016. More details on the scope, timing and nature of the mid-term review will be provided at a later date." p.4 DSM Framework

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

“Increase collaboration and integration of natural gas DSM programs and electricity CDM programs…” p. 26 DSM Framework

“Development of new and innovative programs…” p.26 DSM Framework

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

Green Button initiative

Overview

Green Button allows utility customers to access and share their energy data with mobile and web-based applications, in a standardized and secure manner, using a common industry standard. Green Button is a North America–wide initiative being adopted by many utilities as part of an ongoing effort to provide their customers with better access to their energy usage information.

It allows utilities to provide their residential and commercial customers with more innovative services to monitor and conserve energy.

Both the Ontario Ministry of Energy and the Board have identified and endorse the need to enable better access to consumption data.

Cost Breakdown/Rationale

Estimate of $300k was derived from Ministry of Energy based on LDC experience. As of June 2015, no funds have been spent, and it remains unclear when in 2015 this amount will be spent, as Enbridge is only at the very early stages of discussions with the Ministry of Energy.

Alignment with Board Priority/Guiding Principle

“Design programs so they achieve high participation levels…” p.8 DSM Framework

“Provide a greater level of customer-specific educational information…” p.5 DSM Filing Guidelines

“Benchmark energy usage…and compare usage with other similar customers…” p.6 DSM filing Guidelines

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

Comprehensive Energy Management

Overview

For a full overview of the CEM offer please see Exhibit B, Tab 2, Schedule 1 pages 91 to 97. Enbridge shall use the 2015 Incremental Budget to launch an initial pilot for this offer.

Cost Breakdown/Rationale

$370k – Financial incentives towards customers' purchase of energy management infrastructure (e.g. thermal energy and natural gas meters, sensors that are proxies for these meters, data collection hardware and software etc.), customer training and marketing.

Alignment with Board Priority/Guiding Principle

"Implement DSM programs that are evidence-based and rely on detailed customer data…" p.26 DSM Framework

"Ensure that programs take a holistic-approach and identify and target all energy saving opportunities throughout a customer's home or business." p.26 DSM Framework

Low Income New Construction

Overview

For a full overview of the CEM offer please see Exhibit B, Tab 2, Schedule 1 pages 45 to 48. Enbridge shall use the 2015 Incremental Budget to launch an initial pilot for this offer which will inform a full launch in 2016.

Cost Breakdown/Rationale

$125k – Marketing (Charrettes / IDP, Incentive Design study, development of energy modelling tool)

$100k – Financial incentives

$25k – Municipal and LDC stakeholdering

Given the long-term, transformational nature of this offer, participant incentives will likely be paid beyond 2015, once construction is completed. Any incentive payments owing will be recorded in the DSMPIDA.

Alignment with Board Priority/Guiding Principle

“Capture potential lost opportunities for energy savings, including new construction of low-income/affordable housing.” p.10 DSM Framework

“Minimize lost opportunities…” p. 8 DSM Framework

“Ensure low-income programs are accessible across the province”…p.8 DSM Framework

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

Collaboration/Innovation Fund

Overview

The collaboration fund is intended to allow Enbridge to engage in pilot programs with LDC's in an effort to move forward with integrating DSM and CDM programs.

The OEB encourages collaboration and expects that the gas utilities will achieve greater efficiencies in a number of program areas if they coordinate and integrate DSM programs with electricity CDM programs.

Some challenges to collaboration that have been previously identified include:

- Disproportionate incentive levels
- coordination among a large number of electricity distributors
- different administrative and regulatory/approval requirements
- limits to information sharing

One of the benefits of engaging with LDCs in pilot programs is to learn through the process and help overcome these barriers, potentially leading to an increase in collaboration in 2016-2020.

Cost Breakdown/Rationale

The placeholder of $1M is based on the level of requests for these types of pilots to date, which may total in excess of $250,000. Enbridge considers this fund to be ring-fenced, and intends to return unspent funds to ratepayers following the end of 2015.

Alignment with Board Priority/Guiding Principle

"Increase collaboration and integration of natural gas DSM programs and electricity CDM programs…" p. 26 DSM Framework

"Development of new and innovative programs…" p.26 DSM Framework

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

DSM IT System

Overview

Please see Enbridge's response to BOMA Interrogatory #20 found at Exhibit I.T3.EGDI.BOMA.20 for further discussion of the DSM IT System.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

CCC INTERROGATORY #20

INTERROGATORY

Topic 3 - DSM Budgets

Reference: (Ex. B/T1/S4)

Please provide a schedule setting out the following for each year 2010-2014. Please provide the 2014 results based on the unaudited numbers as set out in the 2014 draft evaluation report:

1) Annual budgets for each category of expenditures – residential, low-income (where applicable) commercial, industrial and overheads.
2) Actual expenditures for each category of expenditures
3) Annual targets by category
4) Annual achieved savings by category
5) Annual shareholder incentives

RESPONSE

1, 2, 3, 4 and 5) Please see Enbridge's response to Energy Probe Interrogatory #2, found at Exhibit I.T3.EGDI.EP.2 for 2012 to 2014 DSM budgeted and actual spending and results, in addition to scorecard metrics for the same time period. Below the Company has made best efforts to provide comparable information for the 2010 and 2011 program years.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

Program	2011 OEB Approved Budget	2011 Actual Program Spending
Mass Markets		
Residential	$5,204,216	$4,530,332
Market Transformtion - Residential	$2,230,000	$1,851,730
Low Income	$2,902,500	$2,659,179
Small Commercial	$1,660,920	$1,213,489
Total	**$11,997,636**	**$10,254,730**
Business Markets		
Large Commercial	$5,073,400	$8,047,550
Industrial	$4,925,339	$2,827,939
Total	**$9,998,739**	**$10,875,489**
Administrative Costs		
Program Development & Market Research	$0	$124,960
Overheads	$6,078,067	$5,988,693
Total	**$6,078,067**	**$6,113,653**
Grand Total	**$28,074,442**	**$27,243,872**

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

Program	2010 OEB Approved Budget	2010 Actual Program Spending
Mass Markets		
Residential	$7,955,774	$6,758,275
Market Transformtion - Residential	$995,557	$1,041,033
Low Income	$1,526,980	$1,160,220
Market Transformtion - Low Income	$140,000	$140,785
Total	**$10,618,311**	**$9,100,313**
Business Markets		
Total	**$8,049,439**	**$8,824,658**
Administrative Costs		
Program Development & Market Research	$500,000	$220,153
Overheads	$6,300,000	$5,855,521
Total	**$6,800,000**	**$6,075,674**
Grand Total	**$25,467,750**	**$24,000,645**

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

2011 and 2010 CCM RESULTS

Resource Acquisition	2011 CCM	2010 CCM
Residential	106,730,073	116,579,209
Commercial	780,028,969	517,282,930
Industrial	259,834,022	289,289,370
Total Resource Acquisition	**1,146,593,064**	**923,151,509**
Low Income		
TAPS	970,488	6,276,277
Multi-Residential Non-Profit	106,260,913	21,972,848
Total Low Income	**107,231,401**	**28,249,125**
Market Transformation		
Weatherization	18,969,779	0
Total Market Transformation	**18,969,779**	**0**
Grand Total	**1,272,794,244**	**951,400,634**

**Framework and Scorecards in 2011 and 2010 were TRC based, not CCM.*
For that reason, 2011 and 2010 targets are not applicable.
CCM results for 2011 and 2010 have been provided instead.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

5) Below please find a chart showing incentive targets and actual incentive earned from 2010 to 2014.

Annual Shareholder Incentives

Actual DSMI Achieved	2014 DSMI [1]	2013 DSMI	2012 DSMI [2]	2011 DSMI [3]	2010 DSMI [3]
Resource Acquisition	$5,202,419	$1,545,045	$4,607,962	$5,914,951	$3,872,804
Low Income [3]	$375,059	$1,117,939	$2,228,489	$0	$0
Market Transformation	$2,069,764	$1,875,204	$1,323,855	$854,584	$282,484
Total Portfolio	**$7,647,242**	**$4,538,188**	**$8,160,306**	**$6,769,535**	**$4,155,288**

1. 2014 results are subject to change based on work of auditor, Audit Committee & Clearance of Accounts proceeding before the Board
2. 2012 Actual DSMI Achieved includes DSMI write-down of $657,223 from large industrial
3. Low Income scorecard did not exist in 2011 and 2010. As a result, there was no DSMI attributed to Low Income results.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

CCC INTERROGATORY #21

INTERROGATORY

Topic 3 - DSM Budgets

Reference: (Ex. B/T1/S4/pp. 3-5)

EGD has set out a detailed budget for each year 2016-2020. Please explain, in detail, how each of the following budgets were derived for each year: Resource Acquisition, Low Income, and Market Transformation and Energy Management. In addition, please provide an explanation as to how the "overhead" amounts were derived.

RESPONSE

For details regarding budgets and targets please see the response to GEC Interrogatory #16, filed at Exhibit I.T2.EGDI.GEC.16

The overhead budget for 2016 to 2020 was derived by completing a bottom up analysis to determine the level of staffing and other overhead items required to support increased program budgets. This was done in conjunction with a top down review to ensure the percentage of overhead budget was reasonable.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott
J. Paris

CCC INTERROGATORY #24

INTERROGATORY

Topic 3 - DSM Budgets

Reference: (Ex. B/T1/S4/p. 4)

EGD is spending $32.8 million in 2015 on programs and overheads. In 2016 the proposed comparable budget is $60 million. How can the Board and ratepayers be assured that EGD can cost-effectively ramp up so significantly in 2016? Why is it not more prudent to increase DSM expenditures at a more measured pace?

RESPONSE

Regarding the sources of Enbridge's increasing DSM budgets from 2015 to 2016 it is worthy to note that while the Company is expanding into new areas with innovative programming many of the budget increases proposed are in areas where Enbridge has significant experience.

By way of example, of the $29.56 million in program dollars allocated to the Resource Acquisition Program in 2016, $27.12 million are dedicated to the combination of Large Volume Commercial / Industrial Customers, Small Volume Commercial / Industrial Customers, and Home Energy Conservation. Though the Direct Install approach is a new initiative for Enbridge requiring focus and effort, the majority of Resource Acquisition funds are dedicated to commercial and industrial custom, commercial and industrial prescriptive, and the Company's whole home retrofit offer. In addition, it should be noted that the whole home retrofit offer is enabled primarily through third parties, meaning the majority of the ramp up will not necessitate additional Enbridge staff. Provided there is ample capacity within the third parties – which Enbridge believes there is – ramp up can be scaled cost effectively.

While a slower increase to DSM budgets would be possible, Enbridge believes that the budgets proposed are highly responsive to the Board's guiding principle of enabling all cost-effective DSM in addition to the variety of additional principles and priorities identified in the DSM Framework.

Enbridge has also presented the relative differences between what has been proposed in this application for budgets and targets compared to different scenarios for budgets and targets in Exhibit B, Tab 1, Schedule 5.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

CCC INTERROGATORY #25

INTERROGATORY

Topic 3 - DSM Budgets

Reference: (Ex. B/T1/S4/pp. 9-14)

Please explain, specifically, how each of the RA budgets were derived for 2016-2020. Please explain, specifically, how EGD developed the scorecard targets for each of the RA programs.

RESPONSE

Please see the response to GEC Interrogatory #14 found at Exhibit I.T2.EGDI.GEC.14 for explanation of target development.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

CCC INTERROGATORY #28

INTERROGATORY

Topic 3 - DSM Budgets

Reference: (Ex. B/T1/S4/p. 24)

Please explain, specifically, how each of MTEM budgets were developed for 2016-2020. Please explain, specifically, how EGD developed the scorecard targets for each of the MTEM programs.

RESPONSE

For details regarding budgets and targets please see the response to GEC Interrogatory #16 filed at Exhibit I.T2.EGDI.GEC.16

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
B. Ott
P. Goldman
M. Lister
F. Oliver-Glasford
J. Paris

CCC INTERROGATORY #33

INTERROGATORY

Topic 3 - DSM Budgets

Reference: (Ex. B/T3/S2/p. 3)

Please elaborate on how the Enbridge Customer Forum Panel operates. How did this panel inform EGD's DSM plan? Please provide all materials presented to, or generated through, this panel regarding EGD's DSM plans.

RESPONSE

Please see response to CCC Interrogatory #3 found at Exhibit I.T5.EGDI.CCC.3.

Witnesses: S. Mills
F. Oliver-Glasford
E. Reimer

CME INTERROGATORY #2

INTERROGATORY

Topic 3 – DSM Budgets

Ref: Exhibit B, Tab 1, Schedule 1, page 1 of 7

EGD states that between 1995 and the end of 2013 it has helped its customers save approximately $8.8 billion cubic metres of gas. Please provide the total cost of EGD's DSM activities between 1995 and the end of 2013 which has led to the $8.8 billion cubic metres of natural gas savings. In providing this calculation, please ensure that you include all direct and indirect DSM costs, as well as all costs associated with the LRAM, SSM and DSMVA.

RESPONSE

The following figures provide a high-level overview of the costs and benefits of Enbridge's DSM activities between 1995 and the end of 2013:

	Millions
Total Cost of DSM in Rates[1]	$353.37
Total Cost of DSM to Participants[2]	$1,082.39
Total Cost of DSM	$1,435.77
Net TRC Benefits of DSM[3]	**$2,397.09**
Total m3 Saved from 1995-2013[4]	**8.8 billion m^3**

Please note that the figures above have not been adjusted for inflation from 1995 to 2013.

[1] Includes actual DSM spending (as trued up through DSMVA) and impacts of LRAM, SSM, and DSMIDA.
[2] Cost to DSM Participants has been calculated based on incremental cost of DSM activities. Due to changes in data structure and storage over past twenty years, incremental costs from 1995 to 1999 have been calculated based on the average ratio between DSM in Rates and incremental costs from 2000 to 2013.
[3] Calculation of Net TRC Benefits of DSM takes into account incremental costs of DSM to customers (i.e. Net TRC Benefits of DSM are net of "Total Cost of DSM to Participants" as listed above).
[4] m^3 saved represent the natural gas reductions which physically took place between 1995 and 2013. This calculation does not include future natural gas reductions resulting from DSM activities which have already taken place.

Witnesses: M. Lister
K. Mark
F. Oliver-Glasford
B. Ott

CME INTERROGATORY #3

INTERROGATORY

Topic 3 – DSM Budgets

Ref: Exhibit B. Tab 1. Schedule 2. page 2 of 26, Table 1

Table 1 provides the 2020 goal, annual budgets and CCM targets for the years 2015-2020. CME believes that one way to assess the effectiveness of DSM is to consider the annual cost per CCM.

In this regard:

(a) Please re-do Table 1 adding additional columns which show the cost per CCM for each of the years 2015 to 2020;

(b) It appears to CME that in 2015 EGD anticipates the cost per CCM will be $0.048 ($37,722,230 ± 774,359,281). By 2020, it appears that the cost per CCM will increase to $0.070 per CCM ($82,899,208 ± 1,182,290,348). Please explain why the cost per CCM increases so dramatically between the years 2015 to 2020;

(c) Between the years 2015 to 2020, EGD anticipates that the CCM will increase from 774,359,281 in 2015 to 1,182,290,348 in 2020. This represents an incremental CCM increase of 407,931,067 between the years 2015 and 2020. In that same time period, EGD's budget will increase from $37,722,230 to $82,899,208. This is a budget increase of $45,176,978. On this basis, it appears that the incremental CCM of 407,931,067 is being achieved at a cost of $0.11 per CCM ($45,176,978 ± 407,931,067). Please provide an explanation for the high cost of incremental CCM to be achieved between 2015 and 2020.

Witnesses: K. Mark
S. Moffatt
F. Oliver-Glasford
B. Ott

RESPONSE

a) Please see table below, inclusive of $/CCM.

Year	Budget ($ millions)	Cumulative Cubic Metres	$ / CCM
2015	$37,722,230	774,359,281	$0.049
2016	$63,535,727	1,001,743,852	$0.063
2017	$73,826,882	1,083,061,000	$0.068
2018	$79,680,131	1,147,902,770	$0.069
2019	$81,273,733	1,165,771,091	$0.070
2020	$82,899,208	1,182,290,348	$0.070
2020 Natural Gas Savings Goal (m3)		**6,355,128,342**	

b) As per Exhibit. B, Tab 1, Schedule 2, page 15, a key trend in DSM over the past many years has been that a greater portion of projects are tending to yield smaller results per project. This will become an even greater issue as Enbridge increasingly addresses traditionally underserved sectors and those markets where savings are harder to reach and require more comprehensive approaches. In addition, the DSM Framework presented by the Company includes a significant ramp up of residential activity, which is directly responsive to the Board's desire for greater participation. This market segment costs more to serve on a $/CCM basis, and the scale is increasing. As a result, the $/CCM increases accordingly.

Lastly, it should also be noted that in order to adequately address the Board's guiding principles and key priorities Enbridge has put forth a DSM Plan that includes many more offerings which do not count direct and measureable CCM as the target metric. The Company strongly believes that the success of DSM and pursuit of the Board's principles and priorities rely on these offers, despite the fact that they have the effect of skewing macro analysis of $/CCM figures.

c) Enbridge believes that the quick and high-level analysis provided by CME in the above question is misrepresentative of the growth in DSM budgets relative to targets. A more appropriate analysis would view the $/CCM for each year in the aggregate, such as that presented in the table above. The table clearly shows a growth in $/CCM in 2015 of $0.049 to $0.07 in 2020, or $0.02/CCM.

Witnesses: K. Mark
S. Moffatt
F. Oliver-Glasford
B. Ott

In addition to an anticipated decrease in gas savings per project, Enbridge addressed the Board's guiding principles by increasing attention on offers that provide a holistic approach, targeting all energy savings opportunities throughout homes and businesses. Offers like Home Energy Conservation and Comprehensive Energy Management require more resources to implement than other offers and represent a considerable portion of the increase in budgets.

A comparison of the 2016 to 2020 budgets and targets may be informative for the Board, since 2015 is technically a roll-over budget as directed by the Board. The 2016 to 2020 growth rate in target is 4.14% per year compared to a 6.65% growth rate in budgets per year. Also, as explained in the response above, these budget amounts also include targets that are not measured solely by CCM.

Finally, an analysis of the residential budget versus the growth in residential targets shows the following:

	2016	2020	Growth Rate
Total Rate 1	$28,599,911	$41,393,897	9.24%
Res. CCM Target	126,487,337	261,248,521	18.13%
HEC Participants	7,508	13,478	14.63%

As can be seen, the residential growth rate in budget is 9.24% per year relative to targets that grow 18.13% per year for CCM and 14.63% per year for Home Energy Conservation participants.

Witnesses: K. Mark
S. Moffatt
F. Oliver-Glasford
B. Ott

CME INTERROGATORY #8

INTERROGATORY

Topic 3 – DSM Budgets

Ref: Exhibit B. Tab 1, Schedule 3, page 5 of 19

Table 1 sets out the 2015 budget and maximum shareholder incentive. According to that Table, for 2015, the maximum shareholder incentive available to EGD will be $11,089,624. CME notes that the OEB' s 2015 to 2020 Natural Gas DSM Framework stated, at page 22, that "the Board will make an annual shareholder incentive available to each Enbridge and Union that is equal to a total annual maximum of $10.45 million". Please explain how EGD's proposed incentive for 2015 is consistent with this direction by the Board.

RESPONSE

The above noted quote in Section 5.2 was reviewed and has been followed for the years for which Enbridge believes it was intended to apply, 2016 to 2020. Section 15.1 which specifically contemplates the unique treatment of 2015 within the DSM Framework calls on the gas utilities to "…increase their budgets, targets **and shareholder incentive amounts** in the same manner as they have done throughout the current DSM Framework (i.e., 2013 updates to 2014 should now apply as 2014 updates to 2015)" [Emphasis added] Section 15.1 of the Framework does not state that the 2015 shareholder incentive amount is to be subject to the total annual maximum applicable to the other years.

To determine Enbridge's 2014 maximum shareholder incentive in EB-2012-0394 the Board approved an increase of 2% from the maximum shareholder incentive for 2013. In keeping with the Board's direction in section 15.1 of the new DSM Framework and the escalation factor approved in EB-2012-0394 to increase the maximum shareholder incentive from 2013 to 2014, Enbridge applied a 2% escalation to its 2014 maximum shareholder incentive of $10.87 million to establish a 2015 maximum shareholder incentive of $11.09 million.

Witnesses: F. Oliver-Glasford
B. Ott

CME INTERROGATORY #9

INTERROGATORY

Topic 3 – DSM Budgets

Ref: Exhibit B. Tab 1, Schedule 4, page 4 of 41

EGD has proposed a target adjustment factor ("TAF") for the purpose of ensuring that targets, and subsequent shareholder incentives, are "fair and predictable" for both ratepayers and shareholders. In this regard, at page 41 of 41, EGD's description of the TAF does not appear to include any form of "stretch factor". CME would have expected that a target adjustment formula not only adjusts for input assumptions changing over time, but also, expressly adjusts for the fact that the target should continue to be a difficult goal that incents the Company to over-achieve. Particularly in a multi-year DSM plan, obtaining additional efficiency gains in the context of DSM would be expected.

In this regard:

(a) Has EGD included a form of stretch factor in its TAF? If yes, please provide an explanation; and

(b) If a stretch factor is not included, please explain why not.

RESPONSE

a) Enbridge has not included a stretch factor within the target adjustment factor ("TAF"). In Enbridge's view this adjustment factor has a different purpose, namely to adjust for differences in input assumptions. That is, once the Board has approved appropriate targets for each of the approved programs and offerings, the TAF seeks to maintain the balance in targets in the event that changes to achievement potential take place solely as a result of changes in input assumptions or adjustment factors over the course of the Multi-Year Framework. Please see Enbridge's response to Board Staff IR#8, filed as Exhibit I.T2.EGDI.STAFF.8, for further discussion of the TAF.

b) The Company has proposed targets for the Board's consideration which it finds to be highly challenging, but achievable provided that Enbridge delivers its DSM offers effectively and efficiently. In other words, the stretch that CME appears to be

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

referencing is built into the targets proposed by the Company. Many of the targets are for new offerings in which achievement levels are forecasts without prior Enbridge results to inform them. For existing offerings, the targets have either increased significantly, or will become more difficult to achieve. It should be noted that Enbridge views these targets as much more difficult to achieve than in the past while the incentive revenue available has declined. Said differently, Enbridge views this new Framework as requiring much more effort, diligence, focus, and efficiency to earn less incentive income. In addition to the mid-targets being harder to achieve, the Company has also proposed 150% stretch targets, which make it even more difficult for the Company to achieve incentive amounts above 40% of the maximum.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

CME INTERROGATORY #11

INTERROGATORY

Topic 3 – DSM Budgets

Ref: Exhibit B, Tab 2, Schedule 4

CME wishes to have a more precise description of the allocation of EGD's DSM budget by rate class and of the bill impacts. In EB-2015-0029, which is Union's multi-year DSM plan, it has provided a schedule which sets out the required information. Please produce a schedule setting out the allocation of DSM budget by rate class in the same manner as Union has prepared at Exhibit A, Tab 3, Appendix E, Schedule 1, in EB-2015-0029. When preparing the schedule, please show the allocation of DSM budget by rate class from 2012 to 2020.

RESPONSE

Please note that Exhibit B, Tab 2, Schedule 4 of Enbridge's Multi-Year Plan provided all of the pertinent data included within Union's application at Exhibit A, Tab 3, Appendix E, Schedule 1. Specifically, both tables outline DSM budgets, Low Income budgets and the impact of the shareholder incentive at the 100% level. The principle difference between the two was that Enbridge did not specifically identify inflationary increases by rate.

As requested the Company has produced tables below which outline the allocation of DSM budget by rate class from 2012 to 2014 based on amounts budgeted in EB-2011-0295 and EB-2012-0394.

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

Rate Class	2012			2013			2014		
	DSM Program Budget	Low Income Program Budget	Total DSM Budget	DSM Program Budget	Low Income Program Budget	Total DSM Budget	DSM Program Budget	Low Income Program Budget	Total DSM Budget
Rate 1	$7.47	$4.78	$12.25	$7.54	$4.87	$12.40	$7.06	$4.92	$11.98
Rate 6	$13.59	$1.98	$15.57	$11.92	$2.02	$13.94	$12.80	$2.04	$14.83
Rate 9	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Rate 110	$1.01	$0.07	$1.08	$1.20	$0.07	$1.28	$1.21	$0.07	$1.28
Rate 115	$0.25	$0.04	$0.29	$0.93	$0.04	$0.97	$0.93	$0.04	$0.97
Rate 125	$0.00	$0.05	$0.05	$0.00	$0.05	$0.05	$0.00	$0.05	$0.05
Rate 135	$0.07	$0.00	$0.08	$0.18	$0.01	$0.18	$0.19	$0.01	$0.19
Rate 145	$0.74	$0.05	$0.78	$1.07	$0.05	$1.12	$1.14	$0.05	$1.18
Rate 170	$0.76	$0.03	$0.80	$1.59	$0.04	$1.63	$1.60	$0.04	$1.64
Rate 200	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Rate 300	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
TOTAL	**$23.88**	**$7.03**	**$30.91**	**$24.43**	**$7.16**	**$31.59**	**$24.92**	**$7.24**	**$32.16**

CME INTERROGATORY #12

INTERROGATORY

Topic 3 – DSM Budgets

Ref: Exhibit B, Tab 2, Schedule 4

At Exhibit A, Tab 3, Appendix E, Schedule 2 of Union's evidence in EB-2015-0029, Union has provided a bill impact comparison of 2015 to 2020. Please prepare a schedule in the same format as Union's Schedule comparing both 2015 to 2020, and comparing the actual DSM cost allocated to rate classes in 2014 to EGD's proposed DSM budget in 2020.

RESPONSE

Please see Exhibit B, Tab 2, Schedule 4 for Enbridge's rate allocation and bill impact analysis, which contains all of the pertinent data listed within the Schedule in EB-2015-0029 referenced above with the exclusion of a % change in the annual bill impact to a typical customer for each rate class from 2015 to 2020. This excluded data point has been provided in a table below. Regretfully, costs allocated to rates for 2014 have not yet been updated to account for the 2014 DSMVA, LRAM or actual shareholder amounts. As agreed with Enbridge's auditor and Audit Committee, the impacts of these figures will be made available with the release of Enbridge's final 2014 Annual Report.

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

Rate Class	Average Annual Bill Impact of DSM per Typical Customer		% change
	2015	2020	
Rate 1	$10.25	$26.57	159%
Rate 6	$89.81	$147.96	65%
Rate 9	-	-	-
Rate 110	$1,377.61	$1,374.86	0%
Rate 115	$9,520.91	$13,125.97	38%
Rate 125	-	-	-
Rate 135	$2,915.22	$3,603.53	24%
Rate 145	$1,907.84	$2,092.05	10%
Rate 170	$8,925.68	$12,286.46	38%
Rate 200	-	-	-
Rate 300	-	-	-

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

ENVIRONMENTAL DEFENCE INTERROGATORY #1

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Ex. B, Tab 1, Schedule 4, Page 9, Table 7

Please state the Large C/I Resource Acquisition Program's cumulative cubic metre (CCM) savings and net TRC benefits for each year from 2016 to 2020 inclusive.

RESPONSE

Below please find the table listing the forecasted CCM savings for all Resource Acquisition Large C/I programs from 2016 to 2020:

Resource Acquisition Targets	Metric	2016	2017	2018	2019	2020
Large C/I	*CCM*	***604,195,262***	***600,879,000***	***614,148,900***	***615,719,228***	***618,104,330***
	Net TRC Benefits	***84,480,430***	***83,973,428***	***85,794,655***	***90,888,587***	***91,208,291***

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

ENVIRONMENTAL DEFENCE INTERROGATORY #2

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Ex. B, Tab 1, Schedule 4, Page 9, Table 7 and Ex. B, Tab 1, Schedule 5

Please provide a break-out of the Large C/I Resource Acquisition Program's rate allocation for each year from 2016 to 2020 inclusive.

RESPONSE

Below please find a break out of the Large C/I Resource Acquisition offers' rate allocation for 2016 to 2020:

Large C/I - Forecasted Rate Allocation

Rate Class	2016	2017	2018	2019	2020
Rate 1	$0	$0	$0	$0	$0
Rate 6	$6,256,411	$6,455,581	$6,790,394	$6,926,202	$7,064,726
Rate 9	$0	$0	$0	$0	$0
Rate 100	$0	$0	$0	$0	$0
Rate 110	$443,451	$457,568	$481,300	$490,926	$500,744
Rate 115	$456,518	$471,051	$495,481	$505,391	$515,499
Rate 125	$0	$0	$0	$0	$0
Rate 135	$116,181	$119,879	$126,097	$128,619	$131,191
Rate 145	$163,638	$168,847	$177,605	$181,157	$184,780
Rate 170	$167,627	$172,963	$181,934	$185,573	$189,284
Rate 200	$0	$0	$0	$0	$0
Rate 300	$0	$0	$0	$0	$0
Total Spending	**$7,603,825**	**$7,845,890**	**$8,252,810**	**$8,417,866**	**$8,586,224**

1. Large C/I spending includes Large C/I Custom, Large C/I Prescriptive, Large C/I Direct Install, Large Commercial New Construction, and Energy Leaders
2. Large C/I is forecasted to receive 50% of total Energy Leaders budget
3. Spending excludes Overheads and DSMI

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

ENVIRONMENTAL DEFENCE INTERROGATORY #3

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Ex. B, Tab 1, Schedule 4, Page 9, Table 7 and Ex. B, Tab 1, Schedule 5

Please re-calculate the rate allocation of the Large C/I Resource Acquisition Program's for each year from 2016 to 2020 inclusive assuming that the Program's expenditures are rate based and amortized over the expected lives of their lifetime cubic metre savings.

RESPONSE

In order to estimate the impact of an alternative treatment of DSM costs (i.e., "rate based and amortized over the expected lives of their lifetime cubic metre savings"), the Company would need to make assumptions with respect to accounting treatment and tax implications on the various assets included within the DSM program. Given that these costs have not been capitalized in the past, the analysis may require studies be performed to determine appropriate depreciation treatment/rates.

Subsequent to obtaining this additional information, a revenue requirement associated with the DSM program may be determined, from which customer impacts may be calculated. Without the additional information, the Company is unable to estimate customer impacts under the scenario requested at this time.

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

ENVIRONMENTAL DEFENCE INTERROGATORY #4

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Ex. B, Tab 1, Schedule 4, Page 9, Table 7

Please state the Small C/I Resource Acquisition Program's cumulative cubic metre (CCM) savings and net TRC benefits for each year from 2016 to 2020 inclusive.

RESPONSE

Below please find the CCM savings for Small C/I Resource Acquisition programs for the years 2016 to 2020:

Resource Acquisition Targets	Metric	2016	2017	2018	2019	2020
Small C / I	*CCM*	***163,672,568***	***165,954,000***	***156,033,535***	***159,154,161***	***162,337,299***
	Net TRC Benefits	***$25,198,722***	***$25,535,938***	***$24,009,439***	***$25,887,262***	***$26,405,017***

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

ENVIRONMENTAL DEFENCE INTERROGATORY #5

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Ex. B, Tab 1, Schedule 4, Page 9, Table 7 and Ex. B, Tab 1, Schedule 5

Please provide a break-out of the Small C/I Resource Acquisition Program's rate allocation for each year from 2016 to 2020 inclusive.

RESPONSE

Below please find a break out of the Small C/I Resource Acquisition offer's rate allocation from 2016 to 2020:

Small C/I - Forecasted Rate Allocation

Rate Class	2016	2017	2018	2019	2020
Rate 1	$0	$0	$0	$0	$0
Rate 6	$6,060,848	$7,009,271	$7,649,407	$7,802,395	$7,958,443
Rate 9	$0	$0	$0	$0	$0
Rate 100	$0	$0	$0	$0	$0
Rate 110	$429,590	$496,813	$542,186	$553,030	$564,090
Rate 115	$442,248	$511,453	$558,162	$569,325	$580,712
Rate 125	$0	$0	$0	$0	$0
Rate 135	$112,549	$130,161	$142,048	$144,889	$147,787
Rate 145	$158,523	$183,329	$200,072	$204,074	$208,155
Rate 170	$162,387	$187,798	$204,949	$209,048	$213,229
Rate 200	$0	$0	$0	$0	$0
Rate 300	$0	$0	$0	$0	$0
Total Spending	**$7,366,145**	**$8,518,826**	**$9,296,825**	**$9,482,761**	**$9,672,416**

1. *Small C/I spending includes Small C/I Custom, Small C/I Prescriptive, Small C/I Direct Install,* Small Commercial New Construction, and Energy Leaders
2. *Small C/I is forecasted to receive 50% of total Energy Leaders budget*
3. *Spending excludes Overheads and DSMI*

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

ENVIRONMENTAL DEFENCE INTERROGATORY #6

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Ex. B, Tab 1, Schedule 4, Page 9, Table 7 and Ex. B, Tab 1, Schedule 5

Please re-calculate the rate allocation of the Small C/I Resource Acquisition Program's for each year from 2016 to 2020 inclusive assuming that the Program's expenditures are rate based and amortized over the expected lives of their lifetime cubic metre savings.

RESPONSE

Please see Enbridge's response to Environmental Defence Interrogatory #3, filed as Exhibit I.T3.EGDI.ED.3.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

ENVIRONMENTAL DEFENCE INTERROGATORY #7

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Ex. B, Tab 1, Schedule 4, Page 9, Table 7

(a) Please do a sensitivity analysis to calculate the impact of 25%, 50% and 100% increases in the budgets of the Large C/I Resource Acquisition Program for each year from 2016 to 2020. When doing the budget sensitivity analyses, to the extent practical, please make program design changes which will deliver the largest possible increase in the Program's net TRC benefits.

(b) For each year please show the impacts of the budget increases on the Program's CCM and net TRC benefits.

(c) For each budget increase and each year please provide a break-out of the Program's rate allocation.

(d) For each budget increase and each year please re-calculate the rate impact by rate class assuming the Program's budget is rate based and amortized over the expected lives of the lifetime cubic metre savings.

RESPONSE

a & b)

Please see below the requested sensitivity scenarios for illustrative purposes. In regards to Environmental Defence's request for TRC impacts, please see Enbridge's response to GEC Interrogatory #19 found at Exhibit I.T2.EGDI.GEC.19.

	Budget					CCM				
	Year	Proposed	125%	150%	200%	Proposed	125%	150%	200%
	2016	$7,603,825	$9,504,782	$11,405,738	$15,207,651	604,195,262	671,328,069	704,894,472	872,726,490
	2017	$7,845,890	$9,807,363	$11,768,835	$15,691,780	600,879,000	667,643,333	701,025,500	867,936,333
	2018	$8,252,810	$10,316,013	$12,379,215	$16,505,620	614,148,900	682,387,667	716,507,050	887,103,967
	2019	$8,417,866				615,719,228			
	2020	$8,586,224				618,104,330			

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

c) Please see below tables outlining the allocation of the Large C/I Offers' costs amongst rates for each illustrative sensitivity scenario provided.

Large C/I - Forecasted Rate Allocation (125% Budget Increase)			
Rate Class	**2016**	**2017**	**2018**
Rate 1	$0	$0	$0
Rate 6	$7,820,513	$8,069,476	$8,487,992
Rate 9	$0	$0	$0
Rate 100	$0	$0	$0
Rate 110	$554,314	$571,960	$601,624
Rate 115	$570,647	$588,814	$619,352
Rate 125	$0	$0	$0
Rate 135	$145,226	$149,849	$157,621
Rate 145	$204,548	$211,059	$222,006
Rate 170	$209,534	$216,204	$227,417
Rate 200	$0	$0	$0
Rate 300	$0	$0	$0
Total Spending	**$9,504,782**	**$9,807,363**	**$10,316,013**

Large C/I - Forecasted Rate Allocation (150% Budget Increase)			
Rate Class	**2016**	**2017**	**2018**
Rate 1	$0	$0	$0
Rate 6	$9,384,616	$9,683,371	$10,185,591
Rate 9	$0	$0	$0
Rate 100	$0	$0	$0
Rate 110	$665,177	$686,352	$721,949
Rate 115	$684,777	$706,576	$743,222
Rate 125	$0	$0	$0
Rate 135	$174,271	$179,819	$189,145
Rate 145	$245,457	$253,271	$266,407
Rate 170	$251,440	$259,445	$272,901
Rate 200	$0	$0	$0
Rate 300	$0	$0	$0
Total Spending	**$11,405,738**	**$11,768,835**	**$12,379,215**

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

Large C/I - Forecasted Rate Allocation (200% Budget Increase)			
Rate Class	**2016**	**2017**	**2018**
Rate 1	$0	$0	$0
Rate 6	$12,512,821	$12,911,162	$13,580,788
Rate 9	$0	$0	$0
Rate 100	$0	$0	$0
Rate 110	$886,902	$915,136	$962,599
Rate 115	$913,036	$942,102	$990,963
Rate 125	$0	$0	$0
Rate 135	$232,361	$239,759	$252,193
Rate 145	$327,276	$337,695	$355,209
Rate 170	$335,254	$345,927	$363,868
Rate 200	$0	$0	$0
Rate 300	$0	$0	$0
Total Spending	**$15,207,651**	**$15,691,780**	**$16,505,620**

d) Please see Enbridge's response to Environmental Defence Interrogatory #3, filed as Exhibit I.T3.EGDI.ED.3.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

ENVIRONMENTAL DEFENCE INTERROGATORY #8

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Ex. B, Tab 1, Schedule 4, Page 9, Table 7

(a) Please do a sensitivity analysis to calculate the impact of 25%, 50% and 100% increases in the budgets of the Small C/I Resource Acquisition Program for each year from 2016 to 2020. When doing the budget sensitivity analyses, to the extent practical, please make program design changes which will deliver the largest possible increase in the Program's net TRC benefits.

(b) For each year please show the impacts of the budget increases on the Program's CCM and net TRC benefits.

(c) For each budget increase and each year please provide a break-out of the Program's rate allocation.

(d) For each budget increase and each year please re-calculate the rate impact by rate class assuming the Program's budget is rate based and amortized over the expected lives of the lifetime cubic metre savings.

RESPONSE

a & b)

Please see below the requested sensitivity scenarios for illustrative purposes. In regards to Environmental Defence's request for TRC impacts, please see Enbridge's response to GEC Interrogatory #19, filed as Exhibit I.T2.EGDI.GEC.19.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

	Budget					CCM			
Year	**Proposed**	**125%**	**150%**	**200%**		**Proposed**	**125%**	**150%**	**200%**
2016	$7,366,145	$9,207,681	$11,049,217	$14,732,289		163,672,568	181,858,409	190,951,329	236,415,932
2017	$8,518,826	$10,648,533	$12,778,239	$17,037,652		180,574,000	200,637,778	210,669,667	260,829,111
2018	$9,296,825	$11,621,031	$13,945,237	$18,593,649		173,993,735	193,326,372	202,992,690	251,324,283
2019	$9,482,761					178,702,592			
2020	$9,672,416					185,573,731			

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

c) Please see below tables outlining the allocation of the Small C/I Offers' costs amongst rates for each illustrative sensitivity scenario provided.

Small C/I - Forecasted Rate Allocation (125% Budget Increase)			
Rate Class	**2016**	**2017**	**2018**
Rate 1	$0	$0	$0
Rate 6	$7,576,059	$8,761,589	$9,561,759
Rate 9	$0	$0	$0
Rate 100	$0	$0	$0
Rate 110	$536,987	$621,017	$677,732
Rate 115	$552,810	$639,316	$697,702
Rate 125	$0	$0	$0
Rate 135	$140,686	$162,702	$177,561
Rate 145	$198,154	$229,162	$250,090
Rate 170	$202,984	$234,748	$256,187
Rate 200	$0	$0	$0
Rate 300	$0	$0	$0
Total Spending	**$9,207,681**	**$10,648,533**	**$11,621,031**

Small C/I - Forecasted Rate Allocation (150% Budget Increase)			
Rate Class	**2016**	**2017**	**2018**
Rate 1	$0	$0	$0
Rate 6	$9,091,271	$10,513,907	$11,474,110
Rate 9	$0	$0	$0
Rate 100	$0	$0	$0
Rate 110	$644,385	$745,220	$813,279
Rate 115	$663,372	$767,179	$837,243
Rate 125	$0	$0	$0
Rate 135	$168,824	$195,242	$213,073
Rate 145	$237,785	$274,994	$300,108
Rate 170	$243,581	$281,697	$307,424
Rate 200	$0	$0	$0
Rate 300	$0	$0	$0
Total Spending	**$11,049,217**	**$12,778,239**	**$13,945,237**

Small C/I - Forecasted Rate Allocation (200% Budget Increase)			
Rate Class	**2016**	**2017**	**2018**
Rate 1	$0	$0	$0
Rate 6	$12,121,695	$14,018,542	$15,298,814
Rate 9	$0	$0	$0
Rate 100	$0	$0	$0
Rate 110	$859,179	$993,627	$1,084,372
Rate 115	$884,496	$1,022,905	$1,116,324
Rate 125	$0	$0	$0
Rate 135	$225,098	$260,323	$284,097
Rate 145	$317,046	$366,659	$400,144
Rate 170	$324,775	$375,596	$409,899
Rate 200	$0	$0	$0
Rate 300	$0	$0	$0
Total Spending	**$14,732,289**	**$17,037,652**	**$18,593,649**

d) Please see Enbridge's response to Environmental Defence Interrogatory #3, filed as Exhibit I.T3.EGDI.ED.3.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

ENVIRONMENTAL DEFENCE INTERROGATORY #9

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Ex. B, Tab 1, Schedule 5, Page 5

Please provide Enbridge's best estimate of its 2016 distribution revenue requirement and throughput volumes by rate class.

RESPONSE

Enbridge currently operates under a Customized Incentive Regulation plan which requires it to update its revenue requirement and volumes on an annual basis between 2014 and 2018. Distribution revenue requirement and volume information for 2016 will be available upon filing of the 2016 Rate Adjustment application which, in accordance with the Custom IR Rate Order, will occur in early September.

Witnesses: M. Lister
S. Moffat
F. Oliver-Glasford
B. Ott

ENVIRONMENTAL DEFENCE INTERROGATORY #10

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Ex. B, Tab 1, Schedule 5, Page 5

Please provide Enbridge's forecast of the average gas commodity cost ($ per thousand cubic metres) for its customers in 2016. If the average gas commodity costs are forecast to vary by rate class, please provide price forecasts by rate class.

RESPONSE

The Ontario Energy Board approved methodology used to design gas commodity rates for Enbridge customers is updated quarterly to reflect the most up to date commodity market. As such, a 2016 forecast for commodity rates is not available at this time.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

ENVIRONMENTAL DEFENCE INTERROGATORY #11

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Ex. B, Tab 2, Schedule 4, Page 5

(a) Please provide a table showing the average annual natural gas price (Henry Hub) over the past ten years (2005 to 2014 inclusive).

(b) Please provide Enbridge's average effective rate for natural gas (i.e. commodity costs) for residential customers over the past ten years (2005 to 2014 inclusive). Please provide the data in two tables, one with annual averages and the other quarterly.

RESPONSE

a) Please see the requested table below:

Henry Hub Spot Price											
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Henry Hub	$USD/mmBTU	8.69	6.73	6.97	8.86	3.94	4.37	4.00	2.75	3.73	4.39

Source: U.S. Energy Information Administration

b) Please see below Enbridge's average gas supply charge (i.e. commodity costs) for residential customers from 2005 to 2014, represented on an annual and quarterly basis.

Average Gas Supply Charge (Annual)											
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Gas Supply Charge	cents/m^3	30.51	36.67	31.58	32.47	23.55	18.46	14.25	10.46	12.83	15.63

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

Gas Supply Charge	
Date	cents/m^3
2005 Q1	27.80
2005 Q2	27.80
2005 Q3	31.10
2005 Q4	35.33
2006 Q1	43.12
2006 Q2	35.40
2006 Q3	34.07
2006 Q4	34.07
2007 Q1	31.48
2007 Q2	32.86
2007 Q3	32.86
2007 Q4	29.10
2008 Q1	26.76
2008 Q2	30.36
2008 Q3	39.01
2008 Q4	33.76
2009 Q1	30.37
2009 Q2	23.54
2009 Q3	20.44
2009 Q4	19.86
2010 Q1	19.97
2010 Q2	21.16
2010 Q3	17.30
2010 Q4	15.42
2011 Q1	14.42
2011 Q2	13.98
2011 Q3	14.93
2011 Q4	13.69
2012 Q1	11.85
2012 Q2	9.42
2012 Q3	9.85
2012 Q4	10.72
2013 Q1	12.85
2013 Q2	12.15
2013 Q3	14.00
2013 Q4	12.30
2014 Q1	12.68
2014 Q2	17.60
2014 Q3	17.60
2014 Q4	14.62

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

ENVIRONMENTAL DEFENCE INTERROGATORY #12

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Ex. B, Tab 2, Schedule 4, Page 5

(a) Please calculate the overall gross cumulative savings (i.e. all avoided costs) achieved by Enbridge's customers as a result of its DSM programs up to January 1, 2015.

(b) Please calculate the **net** annual savings for all of Enbridge's customers as a result of its DSM programs. Please account for all DSM costs and all DSM benefits (i.e. all avoided costs).

(c) Please calculate the net annual savings for all of Enbridge's residential customers as a result of its DSM programs. Please account for all DSM costs and all DSM benefits (i.e. all avoided costs).

(d) Please calculate the net annual savings for the average or typical Enbridge residential customer as a result of all of Enbridge's DSM programs (i.e. the per customer savings). Please account for all DSM costs and all DSM benefits (i.e. all avoided costs).

(e) Please calculate the amount by which the annual gas bill of the average or typical Enbridge residential customer is lower as a result of all of Enbridge's DSM programs. Please account for all DSM costs and all DSM benefits that result in lower gas bills. Please provide a response in terms of both the annual gas cost and the average monthly bill.

For all of the above please provide the figures as of January 1, 2015 (or another recent date for ease of the calculations) and please include the impact of all DSM measures since the inception of Enbridge's DSM program to the extent that the benefits from those measures will have persisted. Please make and state any necessary assumptions.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford
B. Ott

RESPONSE

a) Enbridge's Net TRC Benefits, or the total net present value of all avoided gas, electricity, and water costs for each year of DSM less the cost of delivering DSM programs and the incremental costs borne by customers, from 1995 to 2014 are $2,483.9 million. In the Company's view this is the most appropriate representation of cumulative economic savings over the course of Enbridge's DSM experience.

b) Unfortunately Enbridge is unclear regarding the data requested by Environmental Defence in b) above. The above inquiry clearly indicates a desire to include all avoided costs, which would imply that the electricity, water and gas costs incorporated into the TRC calculation have been requested. However, these values are always represented over the entire measure life of DSM measures or activities. Representing only a single year of these savings creates a challenge given that they are compared against incremental costs to customers. The incremental cost of DSM to customers is a single year value, which in some instances would be greater than a single year's representation of TRC benefits. Further, the TRC calculation does not incorporate the cost of DSM incentives to customers, which ultimately drive rate impacts and thus can represent a cost of DSM depending on the analysis being undertaken.

c) Please see b) above.

d) Please see Enbridge's response to Environmental Defence Interrogatory #13, filed as Exhibit I.T3.EGDI.ED.13.

e) Please see Enbridge's response to Environmental Defence Interrogatory #13, filed as Exhibit I.T3.EGDI.ED.13.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford
B. Ott

ENVIRONMENTAL DEFENCE INTERROGATORY #13

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Ex. B, Tab 2, Schedule 4, Page 5

(a) For 2015, 2016, and 2017, please estimate the net present value of the net savings for the average Enbridge residential customer that will arise from Enbridge's DSM program in each year (over the lifetime of the measures). Please account for all relevant DSM costs and all relevant DSM benefits (i.e. all avoided costs). Please make and state any necessary assumptions.

RESPONSE

a) In Exhibit B, Tab 2, Schedule 3, Enbridge has provided Net TRC Benefits, or the net present value of all avoided costs less the cost to deliver DSM and incremental costs to customers, for its Resource Acquisition and Low Income Programs. Combined these two Programs will create $116M and $132M in net economic benefits to society in 2016 and 2017 respectfully according to the Company's TRC Plus analysis. Given that 2015 is a Rollover of Enbridge's 2014 DSM Plan, is significantly different than the remainder of the Multi-Year DSM Plan, and was evaluated using a different cost-effectiveness test in EB-2012-0394, the Company does not have a figure which is directly comparable to 2016 and 2017.

Determining the value of savings directly attributable to the average residential is a highly challenging undertaking which the Company cannot endeavor to complete at this time. This is due to the fact that the benefits to the average customer are largely societal, as captured in the TRC Plus test. Direct benefits of Enbridge's Programs are largely attributable to participants, which is why the Company is pleased that the Board has encouraged increased participation levels in the DSM Framework. The costs of DSM to the average customer are captured in rates for non-participants, as outlined in Exhibit B, Tab 2, Schedule 4. For further discussion of participant and non-participant costs to residential customers, please see Enbridge's response to CCC Interrogatory #30, filed as Exhibit I.T8.EGDI.CCC.30.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford

ENVIRONMENTAL DEFENCE INTERROGATORY #14

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Ex. B, Tab 2, Schedule 4, Page 5

Page 15 of the Board's DSM Framework states as follows: "Many elements of DSM programs that offer the greatest opportunity to realize long-term natural gas savings (and bill reductions) are related to the installation of energy efficient products, such as a furnace or insulation. The opportunity to install one of these more significant items will not be present for the majority of customers in the gas utilities' service territories."

(a) What percentage of Enbridge's customers have had the opportunity to participate in one of its DSM programs through the installation of an energy efficient product since Enbridge first started offering its DSM programs? Please make and state any necessary assumptions in answering this question.

RESPONSE

a) Enbridge finds the requested calculation outlined above to be problematic. The Company has historically recorded its DSM results capturing either participants or units installed, but not both. Thus for prescriptive offers Enbridge has typically captured the number of units installed, where a single customer could install multiple units. Conversely, larger custom projects are most often quantified in terms of participants, or customers who undertake a singular project which may encompass multiple measures or undertakings. As a result, the Company would need to undertake analyses to separate units from participants for each measure, of each offer, for the past 20 years. In Enbridge's view fulfilling this request would require an inordinate amount of time and effort and would be of questionable value to the Board and Parties.

Witnesses: B. Ott
S. Moffat
F. Oliver-Glasford

ENVIRONMENTAL DEFENCE INTERROGATORY #15

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Ex. C, Tab 1, Schedule 1

(a) Please recalculate the achievable DSM potential based on the assumption that there is no cap on the DSM budget. Please only include those measures that pass the TRC cost- benefit test and retain the other assumptions regarding "achievable" potential as described on page 11 of the Navigant report (except with regard to budget limits). Please provide figures for 2015 to 2024 inclusive. For each year please calculate the average TRC benefit/cost ratio and the total net TRC benefits.

(b) Please reproduce figure ES-1 and table ES-1 on page 13 of the Navigant report with an additional series of data representing the recalculated achievable potential described in (a) above.

RESPONSE

a) In Table 1, Navigant provides detailed results from Scenario L, which has a cumulative budget of $1.7 billion over the 10-year study horizon. Navigant chose to use Scenario L instead of limitless budget scenario for the following reasons:

1. The industry has no basis for how a market and program would evolve with a limitless budget. Navigant's analysis is founded upon observed marketing effectiveness and customer acceptance from typical conservation programs and technology diffusion. Using the Navigant model for such a scenario could lead to a false sense of precision. Appropriately modeling a limitless budget scenario would require new market research to calibrate key model parameters.

2. Budgets beyond Scenario L's $1.7 cumulative budget are not being realistically considered in this jurisdiction.

3. As is shown in Table 5 to 19 from Navigant's report, there are diminishing returns on each dollar spent. This becomes even more

Witnesses: F. Oliver-Glasford
B. Ott
C. Welch

evident at higher budget levels. Running a limitless budget scenario would include many high cost measures that provide a negligible amount of additional savings. As an example, when looking at the average cost of savings, the "Base Case" scenario achieves 5.7 m3/year of gas savings for every dollar spent, while Scenario L achieves 1.1 m3/year of gas savings for every dollar spent. The marginal savings between Scenario K and L are 0.21 m3/year per dollar spent.

Table 1. Detailed Results from Scenario L ($1.7 billion cumulative budget)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Cumulative Potential (million m3/year)	143	286	431	576	722	866	1,008	1,147	1,282	1,414
Incremental Annual Potential (million m3/year)	143	143	144	145	145	144	142	139	135	132
Cumulative Potential % of Sales	1.35%	2.68%	3.98%	5.27%	6.51%	7.72%	8.88%	9.98%	11.02%	12.00%
Increm. Annual Potential % of Sales	1.35%	1.34%	1.34%	1.33%	1.31%	1.29%	1.25%	1.21%	1.16%	1.12%
Cumulative Budget (million $)	160	323	490	661	834	1,009	1,184	1,358	1,530	1,700
Increm. Annual Budget (million $/year)	160	163	167	171	174	175	175	174	172	170
Cumulative Net Benefits (million $)	1,270	2,613	4,023	5,489	6,995	8,510	10,027	11,540	13,039	14,538
Increm. Annual Net Benefits (million $/year)	1,270	1,343	1,410	1,466	1,507	1,515	1,517	1,513	1,498	1,500
TRC	2.79	2.83	2.85	2.86	2.85	2.82	2.80	2.79	2.77	2.77

Source: Navigant

b) In Table 2 and Figure 1, Navigant has added Scenario L to the tables and figures that Environmental Defence has referenced.

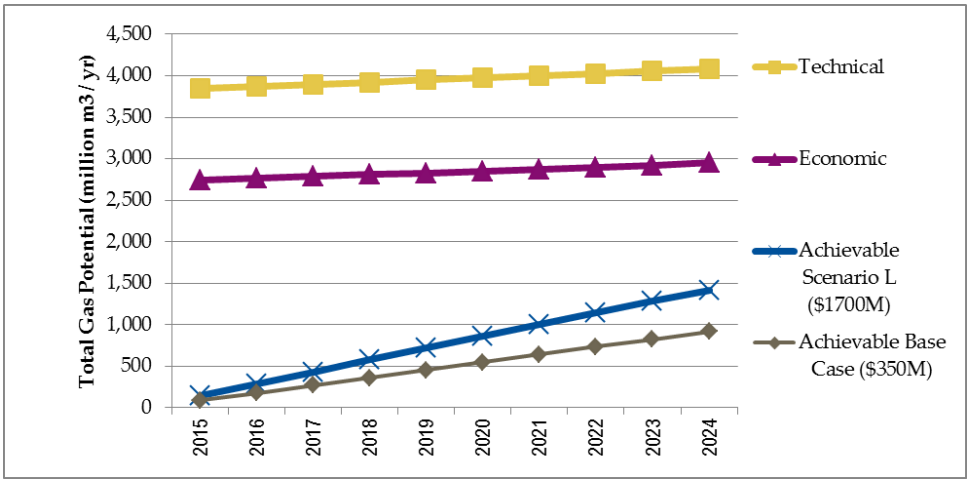
Witnesses: F. Oliver-Glasford
B. Ott
C. Welch

Table 2. Gas Savings Potential Including Scenario L (million m3/year)

Year	Technical	Economic	Cumul. First-Year Achievable - Scenario L	Cumul. First-Year Achievable - Base Case	Increm. Annual Achievable - Scenario L	Increm. Annual Achievable - Base Case
2015	3,851	2,746	143	91	143	91
2016	3,874	2,766	286	181	143	90
2017	3,898	2,787	431	272	144	90
2018	3,922	2,808	576	363	145	91
2019	3,948	2,830	722	456	145	93
2020	3,974	2,852	866	549	144	93
2021	4,001	2,876	1,008	642	142	93
2022	4,029	2,900	1,147	735	139	93
2023	4,058	2,924	1,282	828	135	93
2024	4,087	2,950	1,414	920	132	93

Source: Navigant

Figure 1. Gas Savings Potential Including Scenario L (million m3/year)



Source: Navigant

Witnesses: F. Oliver-Glasford
B. Ott
C. Welch

ENVIRONMENTAL DEFENCE INTERROGATORY #16

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Ex. C, Tab 1, Schedule 1

(a) Enerlife Consulting Inc. calculated the DSM potential for the Greater Toronto Area in a report filed in EB-2012-0451 (Exhibit L.EGD.ED.1, filed: 2013-06-28) using a performance-based model. Please provide a table comparing the commercial DSM potential estimated in the Enerlife report with the commercial DSM potential calculated by Navigant.

RESPONSE

The Enerlife report noted above does not appear to contain an estimate of annual or cumulative natural gas savings to which Enbridge could appropriately compare the outcomes of the DSM Potential Study filed as Exhibit C, Tab 1, Schedule 1. The matter at hand within the Enerlife report appears to be whether or not DSM potential specific to the Greater Toronto Area ("GTA") would be sufficient to offset some or all of the now approved GTA Project (EB-2012-0451); a matter which requires analysis of DSM's potential to reduce consumption during a peak hour scenario. The table below, taken from page 2 of the report, appears to outline Enerlife's conclusions regarding DSM potential specific to the GTA on a peak hour basis:

Table I. DSM Potential in the GTA Area

Customer Sector	**DSM Potential (10^3 m^3/hr)**
Commercial (Per Enerlife Model, Top-Quartile Attainment)	30.3
Apartment (Per Enerlife Model, Top-Quartile Attainment)	9.5
Sub Total	**39.8**
Residential (Per Chris Neme)	5.6
Industrial (Per Marbek Report and Chris Neme's Analysis)	2.1
TOTAL	**47.6**

Witnesses: F. Oliver-Glasford
B. Ott
C. Welch (Navigant)

Enbridge's ability to provide the requested comparison is further challenged by the reality that the Enerlife report cited does not suggest a DSM budget which could achieve any of the proposed savings amounts. This missing link precludes Enbridge from comparing the report to the outcomes of the DSM Potential Study, given that the Enerlife Report would need to be compared to one of the twelve different budget scenarios provided in the Potential Study.

Witnesses: F. Oliver-Glasford
B. Ott
C. Welch (Navigant)

ENVIRONMENTAL DEFENCE INTERROGATORY #17

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Ex. C, Tab 1, Schedule 1

Section 5.1.3 and Appendix E contain a benchmarking analysis. Please reproduce the tables and figures contained therein including only those jurisdictions where the utilities in question are required to implement all cost-effective DSM.

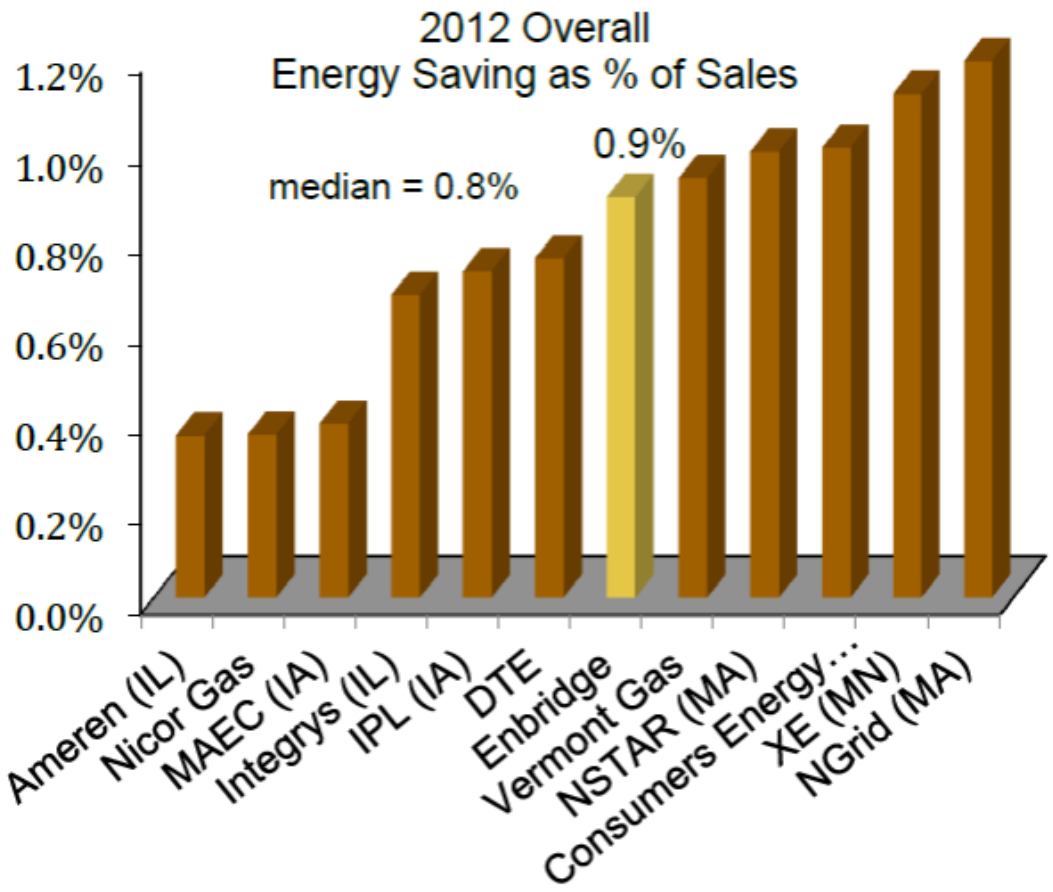
RESPONSE

Please see below the original figure noted above, as well as a revised version as requested:

Witnesses: S. Mills
F. Oliver-Glasford
B. Ott
C. Welch

Original:

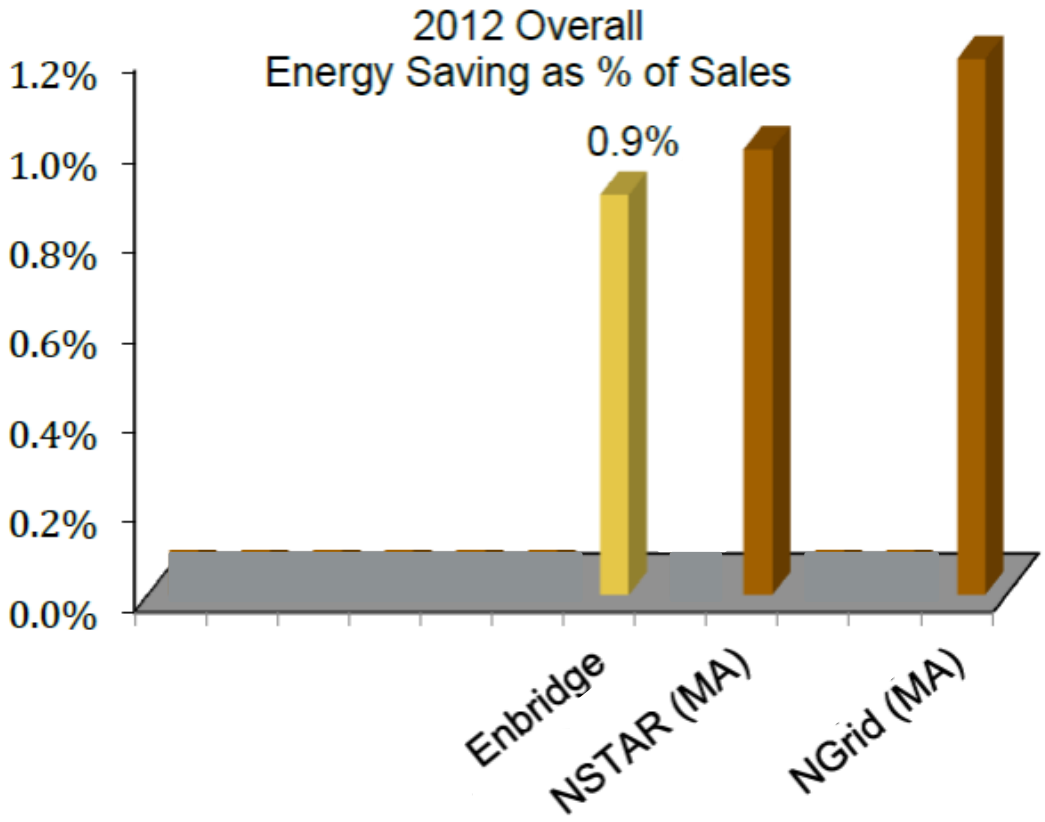
Figure 5-4. 2012 Gross Energy Savings as a Percentage of Gas Sales



Witnesses: S. Mills
F. Oliver-Glasford
B. Ott
C. Welch

Revised to include only All Cost-Effective DSM Jurisdictions[1,2,3,4,5,6,7]

Figure 5-4. 2012 Gross Energy Savings as a Percentage of Gas Sales



[1] (0.2% annual savings in 2011, ramping up to 1. ın 2019) (ACEEE (2014) *State and Local Policy Database: Illinois*, http://database.aceee.org/state/illinois#sthash.bGWyz5jh.dpuf)
[2] http://database.aceee.org/state/iowa#sthash.8lQbPs2e.dpuf
[3] http://database.aceee.org/state/michigan#sthash.TZP0sYSN.dpuf
[4] Vermont law requires program administrators to set *electricity* energy utility budgets at a level that would realize "all reasonably available, cost-effective energy efficiency. A separate proceeding for setting gas energy efficiency budgets is expected in the future, but is not currently in place.
[5] http://database.aceee.org/state/massachusetts#sthash.ulRAAgsM.dpuf
[6] The Green Communities Act requires that electric and gas utilities procure all cost-effective energy efficiency before more expense supply resources (http://database.aceee.org/state/massachusetts#sthash.ulRAAgsM.dpuf).
[7] http://database.aceee.org/state/minnesota#sthash.Lr12YnGK.dpuf

Witnesses: S. Mills
F. Oliver-Glasford
B. Ott
C. Welch

ENERGY PROBE INTERROGATORY #2

INTERROGATORY

Topic 3 – DSM Budgets

Reference: No Reference

Please provide historic DSM Metrics for each DSM Sector 2012-2014.

Please provide in Excel Spreadsheet format.

i) Program Budget
ii) Allocated Overhead
iii) Allocated LI Budget
iv) Allocated MT Budget
v) Total Budget
vi) Actual Spend
Scorecard Metrics
vii) CCM at 100% per Scorecard
viii) Actual CCM achieved
ix) Shareholder Incentive Actual and % max
x) Total Budget and Other Metrics for all sectors and programs

RESPONSE

(i, ii, iii, iv, v, vi, x)

Please find charts on the following pages displaying Program budgets, overheads, LI budget, MT budget, total budget and actual spend for each sector and program for the years 2012 to 2014. Please note that all 2014 figures are subject to change based on the work of the auditor, Audit Committee and Clearance of Accounts proceeding before the Board.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

2014

Program	Budget			Actual Expenditures		
	Program Budget	Overheads	Total Budget	Program Spending	Overheads	Total Spending
Resource Acquisition	$14,160,578	$4,638,711	$18,799,289	$16,580,635	$4,636,555	$21,217,190
Low Income	$6,729,500	$507,831	$7,237,331	$6,424,710	$507,595	$6,932,305
Market Transformation	$4,795,000	$1,327,144	$6,122,144	$3,052,807	$1,308,965	$4,361,771
TOTAL	**$25,685,078**	**$6,473,686**	**$32,158,764**	**$26,058,152**	**$6,453,114**	**$32,511,266**

Resource Acquisition

Offer	Budgeted Program Costs	Actual Program Spending
Residential	$1,836,456	$8,605,657
Commercial	$8,090,102	$5,760,122
Industrial	$4,234,020	$2,214,856
TOTAL	**$14,160,578**	**$16,580,635**

Low Income

Offer	Budgeted Program Costs	Actual Program Spending
Single Family - Part 9	$4,564,500	$4,494,530
Multi Residential - Part 3	$2,165,000	$1,930,180
TOTAL	**$6,729,500**	**$6,424,710**

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

Market Transformation

Offer	Budgeted Program Costs	Actual Program Spending
SBD Residential	$2,445,000	$1,334,035
SBD Commercial	$950,000	$739,435
Home Labelling	$1,400,000	$979,337
DWHR	$0	$0
TOTAL	**$4,795,000**	**$3,052,807**

2013

Program	Budget			Actual Expenditures		
	Program Budget	Overheads	Total Budget	Program Spending	Overheads	Total Spending
Resource Acquisition	$13,882,920	$4,528,033	$18,410,953	$11,438,046	$5,091,220	$16,529,266
Low Income	$6,638,325	$522,050	$7,160,375	$5,362,765	$586,981	$5,949,747
Market Transformation	$5,085,000	$931,872	$6,016,872	$4,313,057	$1,047,776	$5,360,834
TOTAL	**$25,606,245**	**$5,981,955**	**$31,588,200**	**$21,113,868**	**$6,725,978**	**$27,839,846**

Resource Acquisition

Offer	Budgeted Program Costs	Actual Program Spending
Residential	$1,800,000	$2,376,897
Commercial	$7,931,920	$6,453,504
Industrial	$4,151,000	$2,607,644
TOTAL	**$13,882,920**	**$11,438,046**

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

Low Income

Offer	Budgeted Program Costs	Actual Program Spending
Single Family - Part 9	$4,363,950	$4,639,037
Multi Residential - Part 3	$2,274,375	$723,728
TOTAL	**$6,638,325**	**$5,362,765**

Market Transformation

Offer	Budgeted Program Costs	Actual Program Spending
SBD Residential	$2,305,000	$1,029,535
SBD Commercial	$590,000	$590,592
Home Labelling	$775,000	$755,900
DWHR	$1,415,000	$1,937,030
TOTAL	**$5,085,000**	**$4,313,057**

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

2012

Program	Budget			Actual Expenditures		
	Program Budget	Overheads	Total Budget	Program Spending	Overheads	Total Spending
Resource Acquisition	$15,125,000	$3,926,400	$19,051,400	$13,483,273	$3,887,946	$17,371,219
Low Income	$6,120,650	$904,350	$7,025,000	$7,126,628	$895,493	$8,022,121
Market Transformation	$3,920,000	$913,600	$4,833,600	$4,308,518	$904,652	$5,213,170
TOTAL	**$25,165,650**	**$5,744,350**	**$30,910,000**	**$24,918,418**	**$5,688,092**	**$30,606,510**

Resource Acquisition

Offer	Budgeted Program Costs	Actual Program Spending
Residential	$2,808,000	$2,903,755
Commercial	$8,165,789	$7,960,641
Industrial	$4,151,211	$2,618,877
TOTAL	**$15,125,000**	**$13,483,273**

Low Income

Offer	Budgeted Program Costs	Actual Program Spending
Single Family - Part 9	$3,795,900	$5,758,684
Multi Residential - Part 3	$2,324,750	$1,367,944
TOTAL	**$6,120,650**	**$7,126,628**

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

Market Transformation

Offer	Budgeted Program Costs	Actual Program Spending
SBD Residential	$895,000	$832,409
SBD Commercial	$775,000	$855,398
Home Labelling	$300,000	$328,241
DWHR	$1,950,000	$2,292,470
TOTAL	**$3,920,000**	**$4,308,518**

vii & viii) Please see below all scorecard targets (Lower, Middle, Upper), and actual achievement for 2012 through 2014.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

2014 SCORECARD

Program Type			Performance Band		
Resource Acquisition Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Resource Acquisition	664.37	92%	**744.05**	**992.06**	**1240.08**
Residential Deep Savings	5,213	8%	**560**	**747**	**934**
Commercial/Industrial Deep Savings	---	---	---	---	---

Low Income Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Single Family - Part 9	25.67	50%	**17.7**	**23.6**	**29.5**
Multi-Residential - Part 3	29.80	45%	**48.15**	**64.2**	**80.25**
Part 3 - RIR	74.39%	5%	**30%**	**40%**	**50%**

SBD Residential Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Builders Enrolled	23	60%	**12**	**16**	**20**
# of Completed Units	1,059	40%	**750**	**1000**	**1250**

SBD Commercial Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Commercial New Construction	19	100%	**8**	**12**	**19**

Home Labeling Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Number of Committed Realtors	40,040	70%	**-**	**5,001**	**10,001**
Ratings performed	662	30%	**750**	**1,500**	**2,250**

DHWR Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
# of Units Installed	---	---	---	---	---

***In 2014 MT was 3 separate scorecards (DWHR program was no longer offered in 2014)**
****2014 results include CPSV and Auditor (Optimal) adjustments**
*****However, 2014 results are Pre-Audit Committee values and could be subject to change**

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

2013 SCORECARD

Program Type			Performance Band		
Resource Acquisition Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Resource Acquisition	766.69	92%	**729.46**	**972.61**	**1215.76**
Residential Deep Savings	1,649	8%	**549**	**732**	**915**
Commercial/Industrial Deep Savings	---	---	---	---	---

Low Income Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Single Family - Part 9	32.90	50%	**17.3**	**23.1**	**28.8**
Multi-Residential - Part 3	27.31	45%	**45.0**	**60.0**	**75.0**
Part 3 - RIR	85%	5%	**30%**	**40%**	**50%**

SBD Residential Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Builders Enrolled	18	60%	**11**	**14**	**18**
# of Completed Units	967	40%	**675**	**900**	**1125**

SBD Commercial Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Commercial New Construction	16	100%	**6**	**8**	**15**

Home Labeling Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Number of Committed Realtors	78,000	70%	**-**	**5,001**	**10,001**
Ratings performed	138	30%	**250**	**500**	**750**

DHWR Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
# of Units Installed	6,465	100%	**2,813**	**3,750**	**4,688**

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

2012 SCORECARD

Program Type			Performance Band		
Resource Acquisition Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Resource Acquisition	1029.44	92%	**615.30**	**820.40**	**1025.50**
Residential Deep Savings	209	4%	**120**	**160**	**200**
Commercial/Industrial Deep Savings	25%	4%	**40%**	**45%**	**50%**

Low Income Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Single Family - Part 9	24.71	50%	**12**	**17**	**21**
Multi-Residential - Part 3	44.93	50%	**33**	**45**	**56**
Part 3 - RIR	---	---	---	---	---

Market Transformation Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
DWHR - Units Installed	5,047	44%	**3,000**	**4,000**	**5,000**
SBD Residential Top 20 Builders	3	15%	**1**	**2**	**3**
SBD Residential Top 80 Builders	9	15%	**7**	**9**	**18**
SBD Commercial New Construction	9	20%	**6**	**8**	**15**
Home Rating	8,600	7%	**-**	**5,001**	**10,001**

(ix) Please see below shareholder incentives available at 100% achievement, maximum shareholder incentives, and actual achievement for all programs from 2012 to 2014:

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

Shareholder Incentives

Resource Acquisition	2014 DSMI	2013 DSMI	2012 DSMI
Middle (100%) DSMI	$2,542,252	$2,485,008	$2,576,346
Maximum DSMI	$6,355,631	$6,212,521	$6,440,865
Actual DSMI Achieved	$5,202,419	$1,545,045	$4,607,962

Low Income	2014 DSMI	2013 DSMI	2012 DSMI
Middle (100%) DSMI	$978,714	$966,468	$950,000
Maximum DSMI	$2,446,785	$2,416,169	$2,375,000
Actual Achieved DSMI	$375,059	$1,117,939	$2,228,489

Market Transformation	2014 DSMI	2013 DSMI	2012 DSMI
Middle (100%) DSMI	$827,906	$812,124	$653,654
Maximum DSMI	$2,069,764	$2,030,310	$1,634,135
Actual Achieved DSMI	$2,069,764	$1,875,204	$1,323,855

Total Portfolio	2014 DSMI	2013 DSMI	2012 DSMI
Middle (100%) DSMI	$4,348,872	$4,263,600	$4,180,000
Maximum DSMI	$10,872,180	$10,659,000	$10,450,000
Actual Achieved DSMI	$7,647,242	$4,538,188	$8,160,306

**2014 results are subject to change*

***2012 Actual DSMI Achieved includes DSMI write-down of $657,223 from large industrial as a result of Board decision in EB-2013-0394*

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

ENERGY PROBE INTERROGATORY #3

INTERROGATORY

Topic 2 – DSM Budgets

Reference: Exhibit B, Tab1, Schedule 3

For budget tables 1, 2, 4 and 6, please provide both the Company's budget and actual expenditures for the comparable categories in each table for each of the past three years (2012, 2013 and 2014).

RESPONSE

Please see Enbridge's response to Energy Probe Interrogatory #2, filed as Exhibit I.T3.EGDI.EP.2.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

ENERGY PROBE INTERROGATORY #5

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Exhibit B, Tab 3, Schedule 2, Retrospective Stakeholdering.

Preamble: Retrospective/Pre-Application Stakeholdering did not reach "consensus" on all matters. However, EGD did reach consensus on several components of the 2015 Scorecards, Targets and Budgets.

Energy Probe has attached the "consensus" 2015 Budget and Rate Class Allocation, noting that this Spreadsheet was not marked "Confidential". If EGD now claims Confidentiality, or does not accept the term "consensus" all relevant responses should be based on the attachment and if required filed in Confidence.

Please provide the following in Excel Format as applicable:

a) The "as filed" Scorecards and Budgets for each sector
b) A comparison for each Sector and Program of the "As Filed" Rollover Budgets to the "Consensus" Scenario(s) negotiated with Stakeholders.

RESPONSE

Enbridge acknowledges that the spreadsheet attached by Energy Probe was not marked confidential. However, it was Enbridge's understanding that the discussions referenced were privileged given that their explicit purpose was to achieve a settlement regarding budgets and targets for the 2015 program year. Settlement discussions and the exchange of materials prepared for such discussions are subject to settlement privilege and are not producible because they are of no probative value and because the production of same would act as a disincentive to enter into settlement discussions lest a parties views and potential compromises be used against them in future.

Enbridge contests Energy Probe's characterization of the above noted spreadsheet as representing a consensus scenario between the Company and stakeholders. As noted on page 7 of Exhibit B, Tab 1, Schedule 1, the goal of the many sessions between Enbridge and intervenors was an agreement regarding the 2015 Transition Year. Despite the best of efforts and intentions such an agreement did not materialize. There was in fact no consensus. Given that no agreement was realized, Enbridge finds the

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

representation of any negotiated or contemplated outcome as a “consensus” to be inaccurate. In light of this position the Company must respectfully decline to provide a comparison between the 2015 scorecards and budgets, as filed in Exhibit B, Tab 1, Schedule 3.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

ENERGY PROBE INTERROGATORY #6

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Exhibit B, Tab 1, Schedule 3, Page 3

Preamble: It should be recognized that Enbridge and intervenors spent a significant amount of time working towards this end. Nearly a dozen sessions were held including a substantial amount of information in respect of its program offers and historical results.

Please provide details and discuss why consensus was/was not agreed for each sector and each program.

Please explain what were/are the outstanding areas of non-consensus for each sector and program. In particular provide detail with respect to the 2015 Incremental Budget.

RESPONSE

Please see Enbridge's response to Energy Probe Interrogatory #5 found at Exhibit I.T3.EGDI.EP.5 in respect of the applicability of questions about privileged settlement discussions.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

ENERGY PROBE INTERROGATORY #7

INTERROGATORY

Topic 3 – DSM Budgets

Reference.: Exhibit B, Tab 1, Schedule 3, Page 3 and Tables 1, 2, 3 pages 5-6

Preamble: Enbridge has rolled over its 2014 programs into 2015 and set its budget and targets for 2015 in accordance with the DSM Framework.

a) Please provide a version of Tables 1, 2 and 3 including 2014 Estimates/Actuals.

b) Please provide the 2014 RA/Custom Efficiency Metrics by Sector Program and Rate class $/CCM.

c) Please Provide as filed 2015 RA/custom Efficiency Metrics by Sector, Program and Rate class $/CCM.

d) Please provide the same Metrics for each Sector and Program for the “Consensus Scenario”.

RESPONSE

a) Please refer to Energy Probe Interrogatory #4 found at Exhibit I.T2.EGDI.EP.4 for this detail.

b) Please refer to Energy Probe Interrogatory #4 Found at Exhibit I.T2.EGDI.EP.4 for this detail.

c) $/CCM values for the Resource Acquisition Program have been provided below based on the 2015 Roll Over Budget and CCM forecasts as filed in EB-2012-0394 escalated to apply to 2015.

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

Resource Acquisition	Program Budgets	As Filed CCM[1]	$/CCM
Residential	$1,872,720	11,964,613	$0.16
Commercial	$8,252,369	646,352,847	$0.01
Industrial	$4,318,700	353,621,036	$0.01
TOTAL	**$14,443,790**	**1,011,938,496**	**$0.01**

Enbridge does not believe that $/CCM values per rate class are a meaningful or informative calculation. It is challenging to map Enbridge's specific offers to specific rate classes, as offers are designed to address customer segments and types, while rate classes are more often designed in alignment with customer consumption patterns and amounts. Where $/CCM values are helpful in comparing the relative cost effectiveness between offers, at the rate class level this no longer holds true as a variety of costs which do not directly contribute to CCM generation, such as overheads, MTEM programming, or energy literacy, are included in the calculation. For this reason, the Company respectfully declines to undertake these calculations.

d) As discussed in response to Energy Probe Interrogatory #5, filed as Exhibit I.T3.EGDI.EP.5, Enbridge is not in a position to describe a Consensus that did not take shape. Therefore, a cost effectiveness for the "2015 Consensus Scenario" cannot be not provided.

[1] Based on forecast of gas savings for 2014 as filed in EB-2012-0394, Exhibit B, Tab 1, Schedule 4, page 5

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

ENERGY PROBE INTERROGATORY #8

INTERROGATORY

Topic 3 – DSM Budgets

Reference.: Exhibit B, Tab 1, Schedule 3, page 6:

Preamble: Enbridge's proposed 2015 roll-over budget allocates $1.873 million residential RA. It also has a target (100%) of just 762 participants in its CER program.

a) Please indicate how many participants has Enbridge had in the residential Conservation Energy Retrofit program in each month of 2014 and total and up to date in 2015?

b) Please indicate how much has Enbridge spent on the Residential CER Program in each month of 2014 and in total and in to date in 2015?

c) Please Indicate Enbridge's RA achievement for 2015 were the same as estimates of its 2014 accomplishments, what would be its weighted average score for its 2015 Resource Acquisition Scorecard? How much of the maximum incentive would it earn?

d) Please indicate if Enbridge's home retrofit program's 2014 participation levels and spending will exceed the proposed 100% scorecard target and budget for 2015, why did EGD not adopt the "Consensus" Budget and Targets? Please explain why Residential customers should pay for incentives for lower than historic achievement.

e) Please discuss if EGD continues CER in 2015 or curtails it or scales back marketing to limit budget over-runs?

f) If the Residential CER is constrained in 2015 is EGD proposing to ramp up the program with increased budget in 2016 and beyond? Please explain the strategy

Witnesses: S. Bertuzzi
M. Lister
F. Oliver-Glasford
B. Ott

RESPONSE

a) Please see response to GEC Interrogatory #7 found at Exhibit I.T2.EGDI.GEC.7.

b) Please see response to GEC Interrogatory #7 found at Exhibit I.T2.EGDI.GEC.7.

c) Below is the 2015 DSMI calculator with the potential 2015 DSMI forecast using Enbridge's 2014 actual results. It should be noted that 2014 results are subject to change as a result of the work of the auditor, Audit Committee and a Clearance of Accounts proceeding before the Board. In this scenario, the 2015 DSMI would be $6.92 million.

Witnesses: S. Bertuzzi
M. Lister
F. Oliver-Glasford
B. Ott

2015 DSMIDA SCORECARD (with 2014 results)*

Program Type			Performance Band		
Resource Acquisition Total	**Actual 2014 Results**	**Weight**	**Lower**	**Middle**	**Upper**
Resource Acquisition	664.37	92%	**758.93**	**1011.9**	**1264.88**
Residential Deep Savings	5,213	8%	**571**	**762**	**952**
				Weighted Score	
RA Total DSMIDA			**$ -**	**$ 2,593,097**	**$ 6,482,744**
Low Income Total	**Actual 2014 Results**	**Weight**	**Lower**	**Middle**	**Upper**
Single Family - Part 9	25.67	50%	**18.08**	**24.1**	**30.13**
Multi Residential - Part 3	29.80	45%	**51.5**	**68.7**	**85.9**
Low Income RIR	74%	5%	**30%**	**40%**	**50%**
				Weighted Score	
LI Total DSMIDA			**$0**	**$998,288**	**$2,495,721**
SBD Residential Total (MT)	**Actual 2014 Results**	**Weight**	**Lower**	**Middle**	**Upper**
Market Transformation	23	60%	**13**	**18**	**22**
Market Transformation	1,059	40%	**833**	**1,111**	**1389**
				Weighted Score	
MT Total DSMIDA			**$ -**	**$ 430,597**	**$ 1,076,493**
SBD Commercial Total (MT)	**Actual 2014 Results**	**Weight**	**Lower**	**Middle**	**Upper**
Market Transformation	19	100%	**11**	**18**	**24**
				Weighted Score	
MT Total DSMIDA			**$ -**	**$ 167,308**	**$ 418,269**
Home Labeling Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Market Transformation	40,040	50%	**-**	**5,001**	**10,001**
Market Transformation	662	50%	**2250**	**4,500**	**6,750**
				Weighted Score	
MT Total DSMIDA			**$ -**	**$ 246,559**	**$ 616,397**

Total DSMI Available	
Total Middle DSMI	**$ 4,435,849**
Total Upper DSMI	**$ 11,089,624**
Total DSMI Achieved	**$ 6,923,237**

Witnesses: S. Bertuzzi
M. Lister
F. Oliver-Glasford
B. Ott

d) Yes, Enbridge will exceed the proposed 100% scorecard target and budget for 2015. As noted in response to Energy Probe Interrogatory #5 found at Exhibit I.T3.EGDI.EP.5, no "Consensus" was achieved regarding alternative budgets and targets for Enbridge's DSM programs in 2015. The Company has put forward in Exhibit B, Tab 1, Schedule 3 a proposed 2015 Transition Year in accordance with section 15.1 of the DSM Framework.

e) Enbridge will continue with the Home Energy Conservation program in 2015 using the franchise areas that were opened in 2014. Enbridge will place limitations on marketing costs and adjust the budget as required to ensure customers and the company needs are being addressed.

f) Enbridge is proposing to ramp up the HEC offer with an increased budget in 2016 and beyond as outlined in Exhibit B, Tab 1, Schedule 4, regardless of results achieved or not achieved in 2015. The Company finds the HEC offer to be highly aligned with the Board's guiding principles and key priorities, as it seeks to reach an increased number of participants, treat customers' homes in a holistic manner, and drive deep savings.

Witnesses: S. Bertuzzi
M. Lister
F. Oliver-Glasford
B. Ott

ENERGY PROBE INTERROGATORY #9

INTERROGATORY

Topic 3 – DSM Budgets

Reference.: Exhibit B, Tab 1, Schedule 3, Tables 4 and 5, Pages 8-9

Preamble: Pre-Application consultation did not reach "consensus" on all matters. However, EGD and stakeholders did reach "consensus" on Low Income 2015 Scorecards, Targets and Budgets.

Energy Probe has attached the "consensus" 2015 Budget and Rate Class Allocation, noting that this Spreadsheet was not marked "Confidential". If EGD now claims Confidentiality, or does not accept the term "consensus" all relevant responses should be based on the attachment and filed as necessary in Confidence.

a) Please provide a version of Tables 4 and 5 including 2014 Estimates/Actuals.

b) Please provide the LI 2014 RA/Custom Efficiency Metrics $/CCM.

c) Please confirm the as filed Budget for the 2015 LI Program broken down between RA and MT Program including Overhead and other.

d) Please provide the LI Scorecard based on the above Budget.

e) Please provide and compare the "consensus" 2015 LI Budget.

f) Please provide the as filed Sector and Rate Class allocations of the LI Budget, targets and Incentive (100%).

g) Please provide the "consensus" Sector and Rate Class allocations of the LI Budget, targets and Incentive (100%)

Witnesses: M. Lister
E.Lontoc
K. Mark
J. Paris

RESPONSE

Please see Enbridge's response to Energy Probe Interrogatory #2, filed as Exhibit I.T2.EGDI.EP.2, to view 2014 actuals.

b) LI 2014 RA/Custom Efficiency Metrics $/CCM is shown below:

2014 Resource Acquisition	Program Budget	CCM Forecast	Cost Effectiveness ($/CCM)
Residential	**$8,605,657**	**89,690,562**	**$0.0959**
Commercial	**$5,760,122**	**389,415,717**	**$0.0148**
Industrial	**$2,214,856**	**185,261,718**	**$0.0120**
TOTAL	**$16,580,635**	**664,367,997**	**$0.0250**

2014 Low Income	Program Budget	CCM Forecast	Cost Effectiveness ($/CCM)
Single Family - Part 9	**$4,494,530**	**25,673,482**	**$0.1751**
Multi Residential - Part 3	**$1,930,180**	**29,801,158**	**$0.0648**
TOTAL	**$6,424,710**	**$55,474,640**	**$0.1158**

c) The 2015 Low Income program budget can be found at Exhibit B, Tab 1, Schedule 3, page 5. The relevant table has been provided below for convenience. Please note that Enbridge has 3 Programs in 2015; Resource Acquisition, Low Income and Market Transformation. Low Income is not broken out between the Resource Acquisition and Market Transformation Programs as suggested in the question.

Witnesses: M. Lister
E.Lontoc
K. Mark
J. Paris

2015 Roll Over Budget

Program	Program Budget	Overheads	Total Budget	% of Total	Maximum Incentive Available
Low Income	$6,864,090	$517,988	$7,382,078	23%	$2,495,721
Market Transformation	$4,890,900	$1,353,687	$6,244,587	19%	$2,111,159
Resource Acquisition	$14,443,790	$4,731,485	$19,175,275	58%	$6,482,744
Total Rollover Budget	$26,198,780	$6,603,160	$32,801,939	100%	$11,089,624
	Incremental Budget		*$4,920,291*		
	Total 2015 DSM Budget		**$37,722,230**		

d) The 2015 Low Income Scorecard is provided at Exhibit B, Tab 1, Schedule 3, page 8, and provided below for convenience.

Metric: Cumulative Savings (million m^3)	Weight	Lower Band	Middle Band	Upper Band
Single Family Ontario Building Code (Part 9)	50%	18.1	24.1	30.2
Multi-residential Ontario Building Code (Part 3)	45%	51.6	68.7	86.0
% of Part 3 Participants Enrolled[1]	5%	30%	40%	50%

1. Low Income Building Performance Management (LIBPM) Percentage of Part 3 buildings enrolled in current year program = (x+y)/(x+y+z) where:
x = # of new LIBPM buildings in the current year which have participated in another aspect of the Low Income program in a previous year of 2012-2014 plan; y = # of new LIBPM buildings participating in current year which have not previously participated in the Low Income program; z = # of buildings in the current year which have implemented custom projects other than LIBPM.

e) Please see Enbridge's response to Energy Probe Interrogatory #5 found at Exhibit I.T3.EGDI.EP.5 in respect of the applicability of questions about privileged settlement discussions.

Witnesses: M. Lister
E.Lontoc
K. Mark
J. Paris

f) The Low Income rate allocation is provided at Exhibit B, Tab 2, Schedule 4, in Tables 1, 3, 5, 7, 9, and 11.

g) Please see Enbridge's response to Energy Probe Interrogatory #5 found at Exhibit I.T3.EGDI.EP.5 in respect of the applicability of questions about privileged settlement

Witnesses: M. Lister
E.Lontoc
K. Mark
J. Paris

ENERGY PROBE INTERROGATORY #11

INTERROGATORY

Topic 3 – DSM Budgets

Reference.: Exhibit B, Tab 1, Schedule 3, Table 10, Pages 13-14 -2015 Incremental Budget

a) Please indicate which projects are one time (2015) and which may have either carryover or future year funding requirements.

b) In the latter case, please indicate the specific provisions included in future year budgets.

c) Please explain in detail why the IRP Study cannot be undertaken jointly by EGD and Union at a lower cost at least for the distribution portion of the respective systems.

d) Please explain in more detail, who are the partners/ funders of the Collaboration and Innovation Fund projects.

e) Please provide details of how projects will be solicited and selected.

RESPONSE

a) Please see response to CCC Interrogatory #16 found at Exhibit.I.T3.EGDI.CCC.16.

b) Please see response to CCC Interrogatory #16 found at Exhibit.I.T3.EGDI.CCC.16.

c) Page 36 of the DSM Framework states that "…the gas utilities should each conduct a study…" and that "…the studies should be based on a consistent methodology…". Toward this end Enbridge has filed a scope of work for an Integrated Resource Planning ("IRP"), study as Exhibit C, Tab 1, Schedule 3. Further, on page 4 of Exhibit B, Tab 3, Schedule 3, Enbridge states that "In an effort to promote a consistent methodological approach to the study, Enbridge has shared with Union Gas Limited its proposed study scope, timelines and transition plan. In addition, both utilities held a half-day discovery session dealing with IRP on January 12,

Witnesses: M. Lister
S. Mills
F. Oliver-Glasford
B. Ott

2015." In Enbridge's view, its activities to date have been consistent with the Ontario Energy Board's guidance in the DSM Framework.

d) Please see Enbridge's response to Board Staff #30, filed at Exhibit I.T11.EGDI.STAFF.30.

e) Please see response to SEC Interrogatory#3 found at Exhibit I.T5.EGDI.SEC.3.

Witnesses: M. Lister
S. Mills
F. Oliver-Glasford
B. Ott

ENERGY PROBE INTERROGATORY #13

INTERROGATORY

Topic 3 – DSM Budgets

Energy Probe IR # 13

Reference.: Exhibit B, Tab 1, Schedule 2, Table 1 and
Exhibit B, Tab 1, Schedule 4, Page 39 of 41, Table 27: Enbridge's: 2020 Goal and Annual Budgets and CCM Targets

Preamble: Under the LTEP, Targets have been established for Ontario Electricity Distributors. Macro level metrics and comparisons are requested.

a) Has the Minister, Ministry, Board or Board Staff proposed or commented on the 2020 Targets? If so indicate/provide a copy of these proposals/comments.

b) How do the EGD 2020 forecast gas savings (CCM and % of consumption) compare to:

   i) those forecast for the electricity sector e.g. % of Electricity consumption,

   ii) those forecast for Union Gas e.g. % distribution throughput, and,

   iii) those forecast for other Canadian Gas distributors e.g. Fortis, Manitoba Hydro and Gaz Metro? e.g. % distribution throughput.

RESPONSE

a) Enbridge has not received any commentary from the Minister, Ministry, the Ontario Energy Board or Ontario Energy Board Staff on its proposed 2020 CCM Goal.

b) The on the following page compare Enbridge's forecast gas savings for the 2015 to 2020 period as a percentage of 2015 throughput to similar figures for Toronto Hydro and FortisBC. For a more comprehensive comparison of Enbridge and Union's DSM applications please see Enbridge's response to Energy Probe Interrogatory #37 found at Exhibit I.T13.EGDI.EP.37.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

Enbridge	
2015 – 2020 Budget	$418,937,911
2015 - 2020 m3 Savings*	1,351,316,166
Forecast 2015 Throughput	11,287,264,254
6 Year Savings as % of 2015 Throughput*	12%
2020 CCM Goal as % of 2015 Throughput	56%

Toronto Hydro[1]	
2015 – 2020 Budget	$480,126,401
2015 - 2020 kWh Savings*	1,576,053,000
2013 Throughput[2]	22,146,797,566
6 Year Savings as % of Throughput*	7%

FortisBC	
2013 - 2018 Budget[3, 4]	$213,565,000
2013 - 2018 m3 Savings*[5]	269,640,921
2014 Throughput[6]	5,227,882,038
6 Year Savings as % of Throughput	5%

[1] Toronto Hydro Electricity Systems Ltd., CDM Plan, Feb.25, 2015, http://www.ieso.ca/Documents/conservation/CDM-plans/CDM-Plan-201501230068-Toronto-v1-3.pdf

[2] Yearbook of Electricity Distributors (2014) Ontario Energy Board, Stats by Customer Class, http://www.ontarioenergyboard.ca/OEB/Industry/Rules+and+Requirements/Reporting+and+Record+Keeping+Requirements/Yearbook+of+Distributors#elec

*Savings targets and results for electricity CDM in Ontario are calculated as the cumulative savings which physically take place between 2015 and the end of 2020, as opposed to the full lifetime savings achieved through CDM efforts from 2015 to 2020. For comparability Enbridge's 2015-2020 DSM savings have been presented in this fashion in addition to representing full CCM savings realized through DSM efforts from 2015 to 2020.

[3] Note that in order to show a 6 year comparison 2013 actuals have been combined with 2014-2018 planned activities. Further Enbridge cannot warrant the comparability of evaluation practices or other essential differences between FortisBC and Enbridge, as well as BC and Ontario.

[4] FortisBC (2014). *Energy Efficiency and Conservation Program - 2013 Annual Report*, p. 11, http://www.fortisbc.com/About/RegulatoryAffairs/GasUtility/NatGasBCUCSubmissions/Documents/140328_FEU_2013_EEC_Annual_Report_FF.pdf

[5] Fortis BC (2013) *Performance Based Ratemaking Application – Vol. 2*, p. 1129, file:///F:/IR%20Question%20Stuff/Fortis%20BC%20(2013)%20Performance%20Based%20Ratemaking%20Application%20-%20Vol%202.pdf

[6] (FortisBC, 2014, *2014 Annual Report*, p. 21 [23pdf], https://www.fortisinc.com/Investor-Centre/Financial-and-Regulatory-Reports/Documents/ftsanrep-3-6-228pm.pdf)

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

ENERGY PROBE INTERROGATORY #14

INTERROGATORY

Topic 3 – DSM Budgets

Reference.: Exhibit B, Tab 1, Schedule 2 Page 7

Preamble: Enbridge is cognizant that the reasonable rate impact of its DSM programs is to be approximately $2.00 per month for a typical residential customer and that the total DSM budget cap is approximately $85 million, inclusive of shareholder incentive, as stated in the DSM Framework.

a) Please provide the 2014 comparable cost/month per residential customer.

b) Please indicate how the Macro level residential customer costs/savings compare on a unit basis $/CCM to $/Kwh.

c) Please Indicate how the monthly costs per customer compare for Electricity CDM and Gas DSM.

d) Please indicate how CDM/DSM costs compare on a typical Residential Bill basis e.g. Toronto Hydro to EGD.

e) Please Provide forecast macro level RA and Custom Efficiency Metrics $/CCM for each program and each year and total for the 6 year period.

f) Please provide some Macro Scale metrics for the Budgets and the Targets --e.g. Savings in gas relative to forecast 2015-2016 throughputs (normalized for weather)

-Costs of the RA and Custom Program relative to Distribution Revenues
-Others felt to be relevant

RESPONSE

a) In EB-2012-0394 Enbridge filed its expected monthly bill impact of DSM in 2014 to be $0.67[1] for a typical residential customer. This cost does not include amounts for Lost Revenue Adjustment Mechanism ("LRAM"), shareholder incentives, or any variance through the DSM Variance Account ("DSMVA") from the rate allocations

[1] EB-2012-0394, Exhibit B, Tab 2, Schedule 1, Page 3

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

filed in EB-2012-0394. As agreed with Enbridge's auditor and Audit Committee, the impacts of these figures will be made available with the release of Enbridge's final 2014 Annual Report.

b) Enbridge assumes that Energy Probe is requesting a comparison of Enbridge's $/CCM on a macro basis against the $/kWh of electricity comparable figures listed in response to Energy Probe Interrogatory #13 found at Exhibit I.T3.EGDI.EP.13. On that basis, the levelized $/kWh cost reported by Toronto Hydro for its 2015 to 2020 CDM Plan is $0.030/kWh.[2] Please see e) below for Enbridge's $/CCM.

c) Enbridge does not have the data necessary to calculate the average bill impact of electricity Conservation and Demand Management ("CDM") for a typical residential customer.

d) Please see c) above.

e) Please see below an analysis of the Resource Acquisition Program's $/CCM by offer from 2016 to 2020. For a comparison against previous years' $/CCM please see response to Energy Probe Interrogatory #4 found at Exhibit I.T2.EGDI.EP.4.

[2] Toronto Hydro Electricity Systems Ltd., CDM Plan, Feb.25, 2015, http://www.ieso.ca/Documents/conservation/CDM-plans/CDM-Plan-201501230068-Toronto-v1-3.pdf

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

	Cost Effectiveness				
Resource Acquisition	**2016 $/CCM or $/Participant**	**2017 $/CCM or $/Participant**	**2018 $/CCM or $/Participant**	**2019 $/CCM or $/Participant**	**2020 $/CCM or $/Participant**
Large C&I Customers (Sum)	$0.0123	$0.0126	$0.0128	$0.0130	$0.0132
Large Custom	$0.0114	$0.0117	$0.0119	$0.0121	$0.0123
Large Prescriptive	$0.0195	$0.0200	$0.0203	$0.0207	$0.0210
Small C&I Customers (Sum)	$0.0414	$0.0417	$0.0417	$0.0417	$0.0417
Small Custom	$0.0257	$0.0259	$0.0259	$0.0259	$0.0259
Small Prescriptive	$0.0138	$0.0139	$0.0139	$0.0139	$0.0139
Small DI	$0.0821	$0.0827	$0.0827	$0.0827	$0.0827
Small Commercial New Construc.	N/A	$0.0893	$0.1335	$0.1251	$0.1073
Residential Thermostats	$0.0367	$0.0320	$0.0304	$0.0296	$0.0294
Residential HEC (CCM)	$0.1184	$0.1111	$0.1067	$0.1037	$0.1017
TOTAL	**$0.0330**	**$0.0362**	**$0.0385**	**$0.0386**	**$0.0387**

f) Please see response to Energy Probe Interrogatory #37 found at Exhibit I.T13.EGDI.EP.37.

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

ENERGY PROBE INTERROGATORY #15

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Exhibit B, Tab 1, Schedule 2, Page 8 and Exhibit B, Tab 1, Schedule 2, Page 17

Preamble: Since its inception, DSM has generated significant bill reductions, environmental benefits, and social assistance. These are key policy objectives of DSM which continue to be relevant under the new DSM Framework and in Enbridge's Multi-Year DSM Plan.

Please provide a qualitative/quantitative analysis and discussion of the following hypothetical Value Cost/Benefit Proposition for a typical Residential customer paying an Annual DSM Cost of $25/yr e.g.

a) General Benefits longer term -all customers
- Bill Reductions-Avoided Cost
- Environmental Greenhouse Gas Reductions
- Social Assistance
- Other

b) Participant Benefits (annual)
- e.g. 12000 Home Retrofits costing $X per home Participant pays Y
- Bill Savings/home Z +Increased Comfort
- e.g. 12000 Low income housing retrofits. Cost X/home/unit. Participant pays $0
- Bill Savings/home/unit Z +increased Comfort.
- Other

RESPONSE

Enbridge is unclear regarding the request made by Energy Probe for a qualitative and quantitative analysis of a "…hypothetical Value Cost/Benefit Proposition for a typical Residential customer paying an Annual DSM Cost of $25/yr." Energy Probe may find Enbridge's response to CCC Interrogatory # 30 found at Exhibit I.T8.EGDI.CCC.30 to be informative regarding some of the quantitative costs and benefits of Enbridge's proposed Multi-Year DSM Plan to residential customers.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

ENERGY PROBE INTERROGATORY #18

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Exhibit B, Tab 2, Schedule 1, page 3

For each of the 22 programs listed, please provide in Excel Format the forecast budget, broken down by the following categories for each year from 2016 through 2020:

i. Financial incentives
ii. Marketing
iii. Evaluation
iv. Other (explain what this includes)

RESPONSE

i) On the following page please find forecasted budgets for financial incentives for all 22 offers for the years 2016 to 2020:

Witnesses: S. Bertuzzi
P. Goldman
R. Kennedy
M. Lister
E. Lontoc
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

	Financial Incentives				
Offer Description	**2016**	**2017**	**2018**	**2019**	**2020**
Custom Industrial	N/A	N/A	N/A	N/A	N/A
Custom Commercial	N/A	N/A	N/A	N/A	N/A
C/I Custom	$5,404,600	$5,509,231	$5,687,872	$5,801,629	$5,917,662
C/I Direct Install	$3,647,650	$3,725,272	$3,502,583	$3,572,634	$3,644,087
C/I Prescriptive	$1,454,532	$1,484,047	$1,465,665	$1,494,979	$1,524,878
Energy Leaders	$300,000	$450,000	$600,000	$612,000	$624,240
Residential Home Energy Conservation	$9,145,025	$12,180,000	$15,461,213	$16,094,732	$16,416,626
Residential Adaptive Thermostats	$676,058	$1,350,000	$2,025,000	$2,120,336	$2,182,053
Small Commercial New Construction	$0	$421,909	$849,743	$977,422	$1,161,822
Multi-Family Homes - Part 3	$2,426,481	$2,529,410	$2,821,839	$2,878,276	$2,935,841
Home Winterproofing - Part 9	$4,826,460	$5,232,240	$5,389,207	$5,496,991	$5,606,931
New Construction	$899,554	$1,036,177	$1,257,940	$1,233,051	$1,003,332
SBD -Residential	$2,750,712	$2,750,000	$2,750,000	$2,809,606	$2,870,404
SBD - Commercial	$847,412	$450,000	$575,000	$640,675	$698,646
New Construction Commissioning	$250,000	$325,000	$400,000	$463,636	$520,200
Opower	$3,763,225	$6,710,000	$6,709,797	$6,892,282	$7,041,427
Home Rating	$110,000	$110,000	$110,000	$110,000	$110,000
Energy Compass	$0	$0	$0	$0	$0
School Energy Competition	$30,220	$60,000	$50,000	$51,000	$52,020
Run It Right	$267,444	$304,440	$336,300	$343,589	$351,024
Small Commercial and Industrial Behavioural	N/A	N/A	N/A	N/A	N/A
Comprehensive Energy Management	$474,087	$799,845	$934,011	$968,074	$994,428
Energy Literacy	$0	$0	$0	$0	$0
Total	**$37,273,460**	**$45,427,570**	**$50,926,170**	**$52,560,913**	**$53,655,622**

Witnesses: S. Bertuzzi
P. Goldman
R. Kennedy
M. Lister
E. Lontoc
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

ii) Below please find below forecasted budgets for marketing for all 22 offers for the years 2016 to 2020:

	Marketing Costs *					
Offer Description	**2016**	**2017**	**2018**	**2019**	**2020**	**5 Year Total**
Custom Industrial	N/A	N/A	N/A	N/A	N/A	N/A
Custom Commercial	N/A	N/A	N/A	N/A	N/A	N/A
C/I Custom	$1,616,064	$1,647,914	$1,673,690	$1,707,163	$1,741,307	$8,386,138
C/I Direct Install	$1,307,771	$1,335,600	$1,255,761	$1,280,876	$1,306,494	$6,486,502
C/I Prescriptive	$742,420	$757,087	$767,240	$782,584	$798,236	$3,847,567
Energy Leaders	$100,000	$150,000	$200,000	$204,000	$208,080	$862,080
Residential Home Energy Conservation	$3,003,292	$3,000,000	$2,538,787	$2,265,268	$2,310,574	$13,117,921
Residential Adaptive Thermostats	$200,313	$175,000	$150,000	$98,164	$80,817	$704,294
Small Commercial New Construction	$396,933	$883,657	$1,547,082	$1,467,340	$1,331,835	$5,626,847
Multi-Family Homes - Part 3	$852,547	$888,711	$991,457	$1,011,286	$1,031,512	$4,775,514
Home Winterproofing - Part 9	$929,604	$1,007,760	$1,037,993	$1,058,753	$1,079,928	$5,114,038
New Construction	$217,142	$163,823	$142,060	$194,949	$453,228	$1,171,201
SBD -Residential	$500,130	$500,000	$500,000	$510,837	$521,892	$2,532,859
SBD - Commercial	$498,478	$500,000	$500,000	$457,625	$423,422	$2,379,525
New Construction Commissioning	$600,000	$600,000	$600,000	$556,364	$520,200	$2,876,564
Opower	$150,209	$200,000	$200,203	$167,492	$171,116	$889,019
Home Rating	$990,000	$990,000	$990,000	$990,000	$990,000	$4,950,000
Energy Compass	$302,197	$400,000	$200,000	$204,000	$208,080	$1,314,277
School Energy Competition	$271,977	$540,000	$450,000	$459,000	$468,180	$2,189,157
Run It Right	$1,243,540	$1,415,560	$1,563,700	$1,597,593	$1,632,164	$7,452,558
Small Commercial and Industrial Behavioural	N/A	N/A	N/A	N/A	N/A	$0
Comprehensive Energy Management	$39,648	$44,200	$65,989	$51,926	$45,972	$247,735
Energy Literacy	$0	$0	$0	$0	$0	$0
Total	**$13,962,267**	**$15,199,312**	**$15,373,960**	**$15,065,221**	**$15,323,034**	**$74,923,794**

Witnesses: S. Bertuzzi
P. Goldman
R. Kennedy
M. Lister
E. Lontoc
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

iii) Below please find below forecasted budgets for evaluation and other costs for the years 2016 to 2020:

	Administrative Costs					
Administrative Items	**2016**	**2017**	**2018**	**2019**	**2020**	**5 Year Total**
DSM IT System	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$5,000,000
Evaluation	$1,500,000	$1,700,000	$1,700,000	$1,736,746	$1,774,228	$8,410,974
Overheads	$8,800,000	$9,000,000	$9,180,000	$9,378,430	$9,580,829	$45,939,260
Collaboration & Innovation Fund	$1,000,000	$1,000,000	$1,000,000	$1,021,616	$1,043,663	$5,065,279
Energy Literacy	$0	$500,000	$500,000	$510,808	$521,832	$2,032,639
Total Administrative Costs	**$12,300,000**	**$13,200,000**	**$13,380,000**	**$13,647,600**	**$13,920,552**	**$66,448,152**

Witnesses: S. Bertuzzi
P. Goldman
R. Kennedy
M. Lister
E. Lontoc
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

ENERGY PROBE INTERROGATORY #31

INTERROGATORY

Topic 3 – DSM Budgets

Reference.: Exhibit B, Tab 2, Schedule 4, Tables 3 and 4

a) Please confirm these 2016 Tables are based on 100% achievement of Target.

b) Please indicate in detail how EGD interprets the "cap" of $2/month for a typical Residential customer.

c) Is there any corresponding assumption for Rate 6? Please discuss.

d) Please provide, preferably in live Excel Format, the Worksheet Calculation of the Shareholder Incentive calculation for each of Rate1 and Rate 6.

e) Please provide the same calculation for the other 3 Budget Scenarios (75%, 125% and 150%).

f) Please Indicate clearly the assumption(s) regarding the DSMVA and DSMCEIDA and how changing these would affect the result(s).

Please provide a version of Table 4 showing the 4 Scenario Rate class impacts.

RESPONSE

a) Confirmed.

b) Enbridge has incorporated the Board's guidance regarding reasonable monthly bill impacts of DSM for typical residential customers into the development of its Multi-Year DSM Plan. On this basis, when adjusted for inflation the DSM budgets that Enbridge has proposed yield average residential monthly bill impacts which are approximately $2.00/month when including shareholder incentives at the 100% target achievement level.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
R. Sigurdson

c) While the Board did not provide specific guidance regarding acceptable monthly bill impacts for commercial or other non-residential customers, page 18 of the DSM Framework does call on the gas utilities to ensure that, "…cost increases to all other rate classes are generally proportional with the guidance outlined relative to residential customers." As outlined in Exhibit B, Tab 2, Schedule 4, for Rates 1 and 6, DSM costs will account for 1% and 1.4% respectively of average annual bills for customers in 2015. By 2018 these impacts increase to 2.5% for Rate 1 customers and 2.2% for Rate 6 customers. In Enbridge's view the increased bill impacts to Rate 6 are within the guidance outlined by the Board on page 18 of the DSM Framework.

d) As noted on page 1 of Exhibit B, Tab 2, Schedule 4 Enbridge has included in its Rate Allocation and Bill Impacts the shareholder incentive that would be available at 100% target achievement. At this level of achievement Enbridge can earn 40% of the overall shareholder incentive maximum, or $4.44 million in 2015 and $4.18 million for each year from 2016 to 2020. Page 39 of the DSM Filing Guidelines further states that, "Incentive amounts paid to the natural gas utilities should be allocated to rate classes in proportion of the amount actually spent on DSM activities on each rate class." On this basis Enbridge allocated the shareholder incentive available at 100% target achievement to each rate class based on that rate class's contributions to the forecast DSM budget for the year in question. The tables below show the shareholder incentive amounts allocated to each of Rates 1 and 6 in accordance with the figures outlined in Exhibit B, Tab 2, Schedule 4:

	Rate 1		
	DSMI @ 100% (Millions)	Rate % of Budget	DSMI (Millions)
2015	$4.44	47%	$2.10
2016	$4.18	56%	$2.34
2017	$4.18	59%	$2.47
2018	$4.18	60%	$2.50
2019	$4.18	60%	$2.50
2020	$4.18	60%	$2.50

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
R. Sigurdson

	Rate 6		
	DSMI @ 100% (Millions)	Rate % of Budget	DSMI (Millions)
2015	$4.44	44%	$1.96
2016	$4.18	39%	$1.61
2017	$4.18	36%	$1.50
2018	$4.18	35%	$1.46
2019	$4.18	35%	$1.46
2020	$4.18	35%	$1.46

e) Please see the tables below outlining the shareholder incentive amounts attributed to Rates 1 and 6 under the 75%, 125% and 150% sensitivity scenarios, respectively.

75% Scenario

	Rate 1		
	DSMI @ 100% (Millions)	Rate % of Budget	DSMI (Millions)
2016	$4.18	54%	$2.27
2017	$4.18	57%	$2.37
2018	$4.18	58%	$2.41
2019	$4.18	60%	$2.50
2020	$4.18	60%	$2.50

	Rate 6		
	DSMI @ 100% (Millions)	Rate % of Budget	DSMI (Millions)
2016	$4.18	40%	$1.67
2017	$4.18	37%	$1.55
2018	$4.18	35%	$1.46
2019	$4.18	35%	$1.46
2020	$4.18	35%	$1.46

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
R. Sigurdson

125% Scenario

	Rate 1		
	DSMI @ 100% (Millions)	Rate % of Budget	DSMI (Millions)
2016	$4.18	55%	$2.32
2017	$4.18	59%	$2.46
2018	$4.18	60%	$2.51
2019	$4.18	60%	$2.50
2020	$4.18	60%	$2.50

	Rate 6		
	DSMI @ 100% (Millions)	Rate % of Budget	DSMI (Millions)
2016	$4.18	39%	$1.61
2017	$4.18	36%	$1.49
2018	$4.18	35%	$1.45
2019	$4.18	35%	$1.46
2020	$4.18	35%	$1.46

150% Scenario

	Rate 1		
	DSMI @ 100% (Millions)	Rate % of Budget	DSMI (Millions)
2016	$4.18	56%	$2.33
2017	$4.18	59%	$2.48
2018	$4.18	61%	$2.54
2019	$4.18	60%	$2.50
2020	$4.18	60%	$2.50

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
R. Sigurdson

	Rate 6		
	DSMI @ 100% (Millions)	Rate % of Budget	DSMI (Millions)
2016	$4.18	38%	$1.60
2017	$4.18	35%	$1.47
2018	$4.18	34%	$1.42
2019	$4.18	35%	$1.46
2020	$4.18	35%	$1.46

f) In the above noted scenarios Enbridge has assumed that the utility has achieved exactly 100% of target. If the Company seeks access to the DSMVA, then presumably it will be projecting greater than 100% scorecard achievement. In this case the amounts presented above would increase. If the Company seeks to apply amounts to the DSM Cost-Efficiency Incentive Deferral Account ("DSMCEIDA"), then it will have had to have achieved greater than 100% scorecard results, and for clarity, the amounts presented above would increase.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
R. Sigurdson

GEC INTERROGATORY #9

INTERROGATORY

Reference: Exh. B/T1/S3:

For budget tables 1, 2, 4 and 6, please provide both the Company's budget and actual expenditures for the comparable categories in each table for each of the past three years (2012, 2013 and 2014).

RESPONSE

Please see Enbridge's response to Energy Probe Interrogatory#2, filed as Exhibit I.T3.EGDI.EP.2.

Witnesses: M. Lister
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris
R. Sigurdson

GEC INTERROGATORY #11

INTERROGATORY

Reference : Exh. B/T2/S1 p. 3:

For each of the 22 programs listed, please provide the following:

a. The forecast budget, broken down by the following categories for each year from 2016 through 2020:
    i. Financial incentives
    ii. Marketing
    iii. Evaluation
    iv. Other (explain what this includes)

RESPONSE

The following charts provide the requested break down of Enbridge's DSM offer budgets:

Witnesses: S. Bertuzzi, R. Kennedy, E. Lontoc, B. Ott, R. Sigurdson, P. Goldman, M. Lister, F. Oliver-Glasford, J.Paris

i. Financial Incentives

Resource Acquisition	2016 Incentive Forecast	2017 Incentive Forecast	2018 Incentive Forecast	2019 Incentive Forecast	2020 Incentive Forecast	5 Year Total Incentive Forecast
Large Custom	$4,961,668	$5,056,873	$5,262,555	$5,367,806	$5,475,162	$26,124,065
Large Prescriptive	$686,971	$700,152	$728,630	$743,203	$758,067	$3,617,023
Large DI	$0	$0	$0	$0	$0	$0
Energy Leaders Fund (Large C/I)	$150,000	$225,000	$300,000	$306,000	$312,120	$1,293,120
Small Custom	$442,932	$452,358	$425,317	$433,823	$442,499	$2,196,928
Small Prescriptive	$767,561	$783,895	$737,035	$751,776	$766,811	$3,807,078
Small DI	$3,647,650	$3,725,272	$3,502,583	$3,572,634	$3,644,087	$18,092,226
Small Commercial New Construction	$0	$421,909	$849,743	$977,422	$1,161,822	$3,410,895
Energy Leaders Fund (Small C/I)	$150,000	$225,000	$300,000	$306,000	$312,120	$1,293,120
Residential Adaptive Thermostats	$676,058	$1,350,000	$2,025,000	$2,120,336	$2,182,053	$8,353,447
Residential Home Energy Conservation	$9,145,025	$12,180,000	$15,461,213	$16,094,732	$16,416,626	$69,297,596
Energy Compass (RA portion)	$0	$0	$0	$0	$0	$0
Run It Right (RA portion)	$223,049	$253,903	$280,474	$286,553	$292,754	$1,336,733
Industrial CEM (RA portion)	$45,038	$75,985	$88,731	$91,967	$94,471	$396,192
Total	**$20,895,952**	**$25,450,346**	**$29,961,281**	**$31,052,252**	**$31,858,593**	**$139,218,424**

Low Income	2016 Incentive Forecast	2017 Incentive Forecast	2018 Incentive Forecast	2019 Incentive Forecast	2020 Incentive Forecast	5 Year Total Incentive Forecast
New Construction	$899,554	$1,036,177	$1,257,940	$1,233,051	$1,003,332	$5,430,056
Multi-Family Homes - Part 3	$2,426,481	$2,529,410	$2,821,839	$2,878,276	$2,935,841	$13,591,846
Single Family Homes - Part 9	$4,826,460	$5,232,240	$5,389,207	$5,496,991	$5,606,931	$26,551,830
Total	**$8,152,495**	**$8,797,827**	**$9,468,986**	**$9,608,318**	**$9,546,105**	**$45,573,732**

Market Transformation and Energy Management	2016 Incentive Forecast	2017 Incentive Forecast	2018 Incentive Forecast	2019 Incentive Forecast	2020 Incentive Forecast	5 Year Total Incentive Forecast
SBD Residential - Builder Enrollment	$2,750,712	$2,750,000	$2,750,000	$2,809,606	$2,870,404	$13,930,723
SBD Commercial - Builder Enrollment	$847,412	$450,000	$575,000	$640,675	$698,646	$3,211,733
School Competition (Sch.Boards)	$30,220	$60,000	$50,000	$51,000	$52,020	$243,240
Home Rating	$110,000	$110,000	$110,000	$110,000	$110,000	$550,000
O-Power	$3,763,225	$6,710,000	$6,709,797	$6,892,282	$7,041,427	$31,116,731
Energy Compass (MTEM portion)	$0	$0	$0	$0	$0	$0
Run It Right (MTEM portion)	$44,396	$50,537	$55,826	$57,036	$58,270	$266,064
Industrial CEM (MTEM portion)	$429,048	$723,860	$845,280	$876,107	$899,957	$3,774,253
New Building Commissioning	$250,000	$325,000	$400,000	$463,636	$520,200	$1,958,836
Total	**$8,225,014**	**$11,179,397**	**$11,495,903**	**$11,900,342**	**$12,250,924**	**$55,051,580**

The following chart represents the program budgets broken down by Marketing costs:

ii. Marketing *

**Note: In developing the multi-year plan, no distinction was made between fixed costs and marketing costs.*

For that reason, all fixed costs will be treated the same as marketing costs. All costs provided below are the forecasted fixed costs.

Resource Acquisition	2016 Marketing Forecast	2017 Marketing Forecast	2018 Marketing Forecast	2019 Marketing Forecast	2020 Marketing Forecast	5 Year Total Marketing Forecast
Large Custom	$1,213,962	$1,237,255	$1,287,579	$1,313,331	$1,339,597	$6,391,723
Large Prescriptive	$541,225	$551,610	$574,046	$585,527	$597,237	$2,849,643
Large DI	$0	$0	$0	$0	$0	$0
Energy Leaders Fund (Large C/I)	$50,000	$75,000	$100,000	$102,000	$104,040	$431,040
Small Custom	$402,102	$410,659	$386,111	$393,833	$401,710	$1,994,415
Small Prescriptive	$201,196	$205,477	$193,194	$197,058	$200,999	$997,923
Small DI	$1,307,771	$1,335,600	$1,255,761	$1,280,876	$1,306,494	$6,486,502
Small Commercial New Construction	$396,933	$883,657	$1,547,082	$1,467,340	$1,331,835	$5,626,847
Energy Leaders Fund (Small C/I)	$50,000	$75,000	$100,000	$102,000	$104,040	$431,040
Residential Adaptive Thermostats	$200,313	$175,000	$150,000	$98,164	$80,817	$704,294
Residential Home Energy Conservation	$3,003,292	$3,000,000	$2,538,787	$2,265,268	$2,310,574	$13,117,921
Energy Compass (RA portion)	$252,032	$333,600	$166,800	$170,136	$173,539	$1,096,107
Run It Right (RA portion)	$1,037,113	$1,180,577	$1,304,126	$1,332,393	$1,361,225	$6,215,433
Industrial CEM (RA portion)	$3,767	$4,199	$6,269	$4,933	$4,367	$23,535
Total	**$8,659,705**	**$9,467,634**	**$9,609,754**	**$9,312,857**	**$9,316,473**	**$46,366,424**

Low Income	2016 Marketing Forecast	2017 Marketing Forecast	2018 Marketing Forecast	2019 Marketing Forecast	2020 Marketing Forecast	5 Year Total Marketing Forecast
New Construction	$217,142	$163,823	$142,060	$194,949	$453,228	$1,171,201
Multi-Family Homes - Part 3	$852,547	$888,711	$991,457	$1,011,286	$1,031,512	$4,775,514
Single Family Homes - Part 9	$929,604	$1,007,760	$1,037,993	$1,058,753	$1,079,928	$5,114,038
Total	**$1,999,294**	**$2,060,294**	**$2,171,510**	**$2,264,988**	**$2,564,667**	**$11,060,752**

Market Transformation and Energy Management	2016 Marketing Forecast	2017 Marketing Forecast	2018 Marketing Forecast	2019 Marketing Forecast	2020 Marketing Forecast	5 Year Total Marketing Forecast
SBD Residential - Builder Enrollment	$500,130	$500,000	$500,000	$510,837	$521,892	$2,532,859
SBD Commercial - Builder Enrollment	$498,478	$500,000	$500,000	$457,625	$423,422	$2,379,525
School Competition (Sch.Boards)	$271,977	$540,000	$450,000	$459,000	$468,180	$2,189,157
Home Rating	$990,000	$990,000	$990,000	$990,000	$990,000	$4,950,000
O-Power	$150,209	$200,000	$200,203	$167,492	$171,116	$889,019
Energy Compass (MTEM portion)	$50,165	$66,400	$33,200	$33,864	$34,541	$218,170
Run It Right (MTEM portion)	$206,428	$234,983	$259,574	$265,200	$270,939	$1,237,125
Industrial CEM (MTEM portion)	$35,882	$40,001	$59,720	$46,993	$41,605	$224,200
New Building Commissioning	$600,000	$600,000	$600,000	$556,364	$520,200	$2,876,564
Total	**$3,303,267**	**$3,671,384**	**$3,592,697**	**$3,487,376**	**$3,441,894**	**$17,496,618**

iii. Evaluation

		Administrative Costs					
Offer#	**Administrative Items**	**2016**	**2017**	**2018**	**2019**	**2020**	**5 Year Total**
1	DSM IT System	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$5,000,000
2	Evaluation	$1,500,000	$1,700,000	$1,700,000	$1,736,746	$1,774,228	$8,410,974
3	Overheads	$8,800,000	$9,000,000	$9,180,000	$9,378,430	$9,580,829	$45,939,260
4	Collaboration & Innovation Fund	$1,000,000	$1,000,000	$1,000,000	$1,021,616	$1,043,663	$5,065,279
5	Energy Literacy	$0	$500,000	$500,000	$510,808	$521,832	$2,032,639
	Total Administrative Costs	**$12,300,000**	**$13,200,000**	**$13,380,000**	**$13,647,600**	**$13,920,552**	**$66,448,152**

GEC INTERROGATORY #12

INTERROGATORY

Reference: Exh. B/T1/S4:

For budget tables 7, 14 and 21, please provide the Company's actual expenditures for the comparable categories in each table for each of the past three years (2012, 2013 and 2014).

RESPONSE

Below are the actual expenditures for each comparable category for the past three years (2014, 2013, and 2012).

Resource Acquisition Offers	2014	2013	2012	Comments
Large C/I Customers	N/A	N/A	N/A	In prior framework/scorecards, no distinction was made between Large and Small C/I customers. No historical data available.
Small C/I Customers	N/A	N/A	N/A	In prior framework/scorecards, no distinction was made between Large and Small C/I customers. No historical data available.
Total C/I Customers	$7,974,978	$9,061,149	$10,579,518	Actual historical spending for Total C/I is provided. However, there is no historical data for Large and Small C/I.
Home Energy Conservation	$8,605,657	$2,650,017	$816,709	2013 and 2012 spending excludes TAPS
Run It Right	$1,488,705	$1,596,309	$0	No expenditures for RIR in 2012 because program was still being launched
Adaptable Thermostats	N/A	N/A	N/A	This is a new program offering. No historical data available.
Comprehensive Energy Management	N/A	N/A	N/A	This is a new program offering. No historical data available.

Witnesses: K. Mark
S. Moffat
B. Ott
J. Paris
R. Sigurdson

Low Income Offers	2014	2013	2012	Comments
Single Family Homes - Part 9	$4,494,530	$4,639,037	$5,758,684	
Multi-Family Homes - Part 3	$1,930,180	$723,728	$1,367,944	
New Construction	N/A	N/A	N/A	This is a new program offering. No historical data available.

Market Transformation and Energy Management Offers	2014	2013	2012	Comments
Residential SBD	$1,334,035	$1,029,535	$832,409	
Commercial SBD	$739,435	$590,592	$855,398	
Home Rating	$979,337	$755,900	$328,241	
O-Power	N/A	N/A	N/A	This is a new program offering. No historical data available.
School Energy Competition	N/A	N/A	N/A	This is a new program offering. No historical data available.

Witnesses: K. Mark
S. Moffat
B. Ott
J. Paris
R. Sigurdson

GEC INTERROGATORY #28

INTERROGATORY

Reference: Exh. B/T2/S4

Regarding Tables 2, 4, 6, 8, 10 and 12

a. Please confirm that the average bill impacts shown in the last three columns are only the impacts from program spending and shareholder incentives.
b. Please confirm that the average bill impacts shown in the last three columns do not include the downward pressure on bills resulting from efficiency programs' energy savings.
c. Please confirm that the average bill impacts shown in the last three columns do not include the downward pressure on bills resulting from deferred capital investment in gas transmission and/or distribution, price suppression effects, or reduced future costs of complying with carbon dioxide emission regulations.

RESPONSE

a. The values in the last three columns include impacts based on the DSM Budget and shareholder incentives.

b. The average bill impacts shown in the last three columns do not incorporate any downward pressure that may result from efficiency programs' energy savings.

c. The average bill impacts shown in the last three columns do not include any downward pressure that may result from deferred capital investments in gas transmission and / or distribution, price suppression effects, or reduced future costs of complying with carbon dioxide emission regulations.

Witnesses: K. Mark
S. Mills
F. Oliver-Glasford
B. Ott

GEC INTERROGATORY #38

INTERROGATORY

Topic 3 - DSM Budgets

Reference B/T1/S3 & B/T2/S3 2015 Plan

Please provide a program by program and measure by measure buildup (including annual savings, measure life, net to gross assumptions, participation level by program and measure, TRC benefits, costs and net benefits), in Excel spreadsheet form (with formulae intact), showing how the budget and CCM savings are calculated.

RESPONSE

The worksheets requested above are integrated within an excel-based model built by Enbridge for the purpose of developing the Multi-Year DSM Plan. The model is linked to internal source documents and may not function correctly if distributed external to the Company. Further, the model has a high degree of complexity and depth. As a result, without significant knowledge and expertise regarding the composition and use of Enbridge's model the Company believes that a user would be likely to create dubious outcomes, working counter to the Board's efforts to evaluate evidence in this proceeding.

Respectfully, Enbridge must decline GEC's request to provide these tables in excel spreadsheet format. However, the Company would be amenable to walking Energy Probe through the spreadsheet at their request.

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

SEC INTERROGATORY #2

INTERROGATORY

Topic 3 - Budgets

No reference

Please provide a side by side comparison of the programs proposed by Enbridge in 2016-2020, and the programs proposed by Union Gas in EB-2015-0029 for the same period, and identify any differences between the programs. Where there are differences,

a. Please explain the reasons, if any, why Enbridge believes it has proposed a better approach.

b. Please describe any collaboration or integration activities between Enbridge and Union that have caused dissimilar programs to become more similar.

RESPONSE

A side by side comparison of the programs proposed by Enbridge in 2016 to 2020 by those proposed by Union Gas for the same period is provided in Energy Probe Interrogatory #36, filed at I.T13.EGDI.EP.36.

a. Enbridge and Union have proposed plans on the basis of their respective research, customers and market understanding. Enbridge proposed an approach which it feels is customer centric, responsive to the Board's direction and addresses the guiding principles and key priorities of the 2015 to 2020 DSM Framework.

b. Enbridge and Union Gas held a program discovery session on August 13, 2014, as well as several joint Low Income Consultation sessions, wherein programs were discussed and where appropriate adapted. Examples of areas in which there has been some alignment include the following:

Witnesses: P. Goldman
M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott

- Enbridge shared its preliminary plans for a Comprehensive, or Strategic, Energy Management offer at the August 13 session;
- In the Industrial market, Enbridge and Union standardized the incentive structure to 10 cents per m^3 to a maximum incentive of $100,000; and,
- In the Low Income market there has been alignment in several areas including around the consistency in offering a CO monitor as part of the health and safety for its weatherization offer.

Witnesses: P. Goldman
M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott

SEC INTERROGATORY #6

INTERROGATORY

Topic 3 - DSM Budgets

Reference: Ex. B/1/3, p. 17

Please provide a full explanation as to why Enbridge needs complete flexibility on the $4.92 million incremental budget. Please confirm that the proposed flexibility would allow Enbridge to decide not to proceed with one or more of the 3 projects on pages 14-16. For each of the listed projects, please advise the total amount spent to date in 2015 on that project, and the total value of any 2015 financial commitments already made with respect to that project.

RESPONSE

As explained in Exhibit B, Tab 1, Schedule 3, page 13, Enbridge is proposing to spend $4.92 million in 2015 in pursuit of the Ontario Energy Board's guiding principles and key priorities as contemplated by Section 15.1 of the DSM Framework. On this basis, Enbridge has provided a directional plan for the incremental budget based on several key identified projects, which include the Potential Study Update, Integrated Resource Planning ("IRP") Study, My Home Health Record Residential Behaviour Program (OPower), Green Button Initiative, Comprehensive Energy Management, Low Income New Construction, and the Collaboration and Innovation Fund. Other than the potential study project, the other projects are new and therefore, Enbridge does not have reference points upon which to draw for scope and costing. For example, Enbridge has put together a proposed project scope for the Integrated Resource Planning study which once approved, would commence a procurement process to crystalize milestones and associated pricing. Similarly, for the Green Button Initiative, Enbridge is venturing into the process without understanding the full extent of capacity requirements internally, and the timelines for implementation. As such, some of the projects are less certain in pricing estimates than others, and many have some uncertainty on timing. However, Enbridge is committed to all projects currently listed in the incremental budget.

Please see Enbridge's response to Board Staff Interrogatory #9 in Exhibit I.T3.EGDI.STAFF.9 for commentary on the 2015 incremental spending and commitments to-date.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

SEC INTERROGATORY #8

INTERROGATORY

Topic 3 - DSM Budgets

Reference: Ex. B/1/4, p. 3+

Please provide a table showing the unit costs (fixed monthly and/or volumetric based on cubic meters) that have been or will be charged to each customer class in each of 2014 through 2020. For 2014, please use actuals. For 2015 through 2020, please assume the proposed DSM budget is spent exactly as proposed. Please include in the costs and allocations the amount of the shareholder incentive, actual for 2014, and forecast for 2015 through 2020 on the assumption that the company achieves the target level in each year on all scorecard metrics. Please provide a similar table showing sensitivity to program implementation changes, by assuming for each class that the DSMVA is allocated to that class, and that the upper bound is achieved for the shareholder incentive on all scorecard metrics.

RESPONSE

Below Enbridge has provided the sensitivity comparison requested by SEC, in which the $/m3 costs of DSM budgets and the 100% target shareholder incentive by rate class (as filed) have been compared to a scenario in which the Company uses the entire DSMVA available and overachieved on all scorecards to the point that the maximum shareholder incentive was claimed. This comparison has been provided for 2015 through 2020. Though Enbridge filed similar figures for 2014 in EB-2012-0394[1], these figures have not been updated to account for the 2014 DSMVA, LRAM or actual shareholder incentive amounts. As agreed with Enbridge's auditor and Audit Committee, the impacts of these figures will be made available with the release of Enbridge's final 2014 Annual Report. As such, the Company unfortunately cannot fulfill SEC's request in this regard.

[1] EB-2012-0394, Exhibit B, Tab 2, Schedule 1, Page 3

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

	Comparison: As Filed vs. Full DSMI & DSMVA $/m3 Cost of DSM in Rates											
	2015		2016		2017		2018		2019		2020	
	As Filed	Full DSMVA & DSMIDA	As Filed	Full DSMVA & DSMIDA	As Filed	Full DSMVA & DSMIDA	As Filed	Full DSMVA & DSMIDA	As Filed	Full DSMVA & DSMIDA	As Filed	Full DSMVA & DSMIDA
Rate 1	$0.0043	$0.0055	$0.0080	$0.0099	$0.0098	$0.0120	$0.0107	$0.0130	$0.0109	$0.0132	$0.0111	$0.0134
Rate 6	$0.0040	$0.0051	$0.0056	$0.0069	$0.0060	$0.0073	$0.0063	$0.0077	$0.0064	$0.0078	$0.0065	$0.0080
Rate 9	-	-	-	-	-	-	-	-	-	-	-	-
Rate 110	$0.0023	$0.0030	$0.0020	$0.0024	$0.0021	$0.0025	$0.0022	$0.0027	$0.0023	$0.0027	$0.0023	$0.0028
Rate 115	$0.0021	$0.0028	$0.0025	$0.0031	$0.0027	$0.0033	$0.0028	$0.0034	$0.0029	$0.0035	$0.0029	$0.0036
Rate 125	-	-	-	-	-	-	-	-	-	-	-	-
Rate 135	$0.0049	$0.0063	$0.0051	$0.0063	$0.0055	$0.0067	$0.0058	$0.0071	$0.0059	$0.0072	$0.0060	$0.0073
Rate 145	$0.0032	$0.0041	$0.0030	$0.0037	$0.0032	$0.0039	$0.0034	$0.0041	$0.0034	$0.0042	$0.0035	$0.0042
Rate 170	$0.0009	$0.0012	$0.0010	$0.0013	$0.0011	$0.0014	$0.0012	$0.0014	$0.0012	$0.0015	$0.0012	$0.0015
Rate 200	-	-	-	-	-	-	-	-	-	-	-	-
Rate 300	-	-	-	-	-	-	-	-	-	-	-	-

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

SEC INTERROGATORY #10

INTERROGATORY

Topic 3 – DSM Budgets

Reference: Ex. B/1/5, p. 5+

Please restate Tables 3, 5, and 7 on the basis of unit rates for each class (e.g. per cubic meter). Please provide tables similar to Tables 1 and 2 of each of 2019 and 2020, and a unit rates table for each of those years as well.

RESPONSE

As requested please see below unit rates (i.e., cost of DSM budget per m^3) for each rate class under each of the sensitivity scenarios provided for in Enbridge's Multi-Year DSM Plan. In addition to unit rate tables, program years 2019 and 2020 are now inclusive of rate allocations for each of the scenarios included within Enbridge's sensitivity analysis, originally filed as Exhibit B, Tab 1, Schedule 5.

2016

	Scenario 1 (75%)	Proposed Budget	Scenario 2 (125%)	Scenario 3 (150%)
Rate 1	$0.0055	**$0.0075**	$0.0094	$0.0113
Rate 6	$0.0041	**$0.0053**	$0.0066	$0.0078
Rate 9	$0.0025	**$0.0034**	$0.0042	$0.0050
Rate 110	$0.0014	**$0.0018**	$0.0024	$0.0029
Rate 115	$0.0018	**$0.0023**	$0.0031	$0.0038
Rate 125	N/A	**N/A**	N/A	N/A
Rate 135	$0.0037	**$0.0048**	$0.0064	$0.0077
Rate 145	$0.0021	**$0.0028**	$0.0037	$0.0044
Rate 170	$0.0008	**$0.0010**	$0.0013	$0.0016
Rate 200	$0.0001	**$0.0002**	$0.0002	$0.0003
Rate 300	$0.0002	**$0.0002**	$0.0003	$0.0003

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

2017

	Scenario 1 (75%)	Proposed Budget	Scenario 2 (125%)	Scenario 3 (150%)
Rate 1	$0.0067	**$0.0093**	$0.0116	$0.0140
Rate 6	$0.0045	**$0.0057**	$0.0071	$0.0083
Rate 9	$0.0026	**$0.0035**	$0.0044	$0.0053
Rate 110	$0.0015	**$0.0020**	$0.0026	$0.0031
Rate 115	$0.0019	**$0.0025**	$0.0033	$0.0040
Rate 125	N/A	**N/A**	N/A	N/A
Rate 135	$0.0040	**$0.0052**	$0.0068	$0.0082
Rate 145	$0.0023	**$0.0030**	$0.0039	$0.0047
Rate 170	$0.0008	**$0.0011**	$0.0014	$0.0017
Rate 200	$0.0001	**$0.0002**	$0.0002	$0.0003
Rate 300	$0.0002	**$0.0002**	$0.0003	$0.0003

2018

	Scenario 1 (75%)	Proposed Budget	Scenario 2 (125%)	Scenario 3 (150%)
Rate 1	$0.0073	**$0.0101**	$0.0127	$0.0154
Rate 6	$0.0048	**$0.0060**	$0.0074	$0.0087
Rate 9	$0.0028	**$0.0037**	$0.0047	$0.0056
Rate 110	$0.0016	**$0.0021**	$0.0027	$0.0033
Rate 115	$0.0021	**$0.0027**	$0.0035	$0.0042
Rate 125	N/A	**N/A**	N/A	N/A
Rate 135	$0.0043	**$0.0055**	$0.0072	$0.0086
Rate 145	$0.0025	**$0.0032**	$0.0041	$0.0050
Rate 170	$0.0009	**$0.0011**	$0.0015	$0.0018
Rate 200	$0.0001	**$0.0002**	$0.0002	$0.0003
Rate 300	$0.0002	**$0.0002**	$0.0003	$0.0003

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

2019: Illustrative Rate Allocation by Scenario

	Scenario 1 (75%)	Proposed Budget	Scenario 2 (125%)	Scenario 3 (150%)
Rate 1	$35,116,374	$48,667,819	$61,076,706	$73,945,113
Rate 6	$22,602,033	$28,451,849	$35,122,718	$41,506,791
Rate 9	$2,140	$2,854	$3,567	$4,281
Rate 110	$1,035,664	$1,328,346	$1,726,686	$2,068,095
Rate 115	$1,007,971	$1,292,163	$1,684,631	$2,018,211
Rate 125	$90,998	$117,753	$145,282	$173,246
Rate 135	$247,724	$317,461	$414,680	$496,870
Rate 145	$413,389	$530,571	$687,006	$822,583
Rate 170	$405,830	$520,682	$675,596	$809,058
Rate 200	$27,825	$37,101	$46,376	$55,651
Rate 300	$5,351	$7,135	$8,918	$10,702
TOTAL	**$60,955,300**	**$81,273,733**	**$101,592,167**	**$121,910,600**

2019: Illustrative Unit Rates by Scenario

	Scenario 1 (75%)	Proposed Budget	Scenario 2 (125%)	Scenario 3 (150%)
Rate 1	$0.0075	**$0.0103**	$0.0130	$0.0157
Rate 6	$0.0049	**$0.0061**	$0.0075	$0.0089
Rate 9	$0.0029	**$0.0038**	$0.0048	$0.0057
Rate 110	$0.0017	**$0.0021**	$0.0028	$0.0033
Rate 115	$0.0021	**$0.0027**	$0.0036	$0.0043
Rate 125	N/A	**N/A**	N/A	N/A
Rate 135	$0.0044	**$0.0056**	$0.0073	$0.0088
Rate 145	$0.0025	**$0.0033**	$0.0042	$0.0051
Rate 170	$0.0009	**$0.0011**	$0.0015	$0.0018
Rate 200	$0.0001	**$0.0002**	$0.0002	$0.0003
Rate 300	$0.0002	**$0.0002**	$0.0003	$0.0004

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

2020: Illustrative Rate Allocation by Scenario

	Scenario 1 (75%)	Proposed Budget	Scenario 2 (125%)	Scenario 3 (150%)
Rate 1	$35,818,702	$49,641,176	$62,298,240	$75,424,015
Rate 6	$23,054,073	$29,020,886	$35,825,172	$42,336,926
Rate 9	$2,183	$2,911	$3,639	$4,366
Rate 110	$1,056,378	$1,354,913	$1,761,220	$2,109,457
Rate 115	$1,028,131	$1,318,006	$1,718,323	$2,058,575
Rate 125	$92,818	$120,108	$148,187	$176,711
Rate 135	$252,678	$323,811	$422,974	$506,808
Rate 145	$421,657	$541,182	$700,746	$839,035
Rate 170	$413,946	$531,096	$689,108	$825,239
Rate 200	$28,382	$37,843	$47,303	$56,764
Rate 300	$5,458	$7,277	$9,097	$10,916
TOTAL	**$62,174,406**	**$82,899,208**	**$103,624,010**	**$124,348,812**

2020: Illustrative Unit Rates by Scenario

	Scenario 1 (75%)	Proposed Budget	Scenario 2 (125%)	Scenario 3 (150%)
Rate 1	$0.0076	**$0.0105**	$0.0132	$0.0160
Rate 6	$0.0049	**$0.0062**	$0.0077	$0.0091
Rate 9	$0.0029	**$0.0039**	$0.0049	$0.0058
Rate 110	$0.0017	**$0.0022**	$0.0028	$0.0034
Rate 115	$0.0022	**$0.0028**	$0.0036	$0.0044
Rate 125	N/A	**N/A**	N/A	N/A
Rate 135	$0.0045	**$0.0057**	$0.0075	$0.0090
Rate 145	$0.0026	**$0.0033**	$0.0043	$0.0052
Rate 170	$0.0009	**$0.0012**	$0.0015	$0.0018
Rate 200	$0.0002	**$0.0002**	$0.0003	$0.0003
Rate 300	$0.0002	**$0.0002**	$0.0003	$0.0004

Witnesses: K. Mark
F. Oliver-Glasford
B. Ott

VECC INTERROGATORY #3

INTERROGATORY

Topic 3 – DSM Budgets

Ref: B-1-2 Page 2 Table 1

Preamble: Table 1 provides the 2020 Goal and Annual Budgets and CCM Targets for the years 2015 to 2020.

a) Please provide a similar Table that shows the Annual Budgets and CCM Targets for the years 2012 to 2014 along with Actual Costs and CCM Results.

RESPONSE

The charts below contain the CCM targets and actual results for 2012-2014:

Witnesses: K. Mark
S. Moffat
J. Paris

2014 SCORECARD

Program Type			Performance Band		
Resource Acquisition Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Resource Acquisition	664.37	92%	**744.05**	**992.06**	**1240.08**
Residential Deep Savings	5,213	8%	**560**	**747**	**934**
Commercial/Industrial Deep Savings	---	---	---	---	---

Low Income Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Single Family - Part 9	25.67	50%	**17.7**	**23.6**	**29.5**
Multi-Residential - Part 3	29.80	45%	**48.15**	**64.2**	**80.25**
Part 3 - RIR	74.39%	5%	**30%**	**40%**	**50%**

SBD Residential Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Builders Enrolled	23	60%	**12**	**16**	**20**
# of Completed Units	1,059	40%	**750**	**1000**	**1250**

SBD Commercial Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Commercial New Construction	19	100 %	**8**	**12**	**19**

Home Labeling Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Number of Committed Realtors	40,040	70%	**-**	**5,001**	**10,001**
Ratings performed	662	30%	**750**	**1,500**	**2,250**

DHWR Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
# of Units Installed	---	---	---	---	---

***In 2014 MT was 3 separate scorecards (DWHR program was no longer offered in 2014)**
****2014 results include CPSV and Auditor (Optimal) adjustments**
*****However, 2014 results are Pre-Audit Committee values and could still be subject to change**

Witnesses: K. Mark
S. Moffat
J. Paris

2013 SCORECARD

Program Type			Performance Band		
Resource Acquisition Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Resource Acquisition	766.69	92%	**729.46**	**972.61**	**1215.76**
Residential Deep Savings	1,649	8%	**549**	**732**	**915**
Commercial/Industrial Deep Savings	---	---	---	---	---

Low Income Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Single Family - Part 9	32.90	50%	**17.3**	**23.1**	**28.8**
Multi-Residential - Part 3	27.31	45%	**45.0**	**60.0**	**75.0**
Part 3 - RIR	85%	5%	**30%**	**40%**	**50%**

SBD Residential Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Builders Enrolled	18	60%	**11**	**14**	**18**
# of Completed Units	967	40%	**675**	**900**	**1125**

SBD Commercial Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Commercial New Construction	16	100 %	**6**	**8**	**15**

Home Labeling Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Number of Committed Realtors	78,000	70%	**-**	**5,001**	**10,001**
Ratings performed	138	30%	**250**	**500**	**750**

DHWR Total (MT)	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
# of Units Installed	6,465	100 %	**2,813**	**3,750**	**4,688**

***In 2013 MT was 4 separate scorecards**

Witnesses: K. Mark
S. Moffat
J. Paris

2012 SCORECARD

Program Type			Performance Band		
Resource Acquisition Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Resource Acquisition	1029.44	92%	**615.30**	**820.40**	**1025.50**
Residential Deep Savings	209	4%	**120**	**160**	**200**
Commercial/Industrial Deep Savings	25%	4%	**40%**	**45%**	**50%**

Low Income Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
Single Family - Part 9	24.71	50%	**12**	**17**	**21**
Multi-Residential - Part 3	44.93	50%	**33**	**45**	**56**
Part 3 - RIR	---	---	---	---	---

Market Transformation Total	**Actual YTD**	**Weight**	**Lower**	**Middle**	**Upper**
DWHR - Units Installed	5,047	44%	**3,000**	**4,000**	**5,000**
SBD Residential Top 20 Builders	3	15%	**1**	**2**	**3**
SBD Residential Top 80 Builders	9	15%	**7**	**9**	**18**
SBD Commercial New Construction	9	20%	**6**	**8**	**15**
Home Rating	8,600	7%	**-**	**5,001**	**10,001**

***In 2012 MT was one single scorecard**

Witnesses: K. Mark
S. Moffat
J. Paris

Below are the actual expenditures for programs from 2012-2014:

Resource Acquisition Offers	2014	2013	2012	Comments
Large C/I Customers	N/A	N/A	N/A	In prior framework/scorecards, no distinction was made between Large and Small C/I customers. No historical data available.
Small C/I Customers	N/A	N/A	N/A	In prior framework/scorecards, no distinction was made between Large and Small C/I customers. No historical data available.
Total C/I Customers	$7,974,978	$9,061,149	$10,579,518	Actual historical spending for Total C/I is provided. However, there is no historial data for Large and Small C/I.
Home Energy Conservation	$8,605,657	$2,650,017	$816,709	2013 and 2012 spending excludes TAPS
Run It Right	$1,488,705	$1,596,309	$0	No expenditures for RIR in 2012 because program was still being launched
Adaptable Thermostats	N/A	N/A	N/A	This is a new program offering. No historical data available.
Comprehensive Energy Management	N/A	N/A	N/A	This is a new program offering. No historical data available.

Low Income Offers	2014	2013	2012	Comments
Single Family Homes - Part 9	$4,494,530	$4,639,037	$5,758,684	
Multi-Family Homes - Part 3	$1,930,180	$723,728	$1,367,944	
New Construction	N/A	N/A	N/A	This is a new program offering. No historical data available.

Witnesses: K. Mark
S. Moffat
J. Paris

Market Transformation and Energy Management Offers	2014	2013	2012	Comments
Residential SBD	$1,334,035	$1,029,535	$832,409	
Commercial SBD	$739,435	$590,592	$855,398	
Home Rating	$979,337	$755,900	$328,241	
O-Power	N/A	N/A	N/A	This is a new program offering. No historical data available.
School Energy Competition	N/A	N/A	N/A	This is a new program offering. No historical data available.

Witnesses: K. Mark
S. Moffat
J. Paris

VECC INTERROGATORY #4

INTERROGATORY

Topic 3 – DSM Budgets

Ref: B-1-2 Page 3 Table 2 Preamble: Table 2 provides info on the 2020 Goal and CCM contributor.

a) Please add a budget ($) column to Table 2.

b) Please provide a similar Table to show 2012 to 2014 CCM results by Contributor.

RESPONSE

a) Please see below the requested table which includes a budget column:

Contributor	CCM	CCM Generating Program Budgets (millions)
2015 Transition Year*	774,359,281	$21.31
Large C/I	3,053,046,721	$49.77
Small C/I	882,516,626	$44.34
Residential	1,064,112,689	$91.47
Low Income Multi-Family	335,460,721	$18.37
Low Income Single Family	149,291,870	$31.67
MTEM	96,340,435	$32.01
2015 – 2020 Total	**6,355,128,342**	**$288.93**

*Based on preliminary and unaudited 2014 results escalated by 2%

Witnesses: M. Lister
S. Moffat
F. Oliver-Glasford
B. Ott

b) Please see below the requested table including the 2012 to 2014 CCM results by contributor:

Contributor	CCM	CCM Generating Program Budgets (millions)
2012		
C/I	964,752,234	$10,579,518
Residential	5,296,300	$816,709
Low Income Multi-Family	43,407,789	$1,367,944
Low Income Single Family	24,708,220	$5,758,684
2012 Total	**1,038,164,544**	**$18,522,855**
2013		
C/I	727,708,946	$9,061,149
Residential	38,980,521	$2,650,017
Low Income Multi-Family	27,314,154	$723,728
Low Income Single Family	32,904,684	$4,639,037
2013 Total	**826,908,305**	**$17,073,931**
2014		
C/I	574,677,435	$7,974,978
Residential	89,690,562	$8,605,657
Low Income Multi-Family	29,801,158	$1,930,180
Low Income Single Family	25,673,482	$4,494,530
2014 Total	**719,842,637**	**$23,005,345**

Witnesses: M. Lister
S. Moffat
F. Oliver-Glasford
B. Ott

VECC INTERROGATORY #5

INTERROGATORY

Topic 3 – DSM Budgets

Ref: B-1-2 Page 3 Table 1 2015 Budget and Maximum Shareholder Incentive

a) Please add the following columns to the table:

- Net Effective m3
- Cumulative m3

b) Please explain the types of costs included in overhead costs.

RESPONSE

a) On the following page, please find charts from Exhibit B, Tab 1, Schedule 2, page 3 showing net effective m^3 and cumulative m^3 for 2015.

Witnesses: M. Lister, K. Mark, S. Moffat, F. Oliver-Glasford, B. Ott, J. Paris

2015 DSM Rollover Budget

Exhibit B, Tab 1, Schedule 3, Page 5, Table 1

Program	Program Budget	Overheads	Total Budget	% of Total	Maximum Incentive Available	Net Effective m3	Cumulative m3 [1]
Low Income	$6,864,090	$517,988	$7,382,078	23%	$2,495,721	6,186,667	92,800,000
Market Transformation [2]	$4,890,900	$1,353,687	$6,244,587	19%	$2,111,159	N/A	N/A
Resource Acquisition	$14,443,790	$4,731,485	$19,175,275	58%	$6,482,744	67,460,080	1,011,901,200
Total 2015 Rollover Budget	$26,198,780	$6,603,160	$32,801,939	100%	$11,089,624	73,646,747	1,104,701,200
	Incremental Budget		*$4,920,291*				
	Total 2015 DSM Budget		**$37,722,230**				

1. 2015 Cumulative m3 forecast assumes Middle (100%) targets are achieved for both Resource Acquisition and Low Income
2. There is no CCM or Net Gas Saving targets for Market Transformation

b) The types of costs included in overhead costs are:

- Full time equivalent salaries
- Consulting
- Professional membership dues
- Payroll taxes
- Stationary, Office Supplies, and Postage

Witnesses: M. Lister, K. Mark, S. Moffat, F. Oliver-Glasford, B. Ott, J. Paris

VECC INTERROGATORY #7

INTERROGATORY

Topic 3 – DSM Budgets

Ref: B-1-4 Pages 3-5 Tables 1 to 5

a) Please add the following columns to each Table:

- Net Effective m3
- Cumulative m3

RESPONSE

Below please find tables from Exhibit B, Tab 1, Schedule 4 with added columns for net effective m3 and cumulative m3:

2016 DSM Budget

Program	Program Budget	Overheads	Total Budget	% of Total	Maximum Shareholder Incentive Available	Net Effective m3	Cumulative m3
Resource Acquisition	$29,555,657	$5,076,336	$34,631,993	58%	$6,028,149	59,701,844	895,527,658
Low Income	$10,151,789	$1,743,622	$11,895,411	20%	$2,070,551	5,857,438	87,861,570
Market Transformation and Energy Management [1]	$11,528,281	$1,980,042	$13,508,323	23%	$2,351,299	6,509,038	19,527,114
TOTAL	$51,235,727	$8,800,000	$60,035,727	100%	$10,450,000	72,068,320	1,002,916,343
		Process and Program Evaluation	*$1,500,000*				
		Collaboration and Innovation	*$1,000,000*				
		DSM IT Chargeback	*$1,000,000*				
		Total 2016 DSM Budget	**$63,535,727**				

1. Market Transformation and Energy Management CCM obtained from O-Power

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

2017 DSM Budget

Program	Program Budget	Overheads	Total Budget	% of Total	Maximum Shareholder Incentive Available	Net Effective m3	Cumulative m3
Resource Acquisition	$34,917,980	$5,183,539	$40,101,520	58%	$6,018,665	64,502,060	967,530,895
Low Income	$10,858,121	$1,611,877	$12,469,998	18%	$1,871,569	6,151,533	92,273,000
Market Transformation and Energy Management [1]	$14,850,781	$2,204,584	$17,055,364	24%	$2,559,766	8,333,333	25,000,000
TOTAL	$60,626,882	$9,000,000	$69,626,882	100%	$10,450,000	78,986,926	1,084,803,895

Process and Program Evaluation	*$1,700,000*
Collaboration and Innovation	*$1,000,000*
DSM IT Chargeback	*$1,000,000*
Energy Literacy	*$500,000*
Total 2017 DSM Budget	**$73,826,882**

1. Market Transformation and Energy Management CCM obtained from O-Power

2018 DSM Budget

Program	Program Budget	Overheads	Total Budget	% of Total	Maximum Shareholder Incentive Available	Net Effective m3	Cumulative m3
Resource Acquisition	$39,571,035	$5,479,056	$45,050,090	60%	$6,237,051	68,657,066	1,029,855,985
Low Income	$11,640,496	$1,611,758	$13,252,254	18%	$1,834,735	6,667,808	100,017,121
Market Transformation and Energy Management [1]	$15,088,600	$2,089,187	$17,177,787	23%	$2,378,214	6,506,591	19,519,774
TOTAL	$66,300,131	$9,180,000	$75,480,131	100%	$10,450,000	81,831,465	1,149,392,880

Process and Program Evaluation	*$1,700,000*
Collaboration and Innovation	*$1,000,000*
DSM IT Chargeback	*$1,000,000*
Energy Literacy	*$500,000*
Total 2018 DSM Budget	**$79,680,131**

1. Market Transformation and Energy Management CCM obtained from O-Power

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

2019 DSM Budget

Program	Program Budget	Overheads	Total Budget	% of Total	Maximum Shareholder Incentive Available	Net Effective m3	Cumulative m3
Resource Acquisition	$40,365,109	$5,597,856	$45,962,966	60%	$6,237,461	69,872,280	1,048,084,195
Low Income	$11,873,306	$1,646,597	$13,519,903	18%	$1,834,735	6,768,355	101,525,326
Market Transformation and Energy Management [1]	$15,387,718	$2,133,977	$17,521,695	23%	$2,377,803	6,001,785	18,005,354
TOTAL	$67,626,133	$9,378,430	$77,004,564	100%	$10,450,000	82,642,419	1,167,614,876

Process and Program Evaluation	*$1,736,746*
Collaboration and Innovation	*$1,021,616*
DSM IT Chargeback	*$1,000,000*
Energy Literacy	*$510,808*
Total 2019 DSM Budget	**$81,273,733**

1. Market Transformation and Energy Management CCM obtained from O-Power

2020 DSM Budget

Program	Program Budget	Overheads	Total Budget	% of Total	Maximum Shareholder Incentive Available	Net Effective m3	Cumulative m3
Resource Acquisition	$41,175,066	$5,719,034	$46,894,100	60%	$6,237,863	71,169,559	1,067,543,378
Low Income	$12,110,772	$1,682,133	$13,792,905	18%	$1,834,735	6,871,705	103,075,573
Market Transformation and Energy Management [1]	$15,692,818	$2,179,663	$17,872,481	23%	$2,377,401	4,762,731	14,288,193
TOTAL	$68,978,656	$9,580,829	$78,559,485	100%	$10,450,000	82,803,994	1,184,907,144

Process and Program Evaluation	*$1,774,228*
Collaboration and Innovation	*$1,043,663*
DSM IT Chargeback	*$1,000,000*
Energy Literacy	*$521,832*
Total 2020 DSM Budget	**$82,899,208**

1. Market Transformation and Energy Management CCM obtained from O-Power

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
J. Paris

VECC INTERROGATORY #8

INTERROGATORY

Topic 3 – DSM Budgets

Ref: B-1-4 Pages 9 Table 7 2016 to 2020 Resource Acquisition Budget

a) Please provide the allocation methodology for RiR and CEM budgets between the Resource Acquisition and MTEM budgets.

b) Please provide a similar Table for the years 2012 to 2015.

RESPONSE

a) Please see Enbridge's response to BOMA Interrogatory #16 found at Exhibit I.T2.EGDI.BOMA.16.

b) Prior to 2015, Enbridge's Comprehensive Energy Management ("CEM") offer did not exist. In 2015 CEM is being launched as a pilot, with all funds being drawn from the 2015 Incremental Budget provided for in section 15.1 of the DSM Framework. From 2012 to 2015 the Run it Right ("RiR") budget was allocated entirely to the Resource Acquisition Program. The Company has struggled to optimize RiR results under this allocation, as the market transformational aspects of the offer. The Company is of the view that the significant amount of effort expended is not adequately represented through the Resource Acquisition scorecard.

Witnesses: R. Kennedy
M. Lister
D. Naden
F. Oliver-Glasford
B. Ott

VECC INTERROGATORY #9

INTERROGATORY

Topic 3 – DSM Budgets

Ref: B-1-4 Page 19 Table 14: 2016-2020 Low Income Budget

a) Please provide a similar Table for the years 2012 to 2015.

RESPONSE

Below please find the chart similar to Exhibit B, Tab 1, Schedule 4, page 19. Table 14: 2016 to 2020 Low Income Budget representing the budget for Low Income in the years 2012 to 2014. Please note that Low Income New Construction was not an active program in those years.

Low Income	**2012**	**2013**	**2014**
Offer	**Budgeted Program Costs**	**Budgeted Program Costs**	**Budgeted Program Costs**
Single Family - Part 9	$3,795,900	$4,363,950	$4,564,500
Multi Residential - Part 3	$2,324,750	$2,274,375	$2,165,000
TOTAL	**$6,120,650**	**$6,638,325**	**$6,729,500**

Witnesses: E. Lontoc
K. Mark
S. Moffat
J. Paris

VECC INTERROGATORY #10

INTERROGATORY

Topic 3 – DSM Budgets

Ref: B-1-4 Page 27 Table 21 2016 to 2020 MTEM Budget

a) Please provide a similar Table for the years 2012 to 2015.

RESPONSE

Below please find chart similar to Exhibit B, Tab 1, Schedule 4, page 27, Table 21, 2016 to 2020 MTEM Budget for the years 2012 to 2015. Please note that budgets for the year 2015 can also be found in the Multi-Year DSM Plan (2015 to 2020)..

Market Transformation	2012	2013	2014	2015
SBD Residential	$ 895,000.00	$ 2,305,000.00	$ 2,445,000.00	$ 2,494,000.00
SBD Commercial	$ 775,000.00	$ 590,000.00	$ 950,000.00	$ 969,000.00
Home Labeling	$ 300,000.00	$ 775,000.00	$ 1,400,000.00	$ 1,428,000.00
DWHR	$ 1,950,000.00	$ 1,415,000.00	$ -	$ -

Witnesses: K. Mark
S. Moffat
J. Paris

BOARD STAFF INTERROGATORY #14

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B / Tab 2 / Schedule 1 / p. 1

Preamble:
Enbridge noted that it proposed many new programs in its DSM Plan.

Questions:

a) Please identify any other programs (including pilot programs) that Enbridge considered but chose not to include within its portfolio of programs.

b) If applicable, please identify the reason(s) why Enbridge chose not to further pursue these programs.

RESPONSE

a) Enbridge considered two initiatives of note which ultimately were not proposed as part of its Multi-Year DSM Plan:

   i. Project Management Services: An initiative in which Enbridge's Energy Solutions Consultants could act as project managers in the implementation of energy efficiency projects. This offer was most relevant to the small industrial segment, with the possibility of participants in mid to large industrial facilities and commercial facilities.

   ii. Natural Gas Vehicles ("NGVs"): Enbridge explored the possibility of incorporating NGVs into its Multi-Year DSM Plan. FortisBC currently operates two programs which promote the use of NGVs with combined budgets totaling $104.5 million over 5 years.[1] It was contemplated that DSM and NGVs share many characteristics as innovative technologies and market approaches which seek to reduce greenhouse gas emissions.

[1] FortisBC Energy Utilities, 2014, *2014 Long Term Resource Plan*, Appendix A-8, pp. 363-374, http://www.bcuc.com/Documents/Proceedings/2014/DOC_41170_B-1_FEU-2014-LTRP.pdf

Witnesses: S. Bertuzzi, R. Kennedy, E. Lontoc, B. Ott, P. Goldman, M. Lister, F. Oliver-Glasford, J. Paris

b) Enbridge did not propose the above noted opportunities within its DSM Plan for the following reasons:

i. Project Management Services: Though not explicitly highlighted in Exhibit B, Tab 3, Schedule 2 regarding Retrospective Stakeholdering, the Company heard concerns that the provision of ratepayer funded Project Management Services for energy efficiency projects could encroach on existing services currently available in the competitive market.

ii. Natural Gas Vehicles ("NGVs"): Despite sharing some characteristics, the inclusion of NGVs within Enbridge's Multi-Year Plan would not adequately support the goals of DSM outlined on page 5 of the Board's DSM Framework.

BOARD STAFF INTERROGATORY #15

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B / Tab 2 / Schedule 1 / p. 9-11
Exhibit B / Tab 2 / Schedule 1 / p. 11-14

Questions:

a) For the custom industrial and commercial offers, please indicate the rate classes which have customers eligible for these programs, the number of eligible customers per customer segment and the total annual gas consumption per customer segment.

b) Please provide the Return on Investment (ROI), or payback period threshold, that these customer segments typically have and how these financial indicators have been taken into consideration in the design and delivery of these custom programs in order to minimize free riders.

c) Please indicate whether Enbridge considered payback period or ROI in the design of this offer's eligibility criteria.

d) Please indicate whether Enbridge designed this offer assuming that the free ridership values will be similar to those used for the same offer over the 2012-2014 period.

Response

a) Custom and Industrial Offers
    a. Commercial Custom
        i. Rate Classes
            I. Target rate classes are: 6, 100, 110, 115, 135, 145 and 170
        ii. Number of Customers – See Table 1. below
        iii. Total Gas Consumed – See Table 1. below
    b. Industrial Custom
        i. Rate Classes
            I. Target rate classes are: 6, 100, 110, 115, 135, 145 and 170
        ii. Number of Customers - See Table 1. below
        iii. Total Gas Consumed - See Table 1. below

Witnesses: P. Goldman
R. Kennedy
M. Lister
F. Oliver-Glasford
B. Ott

Industrial and Commercial Sector – Table 1.

Rate	Volumetric Tier	Number of Customers	2014 Annual Volume
6	Greater than 5,000,000 m3 per year	15	185,733,075
	340,000 to 5,000,000 m3 per year	2,343	1,470,643,358
	75,000 to 340,000 m3 per year	8,115	1,255,341,949
	Less than 75,000 m3 per year	84,269	1,119,428,930
100	340,000 to 5,000,000 m3 per year	1	3,255,048
110	Greater than 5,000,000 m3 per year	27	337,634,450
	340,000 to 5,000,000 m3 per year	190	318,383,887
	75,000 to 340,000 m3 per year	1	332,069
115	Greater than 5,000,000 m3 per year	14	553,968,202
	340,000 to 5,000,000 m3 per year	11	26,073,802
135	340,000 to 5,000,000 m3 per year	41	61,516,611
	75,000 to 340,000 m3 per year	1	334,738
145	Greater than 5,000,000 m3 per year	1	4,412,853
	340,000 to 5,000,000 m3 per year	35	65,335,560
170	Greater than 5,000,000 m3 per year	20	318,703,682
	Total	95,084	5,721,098,214

Witnesses: P. Goldman
R. Kennedy
M. Lister
F. Oliver-Glasford
B. Ott

b) Enbridge has a diverse group of Commercial and Industrial customers. Categorizing typical payback thresholds based on segments would not accurately reflect the decision making process that customers undertake when evaluating capital or operation improvement projects. Furthermore, there is no standard cost in the market today; project costs change from project to project and from customer to customer. In addition, different segments and sectors of the economy may experience different capital cycles that prevents a generic rule that governs how customers may view their investment decisions.

   When evaluating and designing new Custom offers for Commercial and Industrial sectors the goal was to provide technical support, motivate customers to drive deeper savings and to help overcome financial barriers. There is no standardization of costs in the market today and no two custom projects are the same. ROI and payback change from project to project and although they were taken into consideration in the design of the new offers, no limits or minimum payback periods were applied to the offer conditions as they would be perceived as barriers to participating in the Custom Offers. As stated in EB-2014-0277 Enbridge's reply submission "input assumptions which are approved by the Board are, in the case of free rider rates, approved on a market sector (i.e., aggregate) basis not on a project by project basis".

c) With this said, Enbridge knows that customers in highly competitive markets (i.e., smaller manufacturers) may be looking for paybacks of one to two years, whilst institutional customers (e.g., a school or a hospital) may be willing to accept longer paybacks of five years or more.

d) These offers were designed knowing what the free ridership values were in 2012 to 2014 and with the understanding that they may change going forward.

Witnesses: P. Goldman
R. Kennedy
M. Lister
F. Oliver-Glasford
B. Ott

BOARD STAFF INTERROGATORY #16

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B / Tab 2 / Schedule 1 / p. 14-17
Exhibit B / Tab 2 / Schedule 1 / p. 17-19

Questions:

a) For the Commercial and Industrial Direct Install and Prescriptive offers, please provide typical payback periods associated with the efficiency equipment included in these offers.

b) Please indicate whether Enbridge undertook any research on the current penetration of these technologies in the marketplace. If yes, please provide estimates of penetration rates in Enbridge's franchise area for each relevant technology.

c) Please explain how payback and market penetration have been taken into consideration in the design of this offer in the context of minimizing free ridership.

d) Please indicate the free ridership rate that will be used for these offerings.

Response

a) Please refer to Response to Board Staff Interrogatory #19 found at Exhibit I.T5.EGDI.STAFF.19.

b) The Potential Study conducted by Navigant Consulting and provided at Exhibit C, Tab 1, Schedule 1 discusses achievable potential for the sector in Section 5.2. Figure 5 to 20 in the report indicates Navigant's estimate of the achievable potential by technology for the commercial sector. Aside from the Potential Study, Enbridge did not undertake any additional research on the current penetration of these technologies in the marketplace.

c) The Direct Install offer was designed to target small industrial and commercial customers. This segment of the market has typically been underserved for a variety of reasons, including but not limited to the cost to reach the segment, lower savings per

Witnesses: P. Goldman
R. Kennedy
M. Lister
R. Sigurdson

customer, and previous frameworks that incented a focus on the most cost-effective opportunities. Hence this market has a low penetration rate. For the customers targeted by this program, even very aggressive paybacks are not impetus alone to participate in an energy efficiency project. As such, Enbridge has developed its offer to be customer-centric and turn-key. By virtue of the difficulty to move decision making without an appropriate offer design, and the well-known difficulty in reaching this segment, free ridership should be minimal.

d) Please refer to EB-2014-0354 for the complete list of the free ridership rates being applied to Direct Install and Prescriptive offers. Note, the prescriptive free ridership rates for Air Doors ("curtains"), Pre-Rinse Spray Valves ("Nozzles") 0.64 GPM, Infrared Heaters and Demand Control Kitchen Ventilation are being applied to the four direct install offers outlined on page 17 of Exhibit B, Tab 2, Schedule 1.

Witnesses: P. Goldman
R. Kennedy
M. Lister
R. Sigurdson

BOARD STAFF INTERROGATORY #17

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B / Tab 1 / Schedule 3 / p. 9
Exhibit B / Tab 1 / Schedule 4 / pp. 22-23

Preamble:
Enbridge noted that it developed protocols to offer its Low-Income program to privately-owned multi-residential buildings within the City of Toronto based on available data specific to the City of Toronto. Enbridge stated that it will work with the Low-Income Consultative sub-group to develop protocols for additional municipalities based on the information available in those areas on a case-by-case basis.

Enbridge also set out certain principles for privately-owned low-income multi-family buildings to participate in its Low-Income programs. These principles include: ensuring that qualifying buildings have a high proportion of low income tenants, accessing municipal data and consulting with the Low-Income Working Group, confirming that participation does not result in an increase in rent for tenants, and implementing measures that will result in direct benefits to tenants.

Questions:

a) Please provide the eligibility criteria developed for privately-owned low-income multi-residential buildings in Toronto.

b) Please indicate what type of information was provided by the City of Toronto to inform the screening criteria.

c) Please explain how Enbridge will ensure that program participation does not result in a rent increase to building tenants, and how low-income tenants will benefit financially from natural gas cost savings if they do not pay their own natural gas bills.

d) Please explain why Enbridge did not include a principle that eligible buildings must have tenants paying for natural gas usage separate from rent.

Witnesses: M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott

e) Please discuss whether Enbridge considered adding a requirement that participating buildings must agree to separate tenants' rent and natural gas costs to allow tenants to benefit financially from natural gas cost savings.

RESPONSE

a) A privately owned building must meet the following eligibility criteria to qualify for the low income multi-residential offer: (1) The building is located in one of City of Toronto's designated priority need neighborhoods ("Neighborhood Improvement Area" or "NIA"); and, (2) the building is located in a census tract where 40% or more residents of the buildings of 5 stories and above meet the StatsCan low income measure ("LIM") after-tax values.

There are 31 NIAs as approved by Toronto's City Council in April of 2014. A list of these neighborhoods with additional background information can be found at the link below: http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2014.CD27.5.

b) The City of Toronto provided detailed information on the selection of NIAs from a social planning perspective, and its appropriateness for use as a criterion based on the goals of Enbridge's Low Income Program. Additionally, and under the direction of Enbridge, City staff used their own building database and applied StatsCan income and shelter cost census information to perform an in-depth analysis which identified neighborhoods of the highest need and propensity to contain low income consumers using the LIM as the low income test.

c) As part of the application and a condition for program participation by private building owners, Enbridge requires the building owner to acknowledge and agree through a Program Offer Letter that they shall not use the improvements and/or upgrades incentivized under the Affordable Housing Multi-Residential Offer as a basis for future rent increases. The Federation of Rental Housing Providers of Ontario ("FRPO"), a key stakeholder in the development and advancement of this Offer, has been engaged to support this position with their membership.

With reduced natural gas consumption, the resultant savings on the gas bill lowers the building's overall energy bill, helping to offset the rapidly rising cost of other fuels like electricity and water. This mitigates the need for rental rate increases on the basis of rising water and energy costs to the financial benefit of the low income renter. Further, this Offer also incorporates in-suite measures to ensure that some direct benefits are received directly by tenants.

Witnesses: M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott

d) In Enbridge's experience, multi-residential buildings are typically heated centrally. As a result heating costs are included in a tenant's rent.

e) In addition to item d) response above, the technology available for natural gas in-suite metering, or other technological approaches to apportioning heating costs to individual apartment units from central systems have not been sufficiently explored for application in existing buildings. Furthermore, Canada has not established a regulation to ensure the use of, and compliance with, these thermal heating standards for metering thermal energy for legal billing to other parties.

   It is only through an ability to meter each tenant's suite that a requirement such as that suggested above could be implemented.

Witnesses: M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott

BOARD STAFF INTERROGATORY #18

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B / Tab 2 / Schedule 1 / pp. 19-22

Preamble:
Enbridge indicated that commercial and industrial customers eligible for the Energy Leaders Initiative will either be identified by Enbridge or self-nominated. If the customer is self-nominated, Enbridge noted that it will conduct audits, assessments, and benchmarking to establish energy efficiency performance and confirm that the customer is an energy leader.

Questions:

a) Please provide the specific criteria Enbridge will use to evaluate whether a customer qualifies for the Energy Leaders Initiative.

b) Please provide more information about the additional financial incentives that will be offered to eligible program participants.

c) Please explain whether the initiative has been designed to minimize free ridership given that energy leaders, by definition, are expected to adopt new and innovative energy efficiency technologies in the future as they have done in the past.

RESPONSE

a) There are two alternatives for customers to be considered eligible for the Energy Leaders Initiative:

   I. In the case that the customer has previously undertaken typical conservation measures, and are believed to be or have the interest in being progressive on conservation, Enbridge would reach out to encourage them to explore additional non-traditional or newer technologies through technical and/or financial support.

   II. Alternatively, customers can also self-nominate. Where customers have previously installed conservation measures and are exploring non-traditional or newer technologies, then the customer could apply to Enbridge to be eligible for the offer.

Witnesses: R. Kennedy
M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

b) The intent of the Energy Leader initiative is to support Enbridge customers who are forward thinking and are evaluating the installation of non-traditional or newer technologies that would fall outside typical custom or prescriptive offers. The Company has not determined a specific incentive structure or amount for this initiative. Rather Enbridge will work with eligible customers who have already undertaken capital and operational improvements to help them address technical and financial barriers that prevent them from further undertaking energy efficient measures.

c) The Energy Leaders offer was designed to support customers to be early adopters of non-traditional or newer technologies in the pursuit of conservation. The program is intended to persuade customers to undertake these initiatives when they otherwise would not. By definition, then, the initiative is designed to minimize free ridership.

Witnesses: R. Kennedy
M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

BOARD STAFF INTERROGATORY #19

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B / Tab 2 / Schedule 1 / pp. 22-27
EB-2015-0029 / Exhibit A / Tab 3 / Appendix A / p. 6

Preamble:
The maximum incentive provided by Enbridge through its Home Energy Conservation offer is $2100 per customer. The incentive provided by Union through its Home Reno Rebate offer ranges from $2500 to $5000.

Questions:

a) Please provide rationale as to why Enbridge is providing a significantly lower incentive amount than Union in a similar program offering.

b) Using the data collected from the 2012-2014 Community Energy Retrofit offer, please provide the average cost of the retrofit per house and the payback period (before and after the financial incentive is applied).

c) Please indicate whether Enbridge considered advanced air-source heat pumps and ground source heat pumps for the Home Energy Conservation offer. Please also indicate whether Enbridge has discussed collaboration with the IESO or the LDCs to promote these technologies.

RESPONSE

a) The Home Energy Conservation program has been successful in achieving greater than 25% savings from customers over the 2012 to 2014 time period with incentives similar to what is being proposed going forward. Enbridge cannot speak to why Union is proposing higher incentives.

b) Enbridge did not track the average cost of the retrofit per house as part of the 2012-2014 Community Energy Retrofit offer. As a result, Enbridge cannot provide the payback periods as requested.

c) Enbridge has not considered advanced air-source heat pumps and ground source heat pumps. Enbridge will explore opportunities in this area, but as yet Enbridge has not submitted a firm proposal for the inclusion of these technologies. As a result, Enbridge has not yet engaged with the IESO or LDCs around these technologies.

Witnesses: S. Bertuzzi
M. Lister

BOARD STAFF INTERROGATORY #20

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B / Tab 2 / Schedule 1 / pp. 62-67

Questions:

a) Please indicate whether Enbridge has conducted any research on the current new construction commissioning practices in Ontario.

b) Please provide the market penetration of new construction commissioning as a practice in Enbridge's franchise area.

RESPONSE

a) Enbridge did not conduct any formal research regarding new construction commissioning practices in Ontario. However, as stated at Exhibit B, Tab 2, Schedule 1, Enbridge's experience and communication with builders indicate that there are barriers to successfully and appropriately commissioning new construction projects and that there is an opportunity to improve current commissioning practices to maximize the performance of buildings relative to their design.

In addition to relying on feedback from builder stakeholders Enbridge leveraged a study conducted in 2009 from the Lawrence Berkeley National Laboratory. This report gathered data from over 600 buildings in the US that had been commissioned in the previous decade, and through analysis of this data created benchmarks for analyzing cost-effectiveness and project performance. This report characterizes commissioning as one of the most effective, but underutilized mechanisms to help increase building energy efficiency and reduce GHG emissions.

b) Enbridge does not possess the information to derive a specific market penetration rate for new construction commissioning as a practice in its franchise area. Over time, as the New Construction Commissioning Offer gains momentum and Enbridge gains further experience and knowledge in this area, the Company will be better positioned to comment further on the nuances of this practice and its market penetration.

Witnesses: S. Bertuzzi
S. Hicks
M. Lister

BOARD STAFF INTERROGATORY #21

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B / Tab 2 / Schedule 1 / pp. 27-29

Questions:

a) For the Residential Adaptive Thermostats offer, please indicate how many LDCs Enbridge has engaged in discussion regarding collaboration to date.

b) If available, please indicate the typical incentive provided by LDCs for an adaptive thermostat.

c) Please provide the market penetration rate and the payback period (before and after the financial incentive is applied) in Enbridge's franchise area for the adaptable thermostats.

RESPONSE

a) Enbridge has met with several LDC's regarding our residential programs. Specifically, Enbridge has discussed adaptive thermostats with three utilities.

b) To Enbridge's knowledge, Cambridge and North Dumfries Hydro is providing a $200 rebate for the Nest adaptive thermostat. Many LDC's are also offering Wi-Fi or programmable thermostats, which are not comparable to adaptive thermostats.

c) Enbridge currently has a substantiation document before the Technical Evaluation Committee for finalization within the Technical Resource Manual ("TRM") to determine the saving amounts to be associated with adaptive thermostats. As a result, a pay payback period cannot be provided at this time. Though the Company does not have data for current market penetration levels, the market for adaptive thermostats is still relatively new and a highly competitive market from a technology perspective.

Witnesses: S. Bertuzzi
M. Lister
F. Oliver-Glasford

BOARD STAFF INTERROGATORY #22

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B / Tab 2 / Schedule 1 / pp. 67-71
EB-2015-0029 / Exhibit A / Tab 3 / Appendix A / pp. 8-11

Preamble:
For the Home Health Record program, Enbridge will create a web portal available to all offering participants. OEB staff notes that Union will also be providing an online portal as part of its behavioural offering. Union's web portal will be made available to all of its residential customers.

Questions:

a) Please indicate if Enbridge has considered vendors other than OPower to deliver this offer.

b) Please comment on whether Enbridge could expand its web portal to all residential customers.

c) Please discuss whether such an expansion could be implemented for 2016.

RESPONSE:

a) Yes, Enbridge did consider vendors other than Opower to deliver this offer. When conducting the initial scan of the market, OPower stood out as a leader in both number of clients, expertise, and history of having published 3rd party validated results for gas only behavioural programs. In addition, in 2012, OPower was one of the selected delivery agents to win an RFP to deliver a Social Benchmarking Pilot issued by the IESO and Hydro One.

b) The current web portal is currently available to any residential customer that signs up to the myEnbridge site.

c) Please refer to answer b)

Witnesses: S. Bertuzzi
S. Hicks
M. Lister

BOMA INTERROGATORY #17

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B, Tab 1, Schedule 4, page 34 of 41.

> "*For the purpose of measuring the success of the Company's School Energy Competition, a school will be considered "enrolled" at the time that energy monitoring begins using the Energy Management Information System ("EMIS") provided via the offer. At a high level, monitoring is the third of the four steps which comprise the School Energy Competition*."

How will this program improve, alter or make use of the Ministry of Education's program outlined at http://edu.gov.on.ca/eng/policyfunding/greenSchools.html

"Energy Conservation in Ontario's Schools
The government has a long-term strategy to reduce energy consumption in Ontario schools. Below you'll find highlights of projects that are part of the Ministry of Education's Energy Management and Conservation Initiative.

Green Clean Program Resource Guide
Released in March 2010, the guide provides school boards with a comprehensive framework to help them adopt and implement a green clean program that increases the use of environmentally-responsible cleaning products in schools.

Green Schools Resource Guide
The Green Schools Resource Guide: A Practical Resource for Planning and Building Green Schools in Ontario was released in January 2010. It is a one-stop reference manual to help boards plan, design and build an energy efficient green school.

Green Schools Pilot Initiative
The ministry, in partnership with the Ministry of Research and Innovation, is investing over $20 million to provide school boards with the ability to purchase, test and showcase new and innovative green products and technologies in more than 150 Ontario schools and 40 boards.

This investment will help local businesses — many of them Ontario-based — showcase their innovative technologies while supporting a greener economy.

Witnesses: R. Kennedy
M. Lister

Energy Efficient Schools Funding
In April 2009, the Ministry announced it would be investing $550 million over two years to support improved energy efficiency in schools. This includes:

- $25 million for energy audits, energy controls and thermostats
- $75 million to install interval meters and new lighting systems
- $300 million to install new energy efficient heating and cooling systems, windows and roofs
- $150 million to create permanent spaces in existing schools to replace energy inefficient portables

This builds on the $2.25 billion in funding to replace major building components through the Good Places to Learn Renewal program of 2005-06 and 2008-09.

Inventory of Green Initiatives in Ontario Schools
The ministry is creating a database of green initiatives — such as photovoltaic cells, windmills and green roofs – that schools have installed. Information on each technology will include initial start-up and maintenance costs, lessons learned, best practices and what effect these projects have had on student learning. Results will be shared with the education sector.

Renewable Energy Funding for Schools
In July 2009, the Ministry announced funding of $50 million for 2010-11 so schools can install the following five renewable energy technologies: solar photovoltaic, solar air heating, solar water heating, geothermal and small or micro wind.
The ministry is also working with the Ministry of Energy and Infrastructure to develop a list of qualified renewal energy vendors for school boards to use.

Utility Consumption Database
When complete, this database will collect electricity and natural gas data for all of Ontario's approximately 5,000 schools and board buildings. Launched in August 2009, this resource will:

- Allow boards to analyze year-over-year consumption, following weather correction to remove the impact of abnormal or extreme weather conditions, against key indicators such as number of students, total building area, etc.
- Determine average provincial benchmarks for energy consumption based on common facility indicators
- Identify those schools and boards that are the most energy efficient
- Identify schools and boards that need technical advice and support to reduce their energy consumption
- Set annual energy reduction targets for the sector, boards and individual schools

RESPONSE

The Ministry of Education's programs and funding opportunities listed above are aimed at improving the overall health of the school, whereas Enbridge's School Energy Competition offer is specifically targeted towards students in an attempt to educate them on the positive impact they can have on conservation.

Witnesses: R. Kennedy
M. Lister

BOMA INTERROGATORY #22

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B, Tab 2, Schedule 1, page 3 of 100.

Regarding the DSM Program Portfolio, please indicate why 22 different programs are needed when the programs are aimed at three main customer sectors: Commercial, Industrial and Residential.

RESPONSE

Enbridge has proposed twenty two separate offers within its Multi-Year DSM Plan in response to the Board's guiding principles and key priorities, which include a wide variety of objectives beyond the simple reduction of natural gas consumption. Further, within the three broad customer segments noted above there exists a wide diversity of distinct customer types, consumption patterns, decision-making processes, and other variables. As DSM evolves in 2016 and beyond Enbridge seeks to address these variations in a more targeted fashion where possible and effective.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

BOMA INTERROGATORY #23

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B, Tab 2, Schedule 1, page 4 of 100.

> *"Energy efficiency resource acquisition programs are characterized by verified short term energy savings met through financial incentives and technical assistance to end-use customers in an existing market system1&2. Typically this is done using an approach of identification and replacement of a lower efficiency product with a higher efficiency one*."

Why is Enbridge limiting its resource acquisition programs to such a narrow scope of overall conservation and to short term savings?

RESPONSE

The purpose of including this sourced definition statement about Resource Acquisition within Enbridge's Multi-Year DSM Plan was to provide context for readers of the public record with low levels of familiarity with DSM and its concepts. In retrospect, the above noted excerpt does not accurately reflect the evolution of Enbridge's Resource Acquisition Program which over the past number of years, increasingly pursues deep savings, engages customers in new and innovative ways, and enables a wide variety of energy saving activities through flexible offers such as the Commercial and Industrial Custom offers. Indeed, as stated throughout other parts of the application, the reason why Enbridge has selected Cumulative Cubic Meter ("CCM") as an important target variable is precisely because it encourages measures that are longer lasting in nature.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

BOMA INTERROGATORY #24

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B, Tab 2, Schedule 1, page 5 of 100.

Please restate the Resource Acquisition Table including a column indicating which customers are eligible for which measures. Please indicate if the incentive levels or key elements have changed since 2014. Are changes anticipated in the years from 2016 – 2020?

RESPONSE

Please see response to VECC Interrogatory #12 found at Exhibit I.T5.EGDI.VECC.12.

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
P. Goldman
M. Lister
J. Paris

BOMA INTERROGATORY #25

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B, Tab 2, Schedule 1, page 9 of 100.

What is meant by "maximizing the energy savings potential of the industrial sector?

RESPONSE

Through the deployment of its programs and offers, Enbridge seeks to maximize the energy savings potential of its customers. Enbridge's Industrial Energy Solution Consultants ("ESCs") are all engineers many of whom are also Certified Energy Managers. The ESCs work closely with our industrial customers to help identify energy efficiency opportunities and to recommend various options to enhance energy performance.

Witnesses: P. Goldman
M. Lister
D. Naden

BOMA INTERROGATORY #28

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B, Tab 2, Schedule 1, page 12 of 100.

Has Enbridge completed any market research to confirm that industrial customers have a preference for more attractive electricity incentives? If so please provide a copy of the research results.

RESPONSE

Enbridge has not completed any market research on the customer preference between electricity and gas energy saving projects based on incentive levels in the industrial sector.

Enbridge's insight on gas versus electricity prices shows that electricity is five times more expensive than natural gas, based on energy content. In addition to pricing signals Enbridge's daily interaction with industrial customers has revealed that the ROI of electricity saving projects (when combined with LDC's incentive, and even sometimes when not including an LDC incentive) is typically more attractive than gas saving projects. Combining this with customers' limited capital and internal resources, the majority of energy conservation projects will naturally favour an electricity focus.

Witnesses: P. Goldman
M. Lister
D. Naden

BOMA INTERROGATORY #29

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B, Tab 2, Schedule 1, page 4 of 100.

Has Enbridge completed any market research on the proportion of industrial plants where split incentives are a factor? If so please provide a copy of the research results. If not why is this considered a barrier?

RESPONSE

The reference provided in the question does not address split incentives in industrial plants. Further, split incentives are not identified as a barrier to the Custom Industrial offer.

Enbridge has not completed any market research on the proportion of industrial plants where split incentives are a factor.

Witnesses: P. Goldman
M. Lister
D. Naden

BOMA INTERROGATORY #30

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B, Tab 2, Schedule 1, page 13 of 100.

Has Enbridge completed any market research on the interest in and possible acceptance of tiered incentives a? If so please provide a copy of the research results.

RESPONSE

Enbridge does not possess any specific market research on the possible acceptance of tiered incentives.

Enbridge evaluated the effectiveness of all DSM offers in preparation for the 2015 to 2020 framework. Through Stakeholdering held prior to filing, Enbridge tabled possible incentive options for the 2015 to 2020 Commercial Custom Offer. In consideration of that feedback and based on Enbridge's sales and marketing experience, Enbridge arrived on the tiered incentive structure which aligns well with the priorities highlighted in the 2015 to 2020 DSM Framework.

Witnesses: P. Goldman
R. Kennedy
M. Lister

BOMA INTERROGATORY #31

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B, Tab 2, Schedule 1, page 14 of 100.

> "*Enbridge may consider time-limited or enhanced incentives focused on specific opportunities, either technology-based or sector-based, throughout the Multi-Year DSM Plan. Corresponding marketing and outreach efforts are made to support such campaigns. The offer is delivered by ESCs, who work directly with customers, engineering firms, distributors and contractors.*"

Has Enbridge developed any criteria to determine when and what with respect to enhanced incentives?

RESPONSE

Enbridge will use the Board's identified priorities and objectives in combination with the needs of customers and trade allies to determine when and where enhanced incentives may be necessary. Developing formalized standard criteria may not be appropriate to evaluate the potential for an enhanced offer given the number of factors and variables that may change over the course of a plan term.

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
P. Goldman
M. Lister
J. Paris

BOMA INTERROGATORY #32

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B, Tab 2, Schedule 1, page 16 of 100.

Has Enbridge completed any market research to confirm that small commercial customers in Ontario have the same attributes of those in the United States: If so please provide the report?

RESPONSE

Enbridge did not undertake any specific market research to confirm that small commercial customers in Ontario have the same attributes as those in the United States. Based on Enbridge's experience with this market segment, and through its own interactions with customers, the conclusions drawn from the excerpt apply as much to Enbridge's customers as to those drawn for the study. The conclusions drawn are reasonable and logical.

Witnesses: R. Kennedy
M. Lister

BOMA INTERROGATORY #36

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B, Tab 2, Schedule 1, page 28 of 100.

Will Enbridge continue to include programmable thermostats in it residential programs?

RESPONSE

Enbridge has not been offering programmable thermostats since the ending of the TAPS program in 2012. In its recent filing, Enbridge did outline its intentions to offer a standalone adaptive thermostat offering in 2016.

Witnesses: S. Bertuzzi
S. Hicks
M. Lister

BOMA INTERROGATORY #37

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B, Tab 2, Schedule 1, page 28 of 100.

Has Enbridge conducted any market or secondary research with respect to the barriers to adaptive thermostats? If so please provide a copy.

RESPONSE

Enbridge did not commission any research with respect to the barriers to adaptive thermostats. However, the Company gained insights from two reports: 1) a report from Navigant published in Q4 of 2013 “Smart Thermostats: Standalone, Networked, and Learning Smart Thermostats: Global Market Analysis and Forecasts” to identify potential barriers to market uptake; and, 2) a report from ICF International “Inventory and Energy Savings Estimates for Residential Self-Programmable Thermostats”. Both reports listed barriers as captured in EB-2015-0049, Exhibit B, Tab 2, Schedule 1, page 28 of 100.

Witnesses: S. Bertuzzi
S. Hicks
M. Lister

BOMA INTERROGATORY #38

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B, Tab 2, Schedule 1, page 30 of 100.

Since the inception of DAP, please provide the number of new construction projects under both DAP and SBD and the estimated savings per project. How many new construction projects took place in Enbridge service territory during that period?

RESPONSE

The Design Assistance Program ("DAP") was used from 1999 to 2011 and there were 535 DAP projects completed. There are no estimated savings per project for DAP as it was used to engage the new building design community to design and model new construction buildings without documenting energy savings which came in a later phase.

There have been 43 new commercial construction Savings by Design ("SBD") projects from 2012 to 2014. The estimated average savings per project in 2012 is 30.7 percent GJ above 2012 code, 35.7 percent GJ above 2012 code in 2013, and 34.2 percent GJ above 2012 code in 2014.

Enbridge does not track all new commercial construction projects in its service territory.

Witnesses: S. Bertuzzi
S. Hicks
M. Lister

BOMA INTERROGATORY #39

INTERROGATORY

Topic 5 – Program Types

Reference Exhibit B, Tab 2, Schedule 1, page 32 of 100. Has Enbridge completed any research on the "increased cost of energy efficiency in a price driven market" given that TD Economics has produced an insightful report on the impact of LEED Certification on the Toronto Condo market? Highlights of the report:

- Leadership in Energy and Environmental Design (LEED) certified, or 'green' buildings represent an increasing share of new construction, including the condominium market.
- Limited research exists linking LEED status in residential buildings to market outcomes such as resale price, days on market, maintenance/condo fees, and others.
- Using a novel dataset, we find that LEED certification increases the resale price of Toronto condos by between 5% and 14%. The impact on other metrics, such as time on the market and maintenance fees, is found to be mixed.
- At the same time that the Toronto condo market has been expanding, 'green' building design and construction techniques, exemplified by the Leadership in Energy and Environmental Design (LEED) certification process are also becoming increasingly common (Chart 1).
- While LEED has been mainly employed for commercial buildings, the LEED principles are making their way into Toronto's condo market, with about 1 in every 15 new condo developments in Toronto currently achieving LEED certification.

RESPONSE

Enbridge has not conducted any independent research regarding the increased cost of energy efficiency in a price driven market. Enbridge is aware of this report and other reports that indicate that there may be increased property values associated with LEED certification. As part of the IDP workshop, attendees often discuss life cycle costs and the impact on property valuation of higher environmental performance.

Witnesses: S. Bertuzzi
S. Hicks
M. Lister

BOMA INTERROGATORY #41

INTERROGATORY

Topic 5 – Program Types

Reference Exhibit B, Tab 2, Schedule 1, page 43 of 100. With respect to low income customers' fear of government claw backs of incentives, is there any evidence that this is still occurring?

RESPONSE

Yes, evidence suggests that some municipalities continue to reserve discretion for "claw backs" on surplus funds resulting from the implementation of energy efficiency projects. Such projects are reviewed by the municipal Service Managers who make determinations on a case to case basis.

More commonly, municipalities and social housing providers have a shared surplus agreement whereby the housing provider can retain 50% of the surplus for as long as the funds are put towards the capital reserves for the building.

Witnesses: M. Lister
E. Lontoc

BOMA INTERROGATORY #42

INTERROGATORY

Topic 5 – Program Types

Reference Exhibit B, Tab 2, Schedule 1, page 50 of 100, Market Transformation and Energy Management Table. In EB-2012-0451, Environmental Defense provided evidence of the holistic and systematic nature of performance based conservation which looks a great deal like your Comprehensive Energy Management Process for Industrial Customers.:

- 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.

- The nature of the inefficiencies runs the range of errors in design and construction, through equipment deterioration over time, to changes in use and operation of the building, and poor performance of controls and automation systems. It is the compound effect of these problems that leads to gas use levels in some buildings which is 3 to 5 times what is needed and already achieved by comparable, more efficient buildings.

- Fixing these problems requires a systematic methodology. The work involved in equipment repairs and replacement, right-sizing and rebalancing, refurbishment and re-programming, typically provides relatively short payback periods.

Why has Enbridge broken up this holistic process and offered them to different Commercial customer groups under the program names Compass and Run It Right, Small Commercial and Industrial behavioral, School Energy Competition while offering industrial customers a program called Comprehensive Energy Management?

RESPONSE

Enbridge is proposing a suite of DSM offers which address the specific needs of different customer segments. Enbridge is enthusiastic about all of its programs and the different ways in which they approach customer needs in the marketplace. The Company's view is that the DSM marketplace is better served by offering customers a wide variety of choice, depending on their circumstances, and that specific market

Witnesses: P. Goldman
R. Kennedy
M. Lister
F. Oliver-Glasford
B. Ott

segments may be worth targeting in different ways. In Enbridge's long history and experience, it has been observed that a wide diversity of customers generates a wide diversity in customer needs, values, priorities, and levels of commitment with respect to energy efficiency.

The suite of Enbridge offerings are also intended to facilitate, and be responsive to, the priorities and principles, as outlined by the Board. In the Company's view, a one-size fits all approach would limit the ability to serve these priorities and principles. In particular, Enbridge believes that a suite of programs is necessary to enhance awareness and literacy, to promote increased participation, and to ultimately drive enhance energy performance for customers. It is believed that once customers become engaged in energy performance and understand its merits and the savings to be had, the opportunity to move them along the value chain will be enhanced.

The programs referenced above are available to customers that qualify, whether commercial or industrial (except the School Energy Competition offering), and represent different offerings for different customer types which may also be at different points along the energy efficiency value chain:

Energy Compass: relatively simple benchmarking to produce awareness, knowledge, and high level opportunity identification.

Small Commercial & Industrial Behavioural: a pilot with targeted benchmarking among like customers or segments to produce awareness, knowledge, and high level opportunity identification.

Run-it-Right: more specific target benchmarking to delve further into opportunity identification, and also includes a follow up process to evaluate how changes are affecting consumption.

School Energy Competition: specifically targeted to schools to enhance education, awareness, and behavioural modification aimed at a particular segment of society (i.e. students)

Comprehensive Energy Management: a comprehensive evaluation program that requires a high level of customer commitment, and may include detailed assessment and engineering evaluation of specific and complex manufacturing processes.

Witnesses: P. Goldman
R. Kennedy
M. Lister
F. Oliver-Glasford
B. Ott

BOMA INTERROGATORY #43

INTERROGATORY

Topic 5 – Program Types

Reference: Exhibit B, Tab 2, Schedule 1, page 60 of 100.

How many of the 40 projects that have gone through the IDP process been located in Toronto? Has the number increased or decreased since the City of Toronto introduced its Green Standard which is a two-tier set of performance measures for sustainable site and building design? Tier 1 is required for new construction in Toronto and Tier 2 is a higher, voluntary level of performance with a financial incentive. Projects that achieve Tier 2 may be eligible for a partial refund on Development Charges paid to the City. The TGS is complements working with the LEED (Leadership in Energy and Environmental Design) voluntary rating system. Have any of the IDP projects also received an incentive from the city of Toronto? What is Enbridge's policy on "additional incentives".

RESPONSE

Five (5) City of Toronto projects have gone through the IDP process since 2012, with several more projects having taken place in the Greater Toronto Area.

The five projects in Toronto proper is too small a number to make any determination regarding the impact of the Toronto Green Standard on participation levels or any associated trends.

To Enbridge's knowledge, three (3) projects have participated in the Toronto Green Standard program. None of these were participants in the Enbridge Savings by Design program. Enbridge encourages proponents to investigate all possible incentives that might be available, including those offered through the Toronto Green Standard and the High Performance New Construction Program etc.

Witnesses: S. Bertuzzi
S. Hicks
M. Lister

BOMA INTERROGATORY #44

INTERROGATORY

Topic 5 – Program Types

Reference Exhibit B, Tab 2, Schedule 1, page 69 of 100. How was OPower selected as a contractor? Please provide the business case for the pilot project and planned roll out for the rest of the years of the plan. Given that OPower reported a GAAP operating loss of $9.9 million for the first quarter of this year, compared to an operating loss of $7.3 million in the first quarter of last year (http://www.utilitydive.com/news/pge-inks-90m-contract-with-opower/397732/), does Enbridge have a risk management strategy in place?

RESPONSE

OPower was selected because they stood out as a leader in the service offering. Opower currently has many other utilities as clients and was the only service provider that could demonstrate third party audited results of gas only residential behavioural programs.

Opower was also awarded a contract for a Social Benchmarking Program as the delivery agent for a 2012 IESO and Hydro One pilot RFP.

Three clear goals were outlined at the outset to guide the development of a Scope of Work:

(1) Understand the manner in which home energy reports are able to generate measurable, verifiable, and sustainable savings using Opower's analytics and experience.
(2) Test the effectiveness of home energy reports towards increasing participation and enrollment in the Community Energy Retrofit, Home Rating and Low Income Weatherization programs;
(3) Assess effectiveness in connecting with customers to enhance customer experience.

Witnesses: S. Bertuzzi
S. Hicks
M. Lister

The figures below represent the manner in which the My Home Health Record offer will be rolled out to Enbridge's residential customers.

2015: 500,000 participants
2016: 1,000,000 participants
2017: 1,000,000 participants
2018: 1,350,000 participants
2019: 1,350,000 participants

In Opower's most recent quarterly filing, Opower has forecasted that losses would be significant through until 2017 as the Company is investing heavily in headcount increases for sales and R&D, among other departments, in an effort to drive revenues. Other indicators of Opower's financial health include:

- As of March 31, 2015 Opower had $127M in cash (versus $126M at 12.31.14)
- Opower had total current assets of $170M as of March 31, 2015 versus only $73M in current liabilities equaling a strong current ratio of 2.3
- Opower has no material debt
- Opower forecasts 2015 revenue growth of approximately 15%

Enbridge has an understanding with Opower that should the program fail to achieve expected levels of performance, Enbridge has the option to terminate the relationship prior to its expiration. The Company is confident in Opower's permanence in the market. That being said, Enbridge is confident that through the experience it has gained in working to interface with Opower's systems, Enbridge could transition to a new vendor in a relatively short period of time.

Witnesses: S. Bertuzzi
S. Hicks
M. Lister

BOMA INTERROGATORY #45

INTERROGATORY

Topic 5 – Program Types

Reference Exhibit B, Tab 2, Schedule 1, page 69 of 100.

> "*Delivery of reports: Targeted households automatically receive one welcome insert to introduce them to the offer followed by four home energy reports annually. These reports provide periodic updates on the energy usage behaviour of a given household, and offer tips for saving energy. In addition to the physical reports mailed out, reports will also be emailed to those that have provided an email address to Enbridge. Delivery of web portal: All participants will have access to a web portal that currently resides on the myEnbridge website. This site will enable participants to create a profile, perform an online audit, access energy savings tips, monitor usage over time, and compare usage to neighbours for benchmarking purposes."*

Did Enbridge consider delivery of this data through a mobile application? If not, why not?

RESPONSE

Enbridge considered using mobile applications for delivery, but has decided to roll the program out using more traditional approaches. OPower has been exploring the use of mobile applications as a delivery platform, however, they have yet to be thoroughly tested.

While the program reports are not delivered via mobile apps, the digital email reports are optimized to be viewed on mobile devices. Enbridge will consider rolling out a mobile application in the future if a cost-effective and proven approach becomes available.

Witnesses: S. Bertuzzi
S. Hicks
M. Lister

BOMA INTERROGATORY #46

INTERROGATORY

Topic 5 – Program Types

Reference Exhibit B, Tab 2, Schedule 1, page 72 of 100. Has Enbridge discuss the home labelling issue with the Ontario government given that it remains in the Green Energy and Economy Act but is merely not proclaimed?

RESPONSE

Enbridge has had several conversations with the Ministry on this topic over the course of the home labelling program implementation. They continue to be interested in how Enbridge's program performs in the market.

Witnesses: S. Bertuzzi
S. Hicks
M. Lister
J. Paris

BOMA INTERROGATORY #47

INTERROGATORY

Topic 5 – Program Types

Reference Exhibit B, Tab 2, Schedule 1, page 79 of 100. School Energy Competition.

How does this fit with TRCA's Sustainable Schools Program?

- The Sustainable Schools program assists school boards in evaluating their energy performance, monitoring progress, and finding the tools required to make substantial and lasting improvements. Since 2007, Sustainable Schools has been working with hundreds of schools in more than 35 boards across Canada, establishing the magnitude of energy savings potential, and where those savings are to be found.

- Most school boards can save far more energy, money and emissions than they think. The Energy Assessment Service (EAS) uses the latest benchmarking, diagnostics and standards to simply and reliably estimate the conservation potential of individual schools and the board as a whole. This service determines the energy savings potential for a number of representative schools, and extrapolates it to estimate the potential for the whole board. The EAS report assists school boards in identifying specific candidate schools for energy retrofits and operational improvements. It also gives local utility companies a reliable estimate of MW, MWh and M3 reduction potential in the school sector.

- In 2008, we introduced our annual Top Energy Performing Schools Report, which identifies and recognizes some of the most energy efficient schools and boards in North America. Our latest report recognizes the top 20 energy efficient schools and highlights those showing the biggest savings over the last two years. Download the Top Energy Performing Schools reports:

    - 2011 Top Performing Schools
    - 2009 Top Energy Performing Schools
    - 2008 Top Energy Performing Schools

Witnesses: R. Kennedy
M. Lister

RESPONSE

The TRCA's Sustainable Schools Program uses data to illustrate the savings potential through benchmarking and ranking high consuming schools against top preforming schools. The program then establishes standard operating principals for existing equipment and provides training for building operators to help maintain and improve operating conditions. In 2008, 2009, and 2011 when the Top Energy Preforming Schools reports were originally published, Enbridge was a supporter of the program, and in 2015 as the next round of Top Energy Preforming Schools reports are being published, Enbridge will continue to support the program.

The School Energy Competition is focused on engagement and education; this offer will work to engage youth and change behavior in terms of energy efficiency through the use of gamification (game-design thinking/marketing) and hands on implementation and participation.

The Sustainable School Program, as it re-launches in 2015 and Enbridge's School Energy Competition are distinctly different:

- Sustainable Schools is focused on highlighting Energy Intensity to drive capital and operational equipment changes while Enbridge's School Competition is focused on educating students through curriculum.
- The Sustainable School Program provides training for building operations on how to improve the performance of existing building equipment and the Enbridge School Competition is based on creating a competition for students to help raise awareness about the impact they can have on conservation.
- The Sustainable Schools program is based on performance as it relates to equipment and Enbridge's School Competition is based on student behavior.

Enbridge believes that both the Sustainable School Program and Enbridge's School Energy Competition are valuable and schools will have more choice and can benefit from participating in one or both programs. Enbridge believes the two programs are entirely complimentary.

Witnesses: R. Kennedy
M. Lister

BOMA INTERROGATORY #48

INTERROGATORY

Topic 5 - Program Types

Reference Exhibit B, Tab 2, Schedule 1, page 91 of 100. Comprehensive Energy Management:

> *"The primary target market will be composed of industrial customers whose annual gas consumption is between 340,000 m^3 and 5,000,000 m^3. Larger commercial customers may also be enrolled in this offer. Enbridge intends to work with approximately 75 customers over a five year period."*

How does this integrate with the Energy Leaders Program? How will Enbridge determine which commercial customers will be enrolled? What about large university campuses? *Given it is similar to Union's Comprehensive Energy Management Offering, is there are any possibility to harmonize the names between the utilities?*

RESPONSE

The Energy Leaders offering is intended for customers who are already, or are interested in becoming, leaders in energy conservation and are considering employing newer or non-traditional technologies to further pursue energy efficiency. These customers may or may not be candidates for the CEM program. That is, since they are already leaders in energy conservation, they may not be interested in working with Enbridge through its CEM offering.

The CEM offer is most suited to the many industrial facilities with complex energy systems which require a holistic approach to their facility where one did not previously exist. Similarly, institutional facilities such as hospitals and universities may fit into this category. Provided the customer can show that they have undertaken energy efficiency improvements in the past, and can demonstrate themselves to be leaders in energy efficiency, then they may qualify for the Energy Leaders offering.

Union Gas has an offer similar to the CEM offer called Strategic Energy Management. Though Enbridge shared the concept of this offer with Union during a joint session on alignment on August 13, 2014, there have not been any discussions between the utilities on name harmonization. Enbridge prefers the term "Comprehensive" in the branding of the offer as it suggests exactly what customers should expect both from themselves and from Enbridge.

Witnesses: P. Goldman
R. Kennedy
M. Lister

BOMA INTERROGATORY #52

INTERROGATORY

Topic 5 – Program Types

Reference Exhibit B, Tab 4, Schedule 1, page 2 of 11. Why was Enbridge's participation in High Performance New Construction ended?

RESPONSE

Enbridge's participation in delivering the second generation of the High Performance New Construction ended as per the timelines established in the contractual agreements with participating LDCs. Enbridge did pursue discussions with participating LDCs as well as the IESO to continue delivery of this initiative, but the interest in continuing to deliver the program was not there.

Witnesses: M. Lister
F. Oliver-Glasford
E. Reimer

BOMA INTERROGATORY #57

INTERROGATORY

Topic 5 – Program Types

How will Enbridge make use of the broader sector public data on energy consumption required by O Reg 397 in its program delivery?

RESPONSE

Enbridge employs a consultative sales approach with public sector and institutional customers. Municipalities, school boards, hospitals, and colleges & universities share many key characteristics that inform our working relationship:

- Large annual natural gas consumption
- Often manage a portfolio of large, complex buildings
- Dedicated facilities and/or energy managers with relatively high energy literacy
- Long-term plans for equipment maintenance and upgrades
- Complex decision making processes
- Long budget cycles; capital budgets can be set more than a year in advance of projects

Enbridge will make use of the available sector data on energy consumption in the following ways:

1. Integrate into opportunity analysis; Energy Solutions Consultants will be able to pre-examine planned projects in a customer group and more effectively target customers with larger opportunities for natural gas savings
2. Provide additional value in a consultative role to customers by presenting options for gas saving capital projects not included in Energy Management Plans
3. Where necessary, examine cost and payback assumptions of certain measures, adjusting for available incentives from Enbridge not included in Energy Management Plans to influence project decisions
4. Where appropriate, feed information into demand/supply planning.

Where customers may have either exhausted opportunities for gas savings through capital measures, or instead of employing capital measures, Enbridge will look to guide them towards potential operational savings and participation in Energy Management programs.

Witnesses: R. Kennedy
M. Lister
F. Oliver-Glasford

BOMA INTERROGATORY #59

INTERROGATORY

Topic 5 – Program Type

"Split Incentives in Commercial Sector" Given the research that has been done on this topic, has Enbridge considered providing, or does it provide, a template for the types of clauses in commercial leases that can remove or mitigate the split incentive barrier?

RESPONSE

The issue of split incentives is rare, and when it does occur, Enbridge is able to manage it by working with the customer or tenant to support the project based on site specific details. For large capital projects that a tenant is implementing, if a provision does not exist in the lease agreement, there would be an agreement drawn up regarding payment of the project. In most cases, there is a clause regarding incentives which specifies the party who would receive the benefit of the incentive.

Witnesses: R. Kennedy
M. Lister

BOMA INTERROGATORY #61

INTERROGATORY

Topic 5 – Program Types

In what ways does Enbridge collaborate with Energy Service Companies ("ESCs") on the delivery of DSM?

RESPONSE

Enbridge supports the business partner community across both the Commercial and Industrial sectors through several channels, including direct engagement by Enbridge's Energy Solution Consultant's and Channel Consults. Enbridge also participates through many associations and related industry forums. Enbridge's objective is to work with its business partners to discover opportunities, develop natural gas saving recommendations and to support those recommendations technical insights and financial incentives.

Witnesses: R. Kennedy
M. Lister

BOMA INTERROGATORY #65

INTERROGATORY

Topic 5 – Program Types

Reference Ibid, page 42. What percentage of stock of social housing in Enbridge's franchise is made up of electric space heating? How many units are involved? Has Union considered a conversion/efficiency initiative for those units? Please discuss.

RESPONSE

Based on information from the Housing Services Corporation and Toronto Community Housing Corp., approximately 30 to 40% of social housing units in the Enbridge franchise are on electric space heating. This equates to approximately 43,200 to 57,500 social housing units.

Enbridge does not have any initiatives to address conversion of those units to natural gas. So far as the Company is aware, Union does not have a conversion / efficiency initiative for those units.

Witnesses: M. Lister
E. Lontoc

BOMA INTERROGATORY #67

INTERROGATORY

Topic 5 – Program Types

Reference Ibid, page 87. Please provide details on the "training and support" that Enbridge offers under this program. Does the program train energy management professionals?

RESPONSE

A summary of the training provided by Enbridge for participants in the Run it Right Offer is provided below. Training is primarily crafted for building managers and operators.

- Once enrolled in the Run it Right offer, a building site assessment is completed by a third party contracted by Enbridge. Participants then have the option to have the Engineering firm that completed the site assessment review the list of recommendations in an on-site building review to help customers understand the recommendations and physically see the proposed changes.

- Participants in the Run it Right Offer can attend quarterly webinars with the Energy Management Service Provider with the following objectives;
    - to understand their building performance relative to the base year and project savings
    - To understand how the metering dashboard works in their facility(ies), which provides their building(s) consumption patterns
    - To determine how to identify abnormalities in consumption. Abnormalities can identify equipment failures and performance issues with equipment

- Enbridge hosts building operator training designed to help participants understand best practices in identifying, implementing and maintaining optimal system operating conditions to reduce and maintain savings.

Witnesses: P. Goldman
M. Lister
D. Naden

BOMA INTERROGATORY #68

INTERROGATORY

Topic 5 – Program Types

Reference Ibid, page 94.

Does Enbridge have the internal expertise to conduct the activity or will it utilize third party experts? Please discuss.

RESPONSE

Enbridge has the knowledge, experience, and expertise to deliver the Comprehensive Energy Management ("CEM") offer. The offer also utilizes third party experts to assist in energy assessments, some aspects of customer training and in particular in the implementation of Energy Management Information Systems ("EMIS") which includes software, hardware and metering. Even where a third party experts have been involved in aspects of the offer delivery Enbridge will remain engaged to provide guidance and oversight as appropriate to ensure the program meets its objectives.

Witnesses: P. Goldman
M. Lister
D. Naden

CCC INTERROGATORY #3

INTERROGATORY

Topic 5 - Program Types

Reference: (Ex. B/T1/S2/p. 4)

Please explain, in detail, how EGD engaged its residential customers in the development of it 2015-2020 DSM plan. Has EGD undertaken any surveys, focus group etc. in the past regarding its DSM initiatives? If so, please provide the results. Has EGD undertaken any survey, focus groups, etc. regarding the current plan? If not, why not? If so, please provide the results.

RESPONSE

In the development of the 2015 to 2020 DSM plan, Enbridge utilized its Customer Forum to engage its residential customers.

The Enbridge Customer Forum is a pre-recruited, online panel of approximately 1,800 residential customers. The panel allows for relatively low-cost, quick turnaround customer research when compared to traditional market research methods. The panel is used by Enbridge to obtain feedback on a variety of topics such as customer service, safety, potential programs and services, communication feedback, and occasionally, energy efficiency offers.

Two-thirds of the panel is made up of Enbridge eBill customers, while a third receive a paper bill. The majority of the Panel participants, about 71% live in single family detached dwellings, 15% live in townhouse or row houses, and another 10% live in single family semidetached dwellings. The demographic breakout of the panel participants are more male than female and tend to be older (age 45+), which is consistent with the Enbridge customer base.

During the course of the multi-year planning process the DSM group utilized the Customer Forum Panel once in late August 2014.

Results from the Enbridge Customer Forum Panel are attached.

Witnesses: S. Bertuzzi
M. Lister
F. Oliver-Glasford
B. Ott
E. Reimer
R. Sigurdson

In addition, Enbridge conducts research with Residential customers on a periodic basis with resultant reports called Residential Market Surveys. The last Survey published was 2013. The Residential team also did focus groups in October 2014 with participants and non-participants of the Home Energy Conservation program. Please see the attached report which comprises a summary of the focus group findings.

Witnesses: S. Bertuzzi
M. Lister
F. Oliver-Glasford
B. Ott
E. Reimer
R. Sigurdson

Energy Efficiency Opportunity Survey 2014

Purpose, Objectives and Methodology

Purpose:

Enbridge Gas Distribution requested market research to assess energy efficiency perceptions and behaviour among residential customers.

Research Objectives:

The objectives of the research were to:

- Determine the importance customers' place on energy efficiency;
- Understand the likelihood of undertaking energy efficiency improvements;
- Assess the interest in improving energy efficiency and reducing energy consumption; and
- Understand the willingness to pay for energy conservation and efficiency programs and information.

Methodology:

Research was conducted between August 19 and September 2, 2014 using Enbridge Gas Distribution's online research panel (the Enbridge Customer Forum). Of the 1,696 panelists who were sent the survey link, 580 completed the online questionnaire.

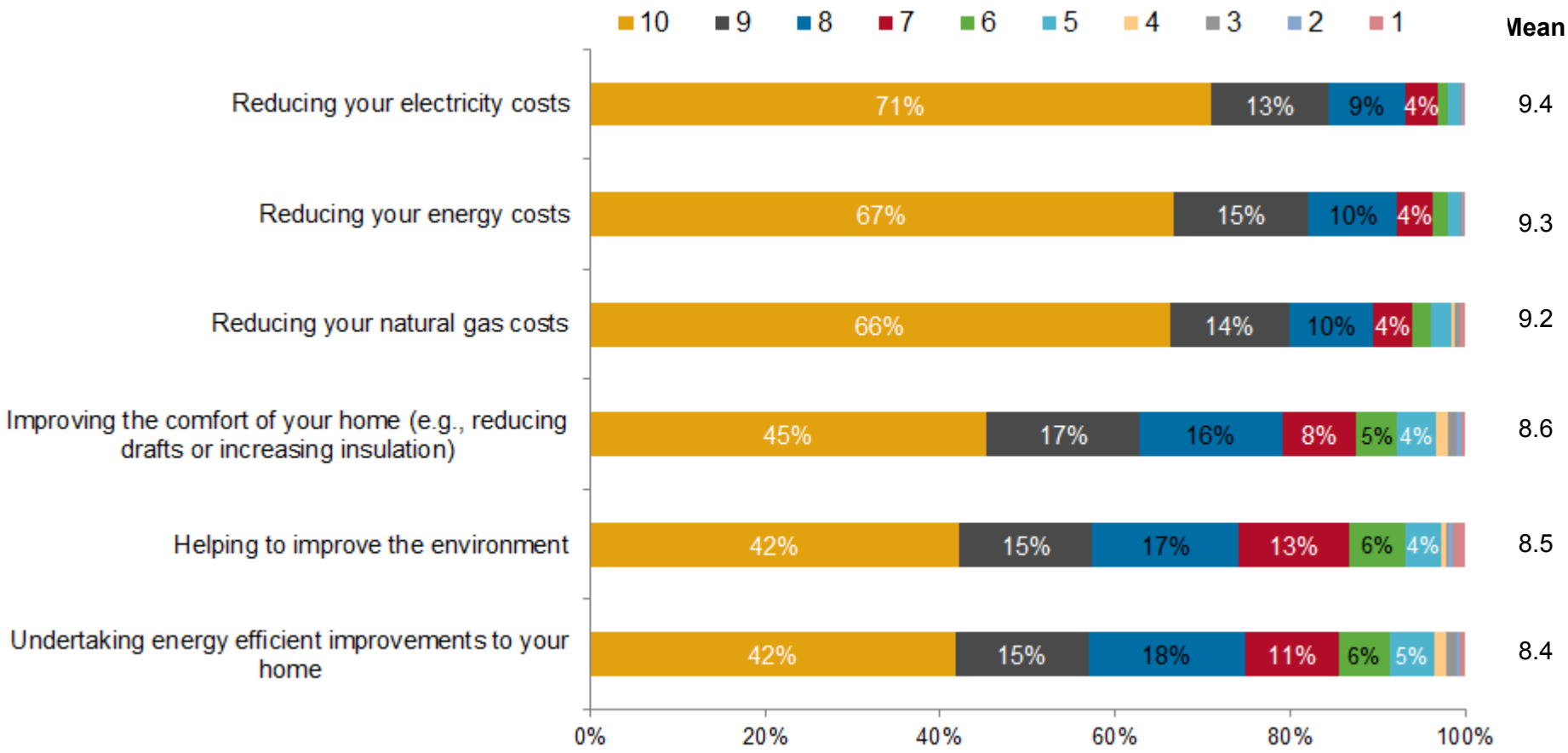
Key Findings

- Pursuing energy efficiency opportunities is supported by residential customers, with the majority looking for ways to reduce their energy costs;
- The majority of customers feel that there are still opportunities to improve energy efficiency in their homes;
- Customers are looking for energy efficiency information, however they do not feel that they should have to pay for this information;
- While the majority of customers are at least somewhat aware of Enbridge's efficiency incentives, it appears that customers would like more help in understanding energy efficiency options.

* Footnote

Energy Efficiency Perceptions

- Reducing energy costs, and specifically, electricity and natural gas costs, is most important to customers. On a scale of 1-10, reducing these costs have average scores of 9.2 or higher.



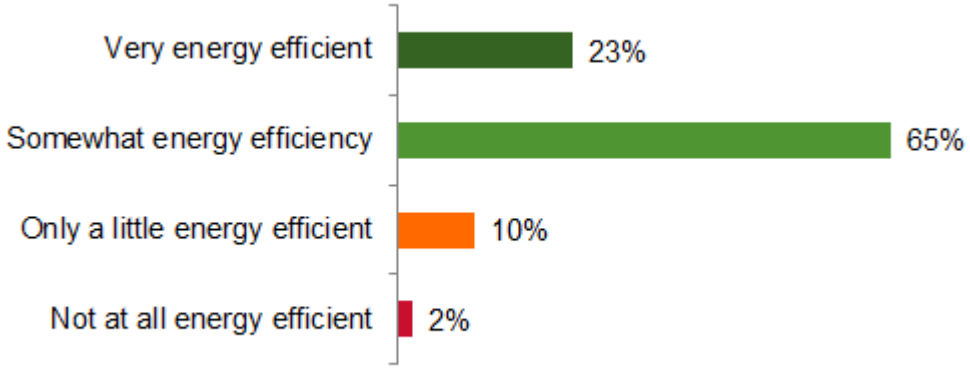
Q1. Using a scale from 1 to 10 where 1 means not important at all and 10 means very important please indicate how important each of the following are to you. Base: All Respondents (n=580)

Note: Graph labels 2% or less not shown.

ENBRIDGE

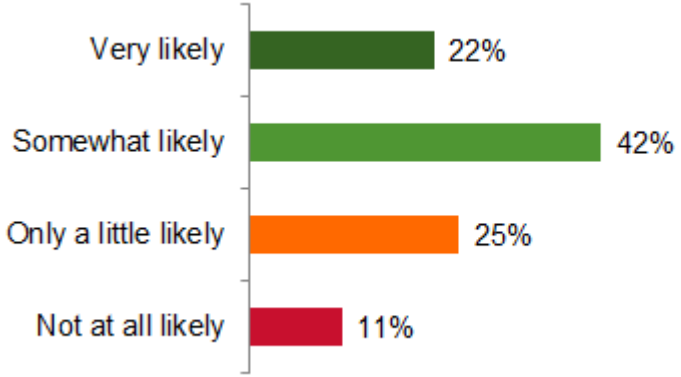
Home Energy Efficiency: Current and Planned

Current Home Energy Efficiency



- Less than a quarter of customers (23%) consider their homes to be 'very energy efficient.'
- The majority (65%) consider their homes to be 'somewhat energy efficient.'

Likelihood of Undertaking Energy Efficiency Improvements



- Only 22% of customers say they are 'very likely' to undertake energy efficiency improvements in the next two years.

Q2. How energy efficient would you say that your home is now? Base: All Respondents (n=580)

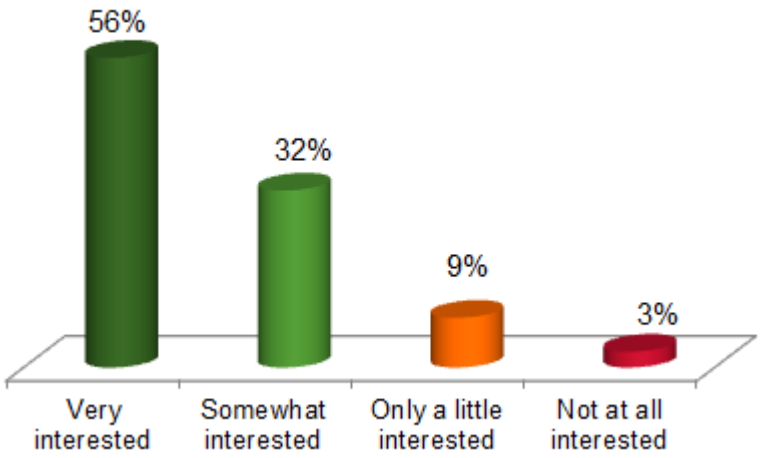
Q3. How likely are you to undertake energy efficiency improvements in your home in the next two years? Base: All Respondents (n=580)

ENBRIDGE

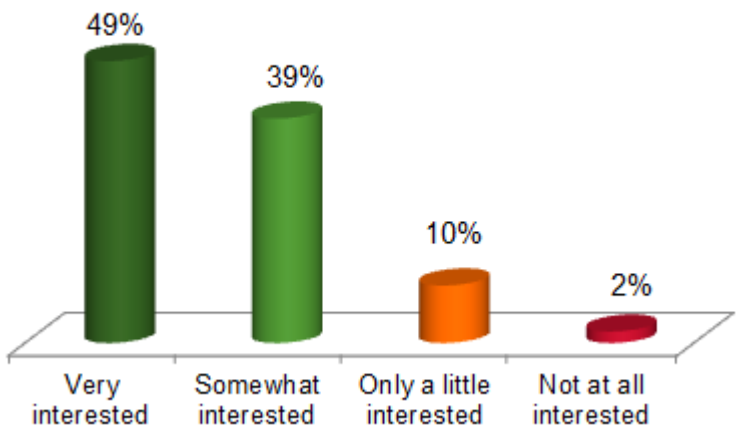
Interest in Information, Programs and Services to Reduce Energy Consumption

- More than half (56%) of customers are 'very interested' and another 32% are 'somewhat interested' in information and energy tips on reducing energy consumption.
- About half (49%) of customers are 'very interested' and another 39% are 'somewhat interested' in programs and services to improve the energy efficiency of their homes.

Information and energy tips on reducing your energy consumption



Programs and services designed to improve the energy efficiency of your home

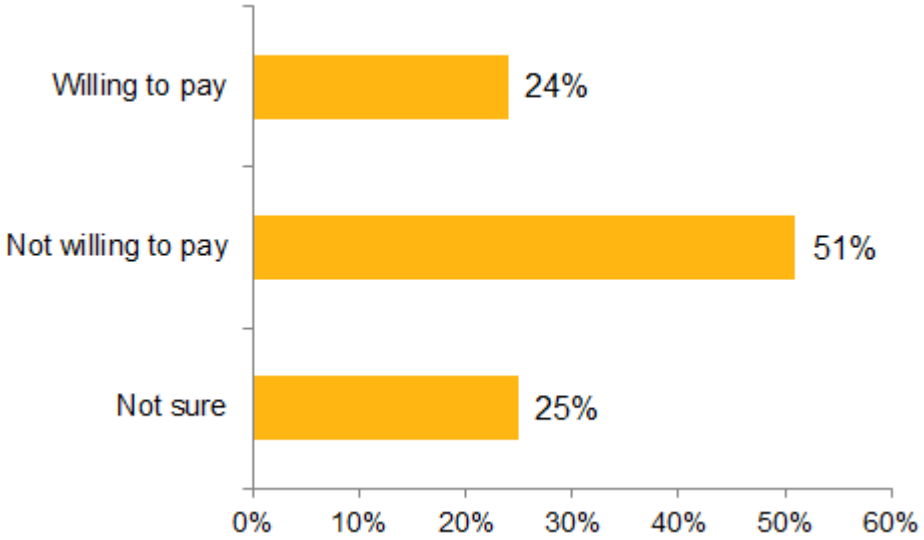


Q4. How interested would you be in the following to help you reduce the amount of energy that you consume?
Base: All Respondents (n=580)

ENBRIDGE

Willingness to Pay on Utility Gas Bill for Energy Conservation and Efficiency Programs and Information

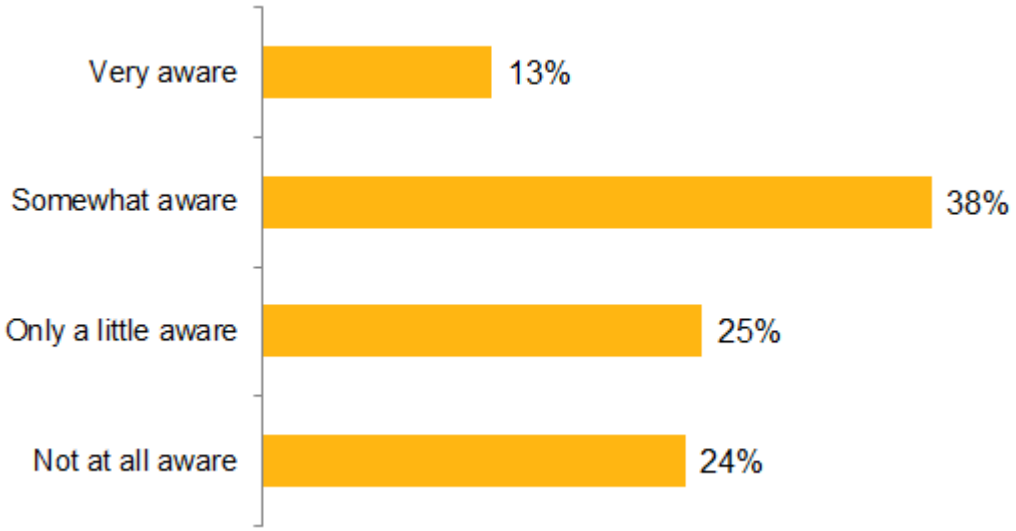
- A quarter of customers (24%) are willing to pay on their utility gas bill for receiving energy conservation and efficiency programs and information. Half of customers (51%) are not willing to pay, and 25% are not sure.
- The high percentage of "not sure" responses is an indication customers require more information in order to make an informed response.



Q5. How much per year would you be willing to pay on your utility gas bill to receive energy conservation and efficiency programs and information? Base: All Respondents (n=580)

Awareness of Enbridge Gas Distribution Energy Efficiency Services and Incentives

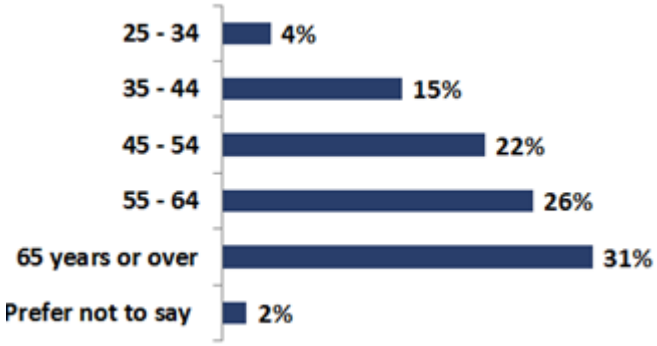
- About half of customers are aware (13% 'very aware' and 38% 'somewhat aware' of Enbridge Gas Distribution's energy efficiency services and incentives for customers.



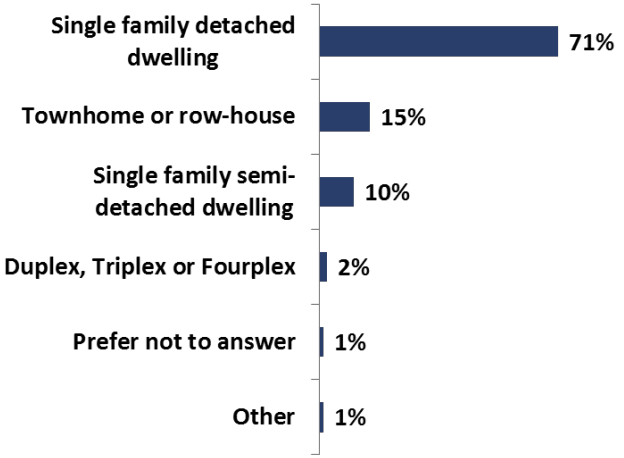
Q6. How aware are you that Enbridge Gas Distribution, your gas natural utility provider, provides energy efficiency services and incentives for residential, commercial and industrial customer in Ontario?
Base: All Respondents (n=580)

Respondents Profile

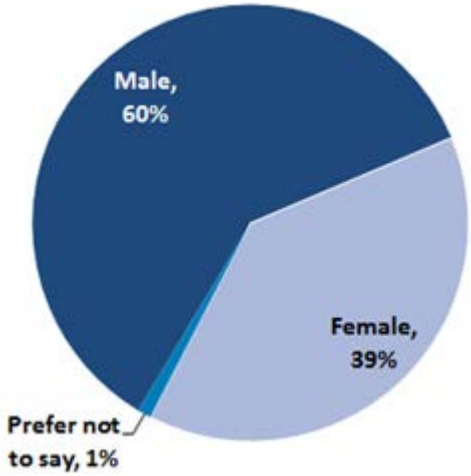
Customer Age



Type of Dwelling



Gender



Base: All respondents (n=580)

Energy Efficiency Opportunity Survey 2014

For further information, please contact:

Market Development Strategy & Research
Enbridge Gas Distribution

Enbridge

Community Energy Conservation Program

Focus Group

REPORT – November 2014

RESEARCH OBJECTIVES

Understand…

- Importance of energy efficiency
- What energy efficient practices customers are implementing in the home
- The main motivators to get involved in energy efficiency in the home

Determine…

- Awareness of energy efficiency programs

Assess..

- The Enbridge Community Energy Conservation program
- New Enbridge energy efficiency programs

METHODOLOGY

Focus Group

- 1 focus group conducted October 29, 2014
- All participants recruited from a sample list provided by Enbridge
- All participants aware of and have participated in the Enbridge Community Energy Conservation program
- All participants are the person in their household primarily or partially responsible decision-making related to energy-related products and services for the home
- 60/40 gender mix, male to female
- Relative mix of age, martial status, education, ethnicity and household income

A NOTE ON REPORTING

The results from the focus group conducted for this study are qualitative in nature, and as such may provide insight and direction with respect to the issues in question, but may not necessarily be statistically valid when extrapolated to the general target population.

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

- Top of mind associations with energy efficiency among Enbridge Community Energy Conservation (CEC) program participants was decidedly more focused on environmentalism than typically seen with mainstream Enbridge customers. Concerns about sustainability, saving the planet and general environmentalism were common

- Reasons for personally being energy efficient in the home also reached farther than simply cost savings. CEC program participants felt that increased comfort in the home and being energy efficient for its own sake were also important motivators

EXECUTIVE SUMMARY

- The CEC program was discovered through four avenues: sales representative at Home Depot, the person installing new appliance or equipment, searching online for energy efficiency rebates/incentives (mostly through Google), or the Enbridge bill insert

- The CEC program was well regarded by its participants. Its main strengths were the ease of the process, the level of information received (especially through the person conducting the energy audit), and the monetary incentive to invest in improving one's own home

- Fewer weaknesses were identify in the CEC program. The price of the energy audit, and the limited areas the program is offered were seen as the main drawbacks

EXECUTIVE SUMMARY

- Participants saw raising awareness about the CEC program and expanding where it is offered as the main opportunities for improvement

- Finally, threats were largely associated with the initial investment necessary to participate

KEY FINDINGS

ENERGY EFFICIENCY ATTITUDES AND BEHAVIOUR

ENERGY EFFICIENCY: TOP OF MIND THOUGHTS

Although cost savings were top of mind for program participants, so too were environmental concerns. When thinking about energy efficiency, many mentioned items such as saving the planet, planning for future generations, and general sustainability.

ENERGY EFFICIENCY IN THE HOME

Home Upgrades
Program participants mentioned conducting upgrades to their home to make it more energy efficient. This included improving insulation of walls, windows and attics, and replacing windows and doors.

Efficient Appliances
Program participants also noted upgrading to energy efficient appliances or equipment as a measure to increase the energy efficiency of their home. This included programmable thermostats, LED light bulbs, furnaces, refrigerators, dishwashers, washing machines and dryers.

"I just sealed around my old house - did caulking to keep the cold air out."

"I just bought a new furnace and air conditioner - high efficiency. My house is 22 years old so it was time."

"I also added attic insulation."

ENERGY EFFICIENCY IN THE HOME: MOTIVATORS

Program participants mentioned four key motivators to be involved in energy efficiency in the home:

- **Cost savings**: upgrades and efficient appliances result in a more energy efficient home, which brings cost savings
- **Comfort**: having a more energy efficient home results in a more comfortable living environment. This is especially relevant to participants after the extremely cold temperatures experienced last winter
- **Taking advantage of incentives**: proactively or reactively (an appliance breaks down) investing in the home with the help of rebates and incentives
- **Energy efficiency**: energy efficiency for its own sake was also mentioned

"Knowing about the rebate was a good reason to do the measures now. When I found out, I sat down and did the math, and it made sense."

"Our winters are cold. You need to have a comfortable home and better cost."

"It's attractive [to be energy efficient] for the rebates and it makes sense too to be more efficient in general."

KEY FINDINGS

ENBRIDGE COMMUNITY CONSERVATION PROGRAM

ENBRIDGE CEC PROGRAM: EXPOSURE

- CEC program participants noted four avenues through which they heard about the program:
    - Sales representative at Home Depot
    - Person installing new appliance
    - Searching online energy efficiency rebates/incentives (mostly through Google)
    - Enbridge bill insert

"From Home Depot. The person selling the furnace and air conditioner explained it. I did it because the sales person was good at telling me about it. ."

"I had gotten a notice from Enbridge with my bill about the rebate."

"I did my research, Mostly online through Google."

ENBRIDGE CEC PROGRAM: STRENGTHS

- Monetary incentive to invest in home
- Program ran according to expected timeline
- Encouraging homeowners to be energy efficient
- Rewarding environmentally friendly behaviour
- Easy process/steps to receive incentive
- Non-taxable benefit
- Incentive arrived as lump sum rather than small installments
- Energy audit was informative
- Endorsed by the government
- Efficient appliances/equipment produce less noise
- Increases resale value of home
- Efficient appliances/equipment work better than older ones (heat house quicker, wash clothing better, etc.)

"I would add that the rebate spurred me to do the work because I knew it was ending at the end of the year. I could have waited but the rebate made me get on it."

"The money all came as a big chunk and precisely at the time they indicated."

ENBRIDGE CEC PROGRAM: WEAKNESSES

- Required to pay for energy audit
- Challenges with installation of some equipment/appliances
- Program limited to certain postal codes
- Some did not qualify for Home Depot gift card
- Incentive amount seemed arbitrary

"Having to pay for the energy audit didn't make sense to me. I figured it should just taken that off the overall incentive."

"I started to tell some of my family about the program so they could take advantage of the program, but it wasn't offered in their postal code."

ENBRIDGE CEC PROGRAM: OPPORTUNITIES

- Provide energy audit for free
- Offer regulated contractors to install equipment/appliances
- Expand program offering to additional postal codes
- Spread awareness about program (many had to be informed by experts such as sales representatives)
- Offer regular/free energy audits to program participants up to 2 years after they complete the program
- Explain what incentive amount is based on

"We had to go searching for the program. They need to raise awareness about this or people don't know to take advantage."

"They should expand to more neighbourhoods."

ENBRIDGE CEC PROGRAM: THREATS

- Upfront cost of taking part in the program
- Price of energy efficient equipment can be prohibitive, especially to those who are lower income
- Program ending in 2014

"We could afford the upfront cost, but I think this would be hard for a family that is lower income. They might want to be more energy efficient too, but how?"

"Being able to come up with the upfront cost to cover the program. You have to pay first. Big investment"

KEY FINDINGS

NEW ENBRIDGE ENERGY EFFICIENCY PROGRAMS

PROGRAM Y

A program that encourages home owners to **upgrade** their traditional programmable thermostats to an thermostat **leveraging mobile platforms** to deliver **targeted behavioural modifying messages**, to adaptive, true smart thermostats that can **think and learn**, and have a wide variety of **additional feature sets**.

PROGRAM Y: FEEDBACK

Strengths	Weaknesses	Improvements/Clarifications
Simple, easy to understand upgrade that is a relatively small investment	Wording was seen as highly technical, especially 'targeted behavioural modifying messages'	Wording needs to be simplified in order to more clearly communicate an otherwise well-received concept
Participants liked the idea of their home becoming smarter to help them save energy	Some concerns about privacy related to data the thermostat gathers about a particular home	'Mobile platforms' although well received by most, was not initially understood. Clarity required
Controlling the thermostat through a mobile device was palatable for some	Participants don't want to lose control of heating and cooling in the home	What is the cost for this device?
Interest in what additional features the smart thermostat could offer		

"I like the leveraging mobile platform. I turn it down heat but you come home and it's freezing. If you can crank up the heat on your way home. It's awesome."

"I underlined targeted behavioural modifying messages. If makes you think you are going to lose control."

"I would love to have access on my cell phone."

NEW PROGRAM IDEAS

Participants listed the following as ideas for new energy efficiency programs:

- Breakdown how much of each of bill goes to which appliances/equipment in the home
- Incentives/rebates related to alternative energy sources such as solar
- Mobile device access to regulate lighting in the home
- Free energy audits regardless of program involvement
- Ongoing incentives/rebates
- Incentives/rebates for duct cleaning for more efficient air flow

CCC INTERROGATORY #12

INTERROGATORY

Topic 5 - Program Types

Reference: (Ex. B/T1/S3/p. 6)

With respect to the Home Energy Commissioning Program when will it be expanded across the franchise area? How many customers have enrolled in the program in 2015? For 2015 and beyond what will EGD be assuming as a free ridership rate for this program.

RESPONSE

The Home Energy Conservation program will be expanded across the franchise area in 2016. For 2015, approximately 4000 participants have enrolled in the program by completing their pre-audit. The free ridership rate for this offering is 15%. Enbridge will continue to use the same free ridership rate for 2016 and beyond.

Witnesses: S. Bertuzzi
M. Lister
F. Oliver-Glasford

CCC INTERROGATORY #17

INTERROGATORY

Topic 5 - Program Types

Reference: (Ex. B/T1/S3/pp. 14-15)

Please elaborate on the “My Home Health Record” program. Please explain why this initiative with no savings proposed in 2015 cannot be deferred until 2016. What are the annual costs of this program beyond 2015? What are the

RESPONSE

The purpose for launching the offer in 2015 is to begin “ramping” participants up to prepare for the upcoming heating season, the majority of which falls in 2016. Without this ramp up timeframe, Enbridge could not report the benefits of the offer until 2018. That is, by missing the 2015 to 2016 heating season, the first results from the offer would be realized through the 2016 to 2017 heating season, and reported to the Board in 2018. Enbridge believes that delaying the implementation of this offer would not be in accordance with the Board’s direction for the key priorities and principles, which clearly lent themselves to a data-driven offer with high participation levels that allowed customers to compare their consumption with similar customers.

The annual costs for the program can be found at Exhibit B, Tab 1, Schedule 4, page 27, table 21.

Witnesses: S. Bertuzzi
S. Hicks
M. Lister

CCC INTERROGATORY #18

INTERROGATORY

Topic 5 - Program Types

Reference: (Ex. B/T1/S3/p. 15)

Please provide a detailed description of the Green Button Initiative and EGD's role in that initiative. What is EGD's expected annual cost to participate in the program? What are the expected benefits for EGD's customers?

RESPONSE

A much more detailed explanation of the Green Button Solution and its benefits can be found at Exhibit B, Tab 4, Schedule 4.

There are 2 facets to the Green Button solution. The first being 'Download My Data' which intends to drive the following results:

- Provides electricity consumption data in a standardized and consistent format regardless of the utilities;
- Drives efficiencies in the industry by making energy reporting and benchmarking easier and more cost-effective;
- Improves data consistency and accuracy; and,
- Encourages greater participation in reporting and benchmarking initiatives by removing the data collection and processing barrier

The second is "Connect my Data" which will allow customers who are already using "Download my Data" to select a format for viewing their consumption details in a way that suits them.

Currently Enbridge is in the process of participating in a working group to understand how Enbridge best integrates and deploys Green Button, while also learning from the best practices of those utilities that have already launched Green Button . In 2015, Enbridge has requested $300,000 as part of the Incremental Budget (Exhibit B, Tab 1, Schedule 3) in order to develop the information technology capability to transfer and manage data in the proper formats and protocols. The Green Button initiative has been encouraged by the Ministry of Energy and is being coordinated via MaRs. Gaining an understanding of upfront and ongoing costs will be a part of future conversations with the Green Button working group.

Witnesses: M. Lister
F. Oliver-Glasford
J. Paris

CCC INTERROGATORY #23

INTERROGATORY

Topic 5 - Program Types

Reference: (Ex. B/T1/S4/p. 17)

With respect to the HEC program please explain why EGD has changed the condition regarding incentives which applied in 2015, that gas savings across all participants must be 25% of the combined baseline space heating and water heating usage. Why is it now 15%?

RESPONSE

It is not entirely accurate that the eligibility criteria has been lowered to 15%. In fact, the minimum average annual gas savings across all participants has been decreased to 15% and this is to allow more residential customers to participate in the program, thereby advancing the Board's Guiding Principle #5 from page 8 of the 2015 to 2020 Natural Gas DSM Framework around achieving high participation levels. As noted at Exhibit B, Tab 2, Schedule 1, page. 25, Enbridge is proposing tiered incentives as follows:

- $500 for reaching 15%-25% annual gas savings;
- $1,100 for reaching 26%-49% annual gas savings; and,
- $1,600 for reaching 50% and above in annual gas savings.

Enbridge believes that giving customers greater choice among the offering will result in more customers willing and / or able to participate. As is evident, customers are still encouraged to undertake deeper savings through higher proportional incentives.

Witnesses: S. Bertuzzi
M. Lister

CCC INTERROGATORY #27

INTERROGATORY

Topic 5 - Program Types

Reference: (Ex. B/T1/S4/p. 17)

Please explain how EGD has the capacity to increase its budget for it Low Income Program by 48% in one year

RESPONSE

The budget increase represents the addition of a new low income program offer and expanded activities as part of the six year plan. These offers and activities aim to address certain framework guiding principles and the Province's Long Term Energy Plan ("LTEP") priorities while at the same time designed to provide a comprehensive and integrated approach to low income programming.

In comparison to the 2015 budget, the most significant increases are attributed to the enhancements in the Part 3 Affordable Housing and the addition of the New Construction Affordable Housing program offerings.

Enbridge plans to provide higher financial incentives and direct install in-suite measures to entice program participation and quicker payback. Program support activities such as building assessments and benchmarking services will be used more broadly to target the best candidate buildings for energy efficiency, and to initiate or deepen customer engagement for energy efficiency action in this segment. Also, Enbridge has been working to build capacity in the market and as such, believes that third party contractors will be able to ramp up as necessary with the current trajectory.

The New Construction Affordable Housing offering represents a new budget item equivalent to $1.12 million.

The budget and target increase for Part 9 Single Family Homes offering is symmetrical. 9% of the offering budget is allocated to furnace replacement incentives.

Witnesses: M. Lister
E. Lontoc
F. Oliver-Glasford
J. Paris

CCC INTERROGATORY #29

INTERROGATORY

Topic 5 - Program Types

Reference: (Ex. B/T2/S1/ pp. 22-26)

Has EGD sought funding from either the Ontario Government or NRCan to support its HEC program? If not, why not?

RESPONSE

Enbridge has not sought funding from either the Ontario Government or NRCan. Enbridge is not aware of an interest at the Provincial or Federal level to supplement ratepayer DSM program budgets with taxpayer dollars.

Witnesses: S. Bertuzzi
M. Lister
F. Oliver-Glasford
B. Ott
J. Paris

CCC INTERROGATORY #31

INTERROGATORY

Topic 5 - Program Types

Reference: (Ex. B/T2/S1/p. 25)

With respect to the HEC program do customers that exceed 50% in annual gas savings receive $2100? How were the incentive amounts determined? Are the annual gas savings weather normalized when incentive amounts are being determined?

RESPONSE

Yes. Customers that exceed 50% in annual gas savings will receive $1600 for reaching 50% in annual gas savings and $500 for the energy audit. In 2012, the offer was designed so the "Enbridge incentive covers full cost of initial audit ($150) and $2/$m^3$ of gas saved as realized by the various retrofits" (EB-2011-0295, Exhibit B, Tab1, Schedule 4, page 11). Incentives in 2012 were $1100 for gas saving measures realized and $500 for audit costs. In 2012, Enbridge learned the incentive structure was difficult for delivery agents to administer and confusing for customers to understand. For that reason the incentive structure altered to a two tier system in 2013 where $1600 was provided for 25-49% annual gas savings and $2000 was provided for annual gas savings at or above 50% (incremental to the $500 energy audit). These incentives were consistent with the original offering in 2012. Due to the success of the offer in 2013, it was decided to roll over the incentive structure in 2014 and 2015. For 2016, a new annual gas savings tier is lower and is paired with a lower incentive, as is shown in Exhibit B, Tab 2, Schedule 1, page 25.

Yes, the gas savings are weather normalized when determining incentive amounts the customer may be entitled to receive.

Witnesses: S. Bertuzzi
M. Lister

CCC INTERROGATORY #32

INTERROGATORY

Topic 5 - Program Types

Reference: (Ex. B/T2/S1/p. 97)

What is the annual budget amount beyond 2015 for EGD's energy literacy initiative? How will this be funded? Where is it included in the budget amounts for 2016-2020?

.

RESPONSE

The energy literacy budgets are outlined in Tables 2 through 5 of Exhibit B, Tab 1, Schedule 4.

For convenience the Company has reproduced these amounts in the table below.

	2016	2017	2018	2019	2020
Energy Literacy Budget	N/A	$500,000	$500,000	$510,808	$521,832

Energy literacy has been included in Enbridge's DSM budgets as a portfolio cost. As such it will be collected from individual rate classes in a way that mirrors the ultimate proportions in which program dollars are allocated amongst rates for a given year.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

CCC INTERROGATORY #34

INTERROGATORY

Topic 5 - Program Types

For all of EGD's residential programs and low-income programs please provide the free-ridership rates assumed in each year 2015-2020. Please explain the basis for those assumed rates.

RESPONSE

The free-ridership rates assumed for residential and low-income offers are based on best available information as filed in EB-2014-0354, the New and Updated DSM Measures Joint Submission from Union Gas Limited and Enbridge Gas Distribution Inc. filed with the Ontario Energy Board on March 27th, 2015.

Witnesses: R. Idenouye
F. Oliver-Glasford
R. Sigurdson

CME INTERROGATORY #6

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B. Tab 1, Schedule 2. page 17 of 26

EGD has identified that its underserved markets include low income households, privately owned multi-residential facilities, and small industrial and commercial markets where customers may prioritize energy efficiency. In this regard, EGD confirms that it has worked closely and consistently with stakeholders to ensure its low income offering remains best in class, as well as proactively working with the private multi-residential sector. EGD does not, however, comment on how it intends to approach the small industrial and commercial markets where customers may not prioritize energy efficiency. Please set out all steps that EGD has taken, or will take, with respect to this identified underserved market.

RESPONSE

The intent of the above referenced section is to share that Enbridge will enhance its approach to underserved markets. For context and clarification the full excerpt being referenced in this interrogatory is provided below, inclusive of a minor correction to the quote provided by CME for which emphasis has been added:

> There are several notable underserved markets to date. This can be due to one or more barriers which prevent customers from taking up a program, or result from the limited attention directed at a particular market segment. Traditionally underserved markets typically include low income households outside of the large urban centres and in privately owned facilities, as well as the small industrial and commercial markets where customers may **not** prioritize energy efficiency.

Enbridge has approached the construction of this Multi-Year filing in ways that will help facilitate participation from this traditionally hard to reach market segment. As such, Enbridge intends to reach the small industrial and commercial markets in a number of ways, including the following:

- New offers –Direct Install offer, Small Commercial & Industrial Behavioural, Small Commercial New Construction, New Construction Commissioning, Energy Literacy

Witnesses: P. Goldman
R. Kennedy
M. Lister
F. Oliver-Glasford

- Evolved offers – Prescriptive, SBD Commercial, Energy Compass, Run-it-Right
- Scorecard focus – a separate and distinct scorecard target related to smaller volume customers will appropriately focus Enbridge's attention on this market segment
- Resources – Enbridge will dedicate resources to focus on this target; all of Enbridge's sales and marketing resources will be well versed in the relevant offerings
- Industry participation – through trade groups, associations, and by leveraging contacts and industry partners Enbridge will drive customers to its offers
- Business partners – Enbridge will leverage its existing business partner network to help create focus and drive participants to the offers that may be of interest to them
- Campaigns – from time to time Enbridge may run campaigns focusing on a particular market segment, technology, or offering to drive results

Witnesses: P. Goldman
R. Kennedy
M. Lister
F. Oliver-Glasford

CME INTERROGATORY #7

INTERROGATORY

Topic 5 – Program Types

Ref: Exhibit B. Tab 1, Schedule 2, pages 20-22 of 26

EGD addresses its programs in the areas of residential, low income, commercial and industrial. CME would like a better understanding of the various manufacturing customers that EGD serves.

In this regard:

(a) Please identify all of the rate classes which EGD believes serve manufacturers;

(b) Please confirm that the residential and low income programs do not serve any manufacturers. If CME is incorrect in this assumption, please identify which residential or low income programs can assist manufacturers;

(c) Please identify which commercial and industrial programs serve manufacturers. For each of these programs, please identify:

(i) The rate classes that benefit from the program;

(ii) The anticipated annual CCM from each program for the years 2015 to 2020; and

(iii) The total annual cost for each program for the years 2015 to 2020.

RESPONSE

a) The following rate classes serve manufacturers: 6, 100, 110, 115, 135, 145, 170

b) Residential and low income programs are not deemed suitable for manufactures and therefore are not available to them.

Witnesses: P. Goldman
M. Lister
S. Moffat

c) The following program offers serve manufactures:

- Custom, Prescriptive. These fall under rate classes; 6, 100, 110, 115, 135, 145, 170
- Direct Install. These fall under rate class 6
- Comprehensive Energy Management. Rate classes; 6, 100, 110, 115, 135, 145, 170

Provided below are Targets and Budgets for these program offers:

Resource Acquisition Budgets for C&I Customers	**2016**	**2017**	**2018**	**2019**	**2020**
Custom	$7,020,664	$7,157,145	$7,361,561	$7,508,793	$7,658,969
Prescriptive	$2,196,952	$2,241,133	$2,232,905	$2,277,563	$2,323,114
Direct Install	$4,955,421	$5,060,872	$4,758,344	$4,853,511	$4,950,581

Resource Acquisition Target for C&I Customers [CCM]	**2016**	**2017**	**2018**	**2019**	**2020**
Custom	574,065,893	571,554,087	581,445,927	583,479,646	586,255,711
Prescriptive	133,443,277	134,078,913	131,194,946	132,701,367	134,319,674
Direct Install	60,358,661	61,200,000	57,541,562	58,692,377	59,866,244

Comprehensive Energy Management ("CEM")

Year	**Number of Participants**	**Total Cost**	**Anticipated CCM Savings**
2016	6	$518,293	471,555
2017	9	$840,232	1,270,540
2018	10	$1,000,172	2,069,525
2019	10	$1,021,449	2,657,479
2020	10	$1,041,034	3,083,895

Note: CEM savings are included in the Large Custom target

Witnesses: P. Goldman
M. Lister
S. Moffat

ENVIRONMENTAL DEFENCE INTERROGATORY #18

INTERROGATORY

Topic 5 – Program Types

Reference: Ex. B, Tab 1, Schedule 2

Has Enbridge analysed the cost-effectiveness of rate re-design (e.g., lower fixed customer charges and higher volumetric charges, seasonal rates, enhanced interruptible rates) to help it achieve all cost-effective DSM? If yes, please provide Enbridge's analyses, including both a summary of the analysis that has been undertaken and any underlying assessment and analysis documents. If no, please explain why not.

RESPONSE

Enbridge has not conducted an analysis of rate re-design on the impacts of DSM activity. Enbridge's Rate Design was last reviewed by the Board in the Company's Multi-Year Incentive Regulation case (EB-2012-0451). Enbridge does not believe that a DSM specific application is the right venue to review the overall design of rates for all utility costs and functions. Furthermore, from time to time, the Board has and may initiate its own review of such matters, as has recently been done for the electricity sector.

Witnesses: S. Moffat
F. Oliver-Glasford
B. Ott

ENVIRONMENTAL DEFENCE INTERROGATORY #19

INTERROGATORY

Topic 5 – Program Types

Reference: Ex. B, Tab 4, Schedule 3

Please provide an analysis of the costs and benefits of establishing a residential on-bill financing pilot project in 2016. Please assume that the financing is provided by a third-party financial institution.

RESPONSE

Enbridge remains involved in discussions with stakeholders to better understand how it may address financing as an issue for both residential and C/I customers. Enbridge continues to seek out research and insights from external sources where possible.

As the Company is still in the process of information and data gathering, it is not in a position to provide a cost-benefit analysis of establishing a residential on-bill financing pilot project for 2016 at this time.

Witnesses: M. Lister
E. Lontoc
F. Oliver-Glasford
B. Ott

ENERGY PROBE INTERROGATORY #22

INTERROGATORY

Topic 5 – Program Types

Reference.: Exhibit B, Tab 2, Schedule 1, Page 67, Program 15, Residential MHHR

For each metric:

a) Please explain how MHHR was developed and provide calculations in live Excel spreadsheets.

b) Please provide the forecast number of participant households in each year.

c) Please compare the 100% savings target per household to the savings to data in the pilot program?

d) Please Explain why the budget nearly doubles from 2016 to 2017, but the savings target only goes up by about 25%. Why does it not increase linearly?

e) Please clarify OPower's historic experience that savings per household increase over time.

f) If not, please provide references to support a different conclusion.

g) Please provide EGD's forecast as to OPower savings for a given household change from year 1 to year 2 to year 3 to year 4 of participation?

h) Please explain why the savings targets for 2018 reduce to 2016 levels even though the budget increases stays constant from 2017 to 2018?

i) Please explain why the savings targets for 2019 and 2020 decline (~ 25% lower than the 2016 target) even though budgets increase?

Witnesses: S. Bertuzzi
T. Curtis (Opower)
S. Hicks

RESPONSE

a) Using data from existing OPower clients representing over 500 years' worth of aggregate participation data Enbridge worked with OPower to set forward looking targets for the 2016 to 2020 plan.

The data set and algorithms used are proprietary to OPower and cannot be shared openly in live excel spreadsheets.

Some assumptions (based on previous OPower experience) were used in determining the approach:

- Higher consumers also tend to be higher savers, both in absolute m^3 saved and percentage saved
- Starting off with a higher paper report frequency tends to shorten ramp up time, and prompt users to save more sooner
- Attrition is forecasted to be approximately 10% (offer participation is refilled on an annual basis) per year due to:
    - Account turnover (people moving)
    - Opting Out

b) The following list outlines the number of expected participants per year.

2015: 500,000
2016: 1,000,000
2017: 1,000,000
2018: 1,350,000
2019: 1,350,000

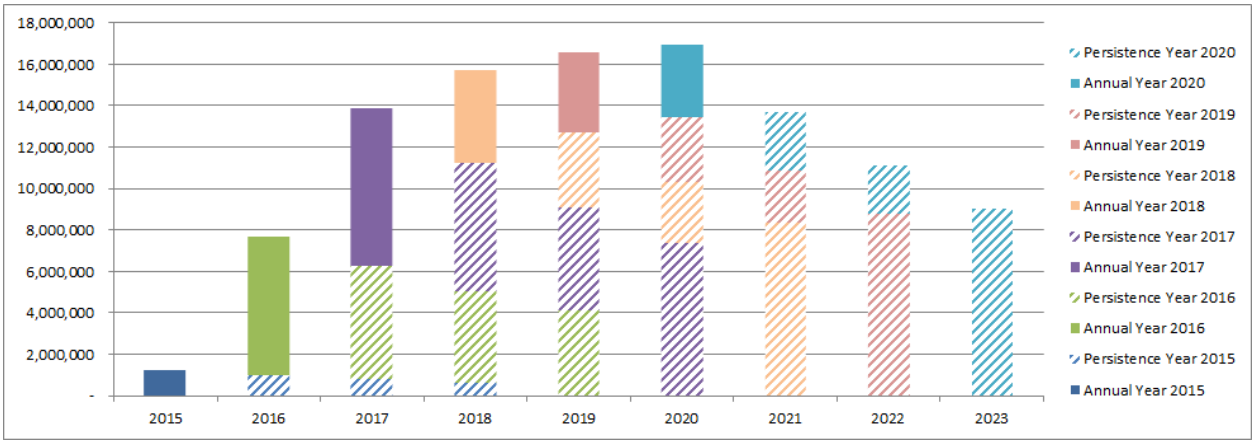
As stated the offer will experience an attrition rate of approximately 10% due, for the most part, to moves, and to a lesser extent opt out's. Enbridge will work to refill offer participation each year. Attrition is taken in to account when building the forecasted numbers.

c) The pilot results are still in the process of being finalized, and therefore are not available to compare results against those targets forecasted in the 2016 to 2020 filing.

d) The number of households in the offer will double in October 2016, so while this has some impact on budget in 2016, 2017 will reflect a full year of twice as many customers. Annual savings increase by almost double (see chart below, comparing

Witnesses: S. Bertuzzi
T. Curtis (Opower)
S. Hicks

the 2016 bar to the 2017 bar), but the savings shown in the MTEM Scorecards are lifetime savings. The lifetime savings attributable to 2016 are all of the green portions of the chart, and the lifetime savings attributable to 2017 are in purple. Even though Enbridge expects the measured annual savings to be ~1.8x higher in 2017 than in 2016, the lifetime savings in 2017 are only ~1.3x higher.



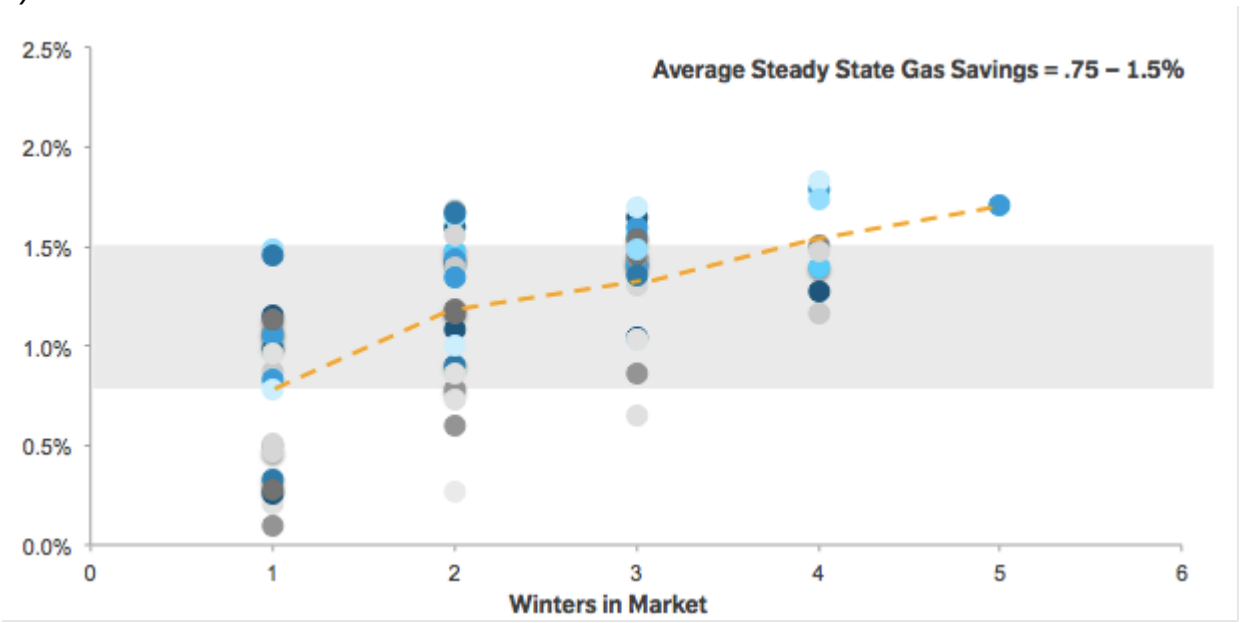
	2015	2016	2017	2018	2019	2020	2021	2022	2023
Achieved savings*	440,695	2,778,907	4,997,788	5,661,355	5,976,970	6,106,515	4,946,277	4,006,485	3,245,253
Lifetime savings**	1,321,000	7,449,582	9,430,093	6,986,857	6,607,425	6,365,287	-	-	-

* Achieved savings: the measured savings relative to the control group in each year, as represented by the sum of all the solid and hashed bars above each year marker in the chart.

** Lifetime savings: annual incremental savings plus persistence savings, as represented by the solid bars plus the hashed bars in the corresponding color over the subsequent 3 years.

Witnesses: S. Bertuzzi
T. Curtis (Opower)
S. Hicks

e)



The above chart represents 23 gas only Home Energy Report programs. While there is a wide variation at the start between programs, it becomes fairly consistent as each program progresses. The orange dotted line represents the average savings per household and increases over time.

This trend is also supported by a research document published by Cadmus in October 2014, "Sami Khawaji and James Stewart, October 2014, "Long-Run Savings and Cost-Effectiveness of Home Energy Reports Programs." That report is filed as an attachment to this interrogatory.

f) Please see previous answer.

g)

	2015	2016	2017	2018	2019	2020	2021	2022	2023
Average savings rate	0.33%	0.55%	0.64%	0.75%	0.68%	0.72%	0.59%	0.48%	0.39%

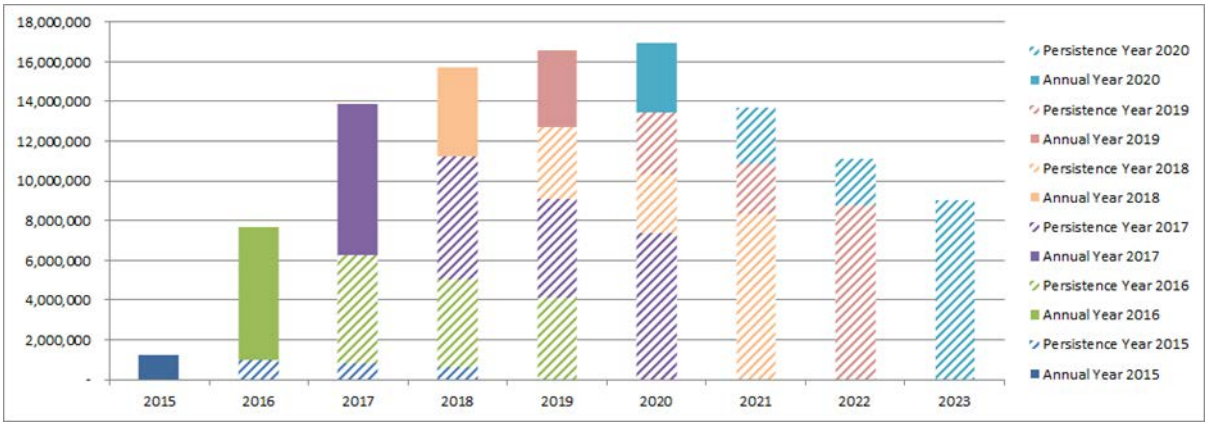
The table above represents an estimated rate of savings that a household might achieve over the period of time that this offer will be offered (note: 2021 to 2023 represent percentage of continuing savings attributable to participants, should the offer cease in 2020).

Witnesses: S. Bertuzzi
T. Curtis (Opower)
S. Hicks

As the offer progresses and expands, it is adding additional participants, that consume less, may be engaged differently in order maintain cost effectiveness, and thereby have a different level and percentage of savings attributed to them.

Because of the difficulty in analyzing savings at the individual household level, Enbridge is adopting a randomized control trial approach to calculating savings. This will consist of comparing the results of the treatment group (those receiving the Home Energy Reports), to a homogenous control group (those not receiving the reports).

h) Based on a scenario that increases to 1M households in the fall of 2016 and to 1.35M in the fall of 2018, the incremental savings will increase from 2016 to 2017, since new households will be ramping up, but incremental savings then decrease from 2017 to 2018. This is because, even though the Company is adding 350K new households in fall 2018, the savings per household are expected to be lower for these new customers, because they will be lower usage participants. Additionally, by 2018 the savings rates of the 1M households are leveling off (i.e., not increasing much year over year). Thus, the lifetime savings attributable to 2017 (the sum of all of the purple portions) are greater than the lifetime savings attributable to 2018 (the sum of all of the orange portions). In fact, the sum of all of the lifetime savings attributable to 2017 are the higher than the lifetime savings attributable to any other year.



i) One reason the savings are lower is because savings from all households are leveling off, and just as noted in the response to h), the lifetime savings attributable to each subsequent year decreases after 2017.

Witnesses: S. Bertuzzi
T. Curtis (Opower)
S. Hicks

	2015	2016	2017	2018	2019	2020	2021	2022	2023
Achieved savings*	440,695	2,778,907	4,997,788	5,661,355	5,976,970	6,106,515	4,946,277	4,006,485	3,245,253
Lifetime savings**	1,321,000	7,449,582	9,430,093	6,986,857	6,607,425	6,365,287	-	-	-

Referencing the chart above achieved savings, or annual savings, increase year over year, but start to decrease in 2021 to 2023 as the offer is not assumed to be in market for this forecasting exercise. However, because the offer approaches this from a lifetime savings perspective, taking into account 3 years of persistence, the annual savings decrease in 2021 to 2023 are accounted for in the 2018 to 2020 lifetime savings numbers.

2019 represents the first full year that 1,350,000 participants will engage, thus the budget increases from 2018 to 2019 and is maintained into 2020.

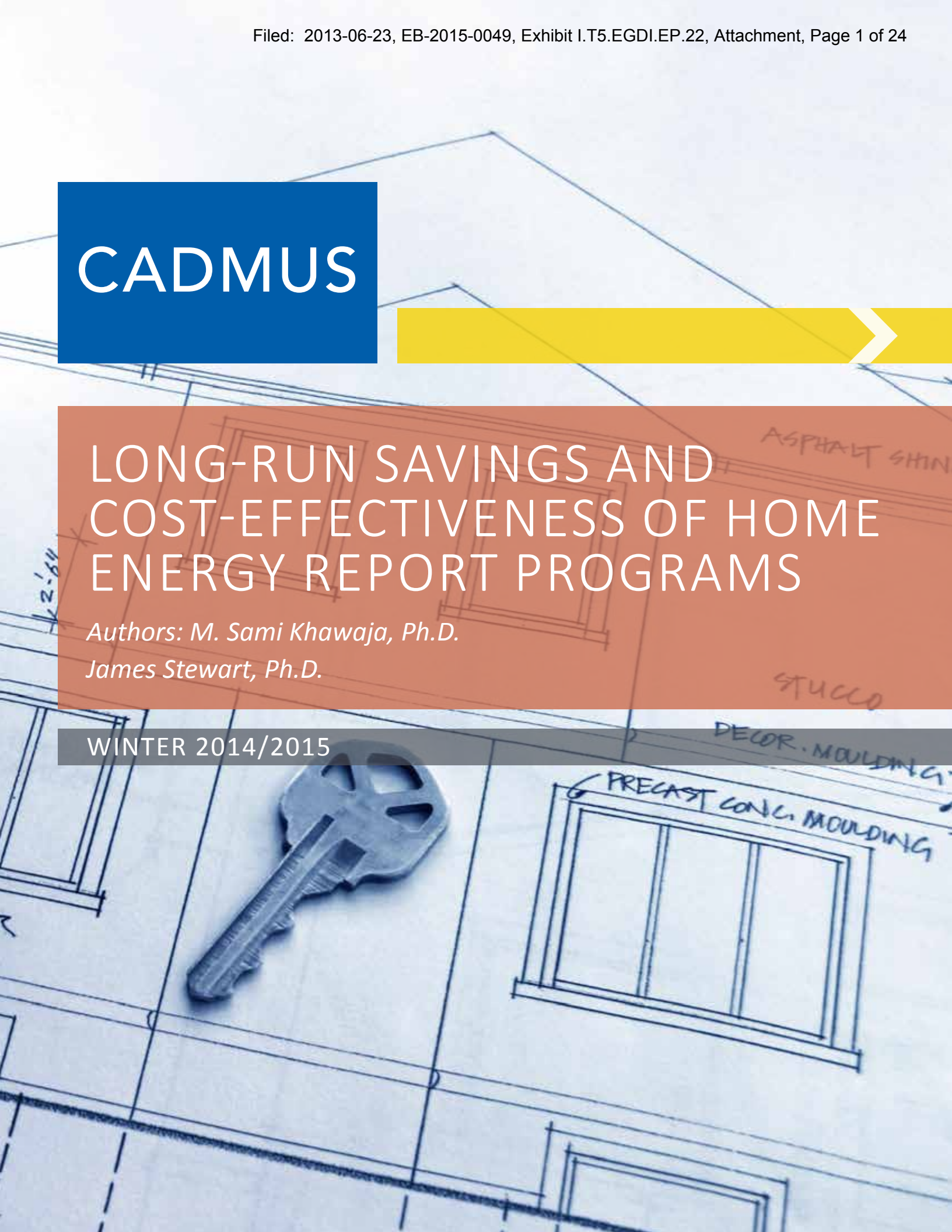
Witnesses: S. Bertuzzi
T. Curtis (Opower)
S. Hicks

CADMUS

LONG-RUN SAVINGS AND COST-EFFECTIVENESS OF HOME ENERGY REPORT PROGRAMS

Authors: M. Sami Khawaja, Ph.D.
James Stewart, Ph.D.

WINTER 2014/2015



ACKNOWLEDGMENTS

The authors would like to thank the following individuals for very helpful discussions and comments about earlier drafts of this paper: Ken Agnew (DNV GL), Annika Todd (Lawrence Berkeley National Laboratory), Mike Li (U.S. Department of Energy), Scott Neuman (Opower), Alex Lopez (Opower), David Sumi (Cadmus), Brian Hedman (Cadmus), and Mehdi Maasoumy (C3). We are also grateful to Opower for providing us with publicly available evaluation reports of its home energy reports programs. This paper expresses the views of the authors and not necessarily those of the reviewers.

Cadmus is an employee-owned consultancy committed to helping our clients address complex challenges by applying diverse skills and experiences in a highly collaborative environment. By assisting our clients in achieving their goals, we create social and economic value today and for future generations. Founded in 1983, we leverage our staff's exceptional expertise in the physical and life sciences, engineering, social sciences, strategic communication, architecture and design, law, policy analysis, and the liberal arts to provide an array of research and analytical services in the United States and abroad.

TABLE OF CONTENTS

INTRODUCTION

Home energy report (HER) programs are a cornerstone of many utility energy-efficiency portfolios. These programs involve sending electronic or paper reports to residential customers, educating them about their energy use and encouraging them to conserve electricity or natural gas. The reports often include one or more of the following kinds of information:

- A summary of the home's recent and historical energy use
- Energy-efficiency tips (including utility energy-efficiency offerings)
- A normative comparison of the home's energy use to that of similar neighbors
- Offers of rewards or incentives for reducing energy use

Dozens of utilities in the United States send energy reports to their residential customers, and millions of utility customers receive these reports.[1] Recently, utilities have begun launching energy reports programs aimed at commercial customers.

Since utilities launched the first large-scale HER programs in 2008, the utility industry has collected considerable evidence about the savings gained through these programs. Impact studies of one vendor's programs (Opower) revealed that HERs typically resulted in average electricity savings between 1.5% and 2.5% of energy use during the first and second program years (Allcott, 2011; Davis, 2011; Rosenberg, Agnew, and Gaffney, 2013).[2] Most Opower HER programs have been implemented as randomized control trials (RCTs), which yield unbiased and robust estimates of electricity savings and provide credible evidence of program effects.

[1] The 2013 Consortium for Energy Efficiency database lists many utility HER programs; it is available for download at: http://library.cee1.org/content/2013-behavior-program-summary-public-version.

[2] As the largest HER service provider, Opower's programs have been studied the most. Other implementers of HER programs include Aclara, C3 Energy, and Simple Energy.

Now that many utility HER programs have been implemented for several years, we can assess savings over a longer term. In particular, Cadmus reviewed studies of mature HER programs—those running for three or more years—to evaluate the industry knowledge about savings, both while homes continue to receive reports and (for several utilities) after homes have stopped receiving them. In the past several years, numerous utilities have conducted RCTs to estimate post-treatment electricity savings. Findings from these studies can be used to improve estimates of HER measure life and cost-effectiveness.

This white paper addresses three primary questions about electricity savings from longer-running HER programs and savings after the end of treatment:

1. How do HER programs perform over time, and how does the program design (e.g., frequency of report delivery) affect savings?
2. What happens to savings when the program administrator stops sending HERs? In particular, do savings decay and, if so, how quickly? What effects result from continuing to send HERs?
3. How does the persistence or decay of HER savings after treatment ends affect program savings, measure-life calculations, and cost-effectiveness?

Section 2 of this paper presents evidence about the performance of mature HER programs, based on Cadmus' review of Opower impact studies.

Section 3 presents evidence from recent studies of the persistence of savings after homes stop receiving reports. It also characterizes the savings impacts from continuing to send HERs after the first program year.

In Section 4, Cadmus reviews existing methodologies for estimating HER program cost-effectiveness and proposes an alternative methodology that incorporates new findings about the persistence of savings after the end of treatment. This methodology was inspired by recent research demonstrating that HER savings persist after treatment ends (Allcott and Rogers, 2014; Brattle, 2012; Integral Analytics, 2012; KEMA, 2012; NMR Group, Tetra Tech, and Allcott, 2013).

The final section presents conclusions and recommendations for future research.

HOME ENERGY REPORT PROGRAMS

Many utilities send HERs to their residential customers. The reports provide education about energy use and encourage residents to save energy, both through changing energy-use behaviors (such as by turning off lights in unoccupied rooms or adjusting thermostat settings) and through upgrading home appliance efficiencies (e.g., air conditioners and refrigerators) and home envelopes (e.g., windows, insulation).

HER programs can differ along a number of dimensions, such as:

- The type of fuel targeted for savings (electricity or natural gas)
- Program populations (e.g., high-energy users, electric-heat customers)
- Report frequency (the number of reports per home, per year)
- The duration of treatment (length of time since the first reports were received)
- The report contents

That said, many programs share the following features:

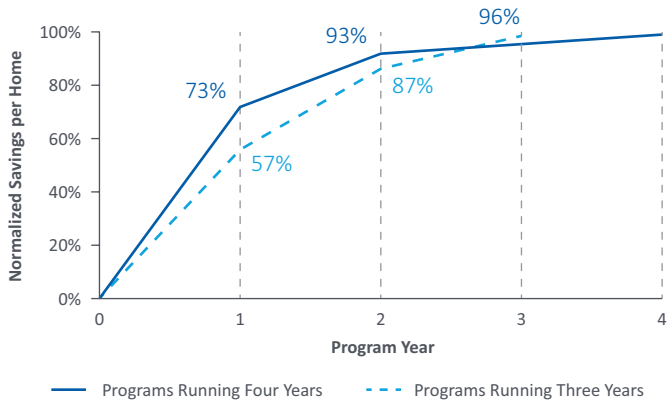
- Implemented as an RCT, providing highly credible savings estimates
- Offered on a large scale (by energy-efficiency standards), targeting thousands of utility customers
- Provides customers with an analysis of their historical consumption, energy-savings tips, and energy efficiency in comparison to neighboring homes, either through personalized home reports or a web portal
- Implementation by independent third-party vendor
- Includes an opt-out option for customers to decline participation/receiving reports

In-Treatment Savings from HERs

HER programs save energy while homes are receiving reports (in-treatment savings) and, as we describe in the next section, after homes stop receiving reports (post-treatment savings). This section of the paper is focused on the current industry knowledge regarding in-treatment savings from HER programs; the following section discusses post-treatment savings.

Figure 1 shows the typical time path of kWh savings per home while the home receives energy reports. The in-treatment savings for each year are indexed to savings in the last year of treatment. We developed these curves by conducting a meta-analysis of savings reported in independent evaluations of Opower programs; the solid line represents savings from programs running for three or more years, while the dashed curve represents normalized savings for programs that ran for four or more years.[3] Most of these programs achieved savings between 1.5% and 2.5% per year during the first and second years.[4]

Figure 1. kWh Savings per Home by Treatment Duration (Indexed to Last Year Evaluated)



Note: The authors developed these curves based on analysis of the average annual electricity savings per home from Opower HER programs running for three years (solid curve) or four or more years (dashed), including programs for Ameren-Illinois (Cadmus, 2012), Ameren-Illinois (Opinion Dynamics, Navigant, and Michaels Engineering, 2012), Sacramento Municipal Utility District (SMUD; Integral Analytics, 2012), ComEd (Navigant, 2012), Puget Sound Energy (KEMA, 2010, 2012, and 2013), PPL Electric (Cadmus, 2014), National Grid (Opinion Dynamics, Navigant Consulting, and Evergreen Economics, June 2013).

Figure 1 shows that the electricity savings per home from HERs increased over the first three or four years of treatment. In each year, savings are assessed relative to a control group. Three savings phases become evident:

1. First, a ramp-up occurs during the first six to 12 months of program participation. Savings increase rapidly during this phase, as utility customers assimilate HER information and begin to conserve energy.
2. Over the next 12 to 24 months, savings continue to increase, but at a lower rate than during the first 12 months. During this phase, utility customers begin to form energy-savings habits (Allcott and Rogers, 2014).

[3] Three of the programs we assessed have been evaluated for four years.

[4] The difference in slope between savings for programs having run three years versus four years is likely due to random noise. These differences do not necessarily indicate that participants in programs running four or more years increased their saving more rapidly than those participants in programs running for just three years.

3. In the last phase (program years 3 and 4), savings begin to level off. Savings maintain or increase at a very slow rate, while participants continue to receive reports that reinforce conservation habits. There is no evidence to indicate that average savings decrease in later treatment years because customers tire of or stop paying attention to the reports. However, there is little empirical evidence as to what happens to savings after the fourth year of treatment.

During our review of Opower HER programs, we identified a number of other savings patterns that are not evident in Figure 1. These include:

- Energy savings follow a seasonal pattern: they tend to be higher during winter and summer, when the demand for electric space heating and cooling is greatest (Summit Blue, 2009; Cadmus, January 2014; Power System Engineering, 2010; Navigant, 2011; Allcott, 2011; Opinion Dynamics, Cadmus, Navigant, and Michaels Engineering; DNV-GL, 2014).
- Customers with above-average pre-treatment consumption tend to experience higher absolute and percentage savings than customers with average or below-average consumption (Navigant, 2010; Allcott, 2011; NMR Group, Tetra Tech, and Allcott, 2013).
- HER programs tend to increase the participation rate in utility energy-efficiency rebate programs (Navigant, 2010; Opinion Dynamics and Navigant Consulting, 2011; Cadmus, 2014).

The program design also can influence savings. Participants that receive reports at higher frequencies (e.g., monthly instead of quarterly) tend to experience greater savings, especially at the beginning of the program when they are forming conservation habits (KEMA, 2012; Allcott and Rogers, 2014).

POST-TREATMENT SAVINGS

This section addresses what happens to savings after participants stop receiving HER reports; specifically, whether they continue to conserve energy and for how long.

Several utilities have conducted studies of post-treatment savings; this section discusses findings from four such studies concerning Opower HER programs, and addresses ways for evaluators to measure post-treatment savings persistence.

HER recipients can take several different actions in response to the reports. These actions affect the potential for the persistence of savings after treatment ends, and characterizing the actions provides a useful context for understanding the study results about post-treatment savings.

- **Equipment purchase behaviors:** HER program participants may purchase and install energy-efficient durables (e.g., efficient appliances such as ENERGY STAR® refrigerators, washing machines, and air conditioners) or install envelope measures (e.g., high-efficiency windows and insulation). Such measures have lasting impacts on home energy use and require minimal or no attention after adoption.
- **One-time behaviors:** Participants may undertake low-cost actions that must be repeated infrequently, such as replacing incandescent lamps with CFLs or cleaning furnace filters.
- **Habitual (or reoccurring) behaviors:** Participants may undertake changes that require frequent attention and repetition, such as making daily adjustments to thermostat settings or lighting controls.

Several different types of analysis provide circumstantial evidence that most HER program savings come from habitual or reoccurring behavior changes. The evidence is circumstantial because it is very difficult to directly observe behavior changes in response to the reports.

One area where researchers have observed HER impacts is on household purchases of efficient appliances and home envelope upgrades. Researchers have studied the HER program impacts on participation in utility energy efficiency rebate programs, finding that purchases of durable equipment and envelope measures only accounts for a small percentage of HER savings (typically less than 5%). Non-rebated durables and envelope measures also may account for some HER savings, likely with a smaller contribution. In addition, researchers have conducted telephone surveys and site visits to estimate HER impacts on residential CFL purchases. These analyses have not been conclusive, but suggest that the adoption of CFLs can account for only a small percentage of HER savings (FSC, 2013, DNV-GL, 2014).

Allcott and Rogers (2014) provide the strongest evidence that most HER program savings result from habitual changes. The authors used high-frequency interval billing data to document a gradual decline of energy savings as time passed since the last report. The authors interpret this pattern as "action and backsliding"—the relaxing of energy-savings activities as the cue for saving energy (the energy report) recedes in time.[5] After the next report is received, recipients intensify their savings activities and energy savings increase again, followed by another period of backsliding.

However, Allcott and Rogers also found that as homes receive more reports, backsliding attenuates. HER recipients appeared to form energy savings habits that made conservation less costly and resulted in more consistent behavior changes. The backsliding early in the program and subsequent attenuation of backsliding suggests that the reports lead to behavior change, but until habits form, utility customers require periodic reinforcement of conservation messaging.

[5] Another interpretation of this energy-savings pattern is that HER recipients accelerated the adoption of measures relative to customers in the control group. For example, if HER recipients purchase and install CFLs after receiving reports and before control group customers, relative energy savings would diminish with time as control group customers purchase and install CFLs.

Given the inference that most HER savings are behavior based, and that these behaviors depend on periodic reinforcement, the discontinuation of HERs is likely to result in gradual *savings decay*—a reduction in savings relative to what occurred while participants received HERs. The savings decay rate equals the reduction in energy use per unit of time, usually a month or a year.

Empirical Estimates of Savings Decay

To estimate the amount of savings decay after treatment, four studies randomly assigned homes receiving energy reports to either a discontinued treatment group or a continued treatment group, and compared the energy use of both groups to a control group.

Table 1 lists the four studies, their key attributes, their findings about post-treatment savings persistence and the rate of savings decay. The studies had different lengths of time during which the researchers measured savings decay, ranging from six months to 36 months.

NMR Group, Tetra Tech, and Allcott (2013) estimated post-treatment savings from Connecticut Light & Power homes that received energy reports for six months. Savings persisted for two months after the last treatment, then decreased significantly. Most electricity savings (83%) dissipated within five months of delivery of the final report. This rapid savings decay is consistent with the notion that customers require repeated exposure to energy reports to form and maintain energy-savings habits. Short treatment periods do not provide sufficient time for utility customers to form these habits.

Table 1. Studies of Post-Treatment Savings

Authors	Utility or Service Area	Frequency of Reports	Number of Treatment Months	Number of Post-Treatment Savings Analysis Months	Key Findings About Saving Decay
Allcott and Rogers (2014)	Upper Midwest	Monthly and quarterly	24–25	26	Average annual savings decay of 21%
	West Coast	Monthly and quarterly	24	29	Average annual savings decay of 18%
	West Coast	Monthly and quarterly	25–28	34	Average annual savings decay of 15%
NMR Group, Tetra Tech, and Allcott (2013)	Connecticut Light & Power	Monthly	6	6	Savings decay of 83% five months after treatment stopped
Integral Analytics (2012)	SMUD	Monthly and quarterly	27	12	Savings decay of 32% one year after treatment stopped
DNV-GL (2014)	Puget Sound Energy	Monthly and quarterly	24	36	Average annual savings decay of 11%

For the other three studies listed in Table 1, evaluators estimated post-treatment savings in homes that had received reports for about two years, and measured savings decay for between 12 months and 36 months.

- Allcott and Rogers analyzed data from RCTs in three utility service areas (one in the Upper Midwest and two on the West Coast), finding that post-treatment savings decayed between 15% and 21% per year over two to three years.
- Integral Analytics (2012) estimated the post-treatment savings decay for one year for homes within SMUD's service territory that received reports for 27 months. In the first 12 months after the end of treatment, savings decreased by 32% but still remained large (1.6%) and statistically significant.
- Finally, DNV-GL (2014) estimated post-treatment savings for Puget Sound Energy homes for three years after treatment ended. In homes that stopped receiving reports, savings decayed at an average annual rate of 11%.[6]

Figure 2 summarizes these findings, showing the estimated savings decay rates for utility HER programs that discontinued treatment after two years and that measured post-treatment savings for at least 12 months. The table also shows an average of the estimates. The average savings decay rate is approximately 20%.

[6] DNV-GL (2014) also estimated the savings persistence and decay of natural gas savings for three years after treatment ended. The average annual rate of savings decay was 5%.

Figure 2. Estimated Annual Savings Decay Rates After Two Years of Treatment for Opower HER Programs

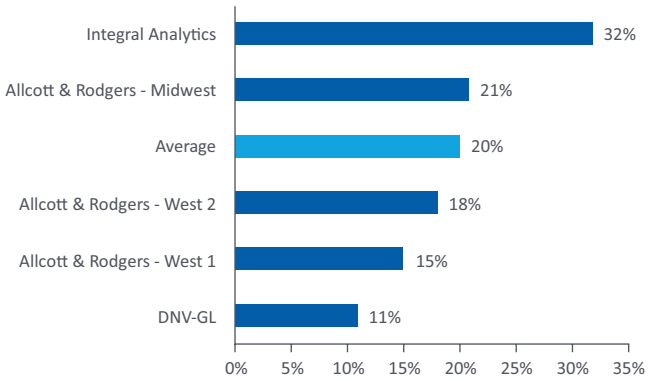
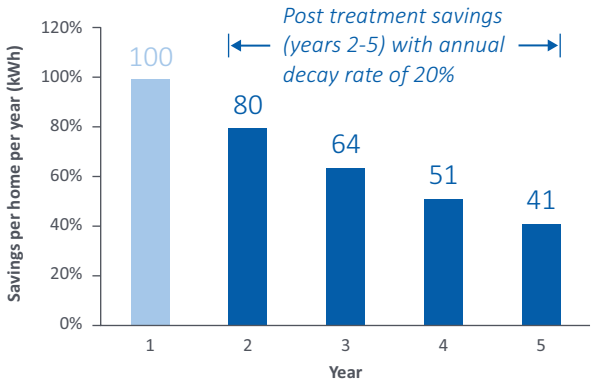


Figure 3. Example of HER Savings with 20% Annual Decay



Implications of Savings Decay for Lifetime HER Savings

The four post-treatment savings studies strongly suggest that Opower HER programs continue to generate savings after homes stop receiving reports. Figure 3 illustrates the implications of post-treatment savings decay, showing savings per home for the first and only year of a hypothetical HER program, plus savings for the following four years after homes stop receiving reports. This example assumes that the program generated average savings of 100 kWh per home, and savings decayed at an average annual rate of 20%. For simplicity, this example ignores the probability of post-treatment attrition; that is, that a treated customer changes residences, which would result in the loss of HER savings for that customer after the move. Utilities need to take into account the attrition as households change residences in the extrapolation of the savings to the total population of participants (i.e., take into account that number of participants decreases annually). In the Cost-Effectiveness of HER Programs section, we incorporate participant attrition into the analysis.

With an annual savings decay rate of 20%, this hypothetical program realizes savings per home over 5 years of 336 kWh, more than three times the in-treatment savings or the savings assuming a measure life of one year.[7]

More generally, the lifetime savings for a household that does not change residences, and that obtains HERs for one year with savings of s in the first year, are an infinite sum (where δ equals the constant decay rate and t indexes the year):

$$\sum_{t=1}^{\infty}(1-\delta)^{t-1} * s = \frac{s}{1-(1-\delta)} = \frac{s}{\delta}$$

For a HER program with savings of 100 kWh in the first and only program year and a savings decay rate of 20%, lifetime savings equal 500 kWh.

The persistence of some savings following treatment means many HER programs will generate more savings and likely prove more cost-effective than evaluators and regulators have typically assumed when basing calculations on a one-year measure life.

[7] Figure 3 only shows post-treatment savings for four years after treatment ends, which is approximately the maximum length of the savings persistence studies.

Measurement of Post-Treatment Savings

As was shown in the preceding illustrations, measuring lifetime savings from energy reports requires estimating a post-treatment savings. There are at least two reasons to estimate post-treatment savings: first, to claim savings, and second, for planning and cost-effectiveness purposes.

To measure post-treatment savings, utilities may simply keep track of the treatment and control groups after treatment ends, and then estimate persistence savings as the difference in energy use between these two groups in each year. It should be relatively inexpensive to estimate post-treatment savings, as, in most cases, it would represent a continuation of the program impact evaluation.

When creating planning estimates of program savings and cost-effectiveness, we recommend that utilities use the evidence from the studies presented in this paper as a starting point. Similar to the manner in which planners currently make assumptions regarding measure lifetimes and *ex ante* savings, planners should use a decay rate that they may or may not true up at a later stage. Program planners need to apply decay rates judiciously and be mindful of the potential limitations of applying results to a different study area. As evaluators conduct more studies of post-treatment savings, planners would need to verify their existing estimates of savings decay rates and, if necessary, update them.

For now, we suggest that planners apply a 20% annual savings decay rate to all Opower-type HER programs, without regard to treatment duration or frequency, or to the amount time since last treatment.[8] We base this recommendation on the need for a simple yet valid approach for determining post-treatment savings. However, when resources allow, we strongly recommend that evaluators conduct a post-treatment persistence study to true up the savings decay rate. Once an RCT has been set, the cost of continuing the evaluation after the treatment ends is fairly inexpensive.

Evaluators can consult the U.S. Department of Energy's forthcoming Uniform Method Project Behavior-Based Program Evaluation protocol or SEE Action (2012) for more information about how to implement an RCT to measure post-treatment savings. This approach does have drawbacks, however. Conducting randomized experiments increases impact evaluation costs and requires that program administrators stop sending reports to some treatment group homes, thus reducing program savings.

Our review of post-treatment savings studies indicates that the energy-efficiency industry has made significant strides in estimating HER program savings decay rates, but that additional research is needed. In particular, more research is needed about savings decay rates as a function of treatment duration, time since last treatment, and frequency with which energy reports were sent.

Utilities should conduct more research about the relationships between post-treatment savings and treatment duration and frequency, and the elapsed time since last report.

Avoided Decay and Incremental Savings

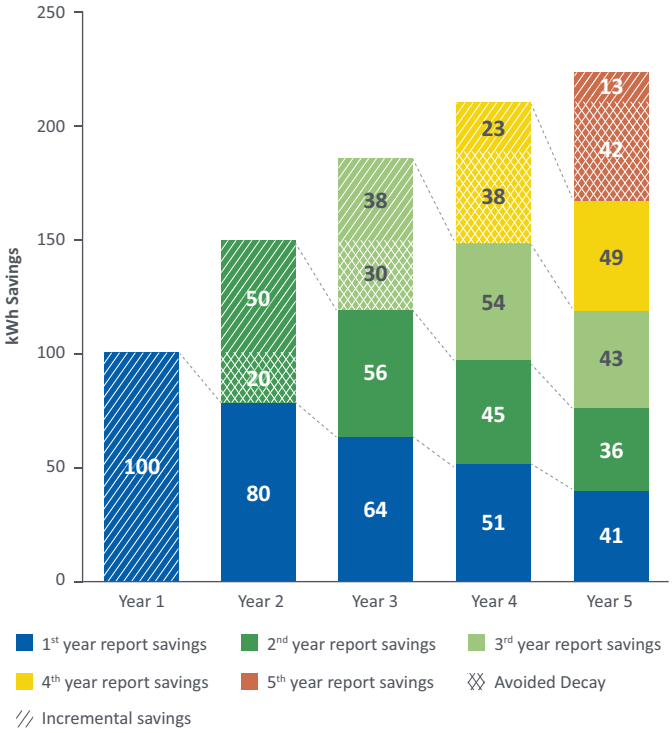
Cadmus researched how continuing to send HERs after the first year of treatment affects in-treatment savings. The savings impact of HERs during treatment can be broken into two parts: avoided decay savings and incremental savings.

[8] Evaluators will have to decide whether it is appropriate to apply savings decay rates for Opower-type HER programs to similar programs offered by other vendors. HER programs can differ along a number of dimensions, and it may be problematic to apply the decay rate measured from one vendor's HER program to another vendor's program. We recommend that evaluators and planners base the savings decay rate on studies conducted for that specific vendor.

- *Avoided decay* is savings that would have been foregone had the next report not been sent. Avoided decay can be estimated as the difference between savings during treatment and savings after treatment ends.
- *Incremental savings* are those in excess of the previous period's savings. Incremental savings can be estimated as the difference in in-treatment savings between the current and previous periods.

Figure 4 illustrates both effects on in-treatment savings for the first five years of a hypothetical HER program, including a breakdown of savings from sending additional energy reports in each year into avoided decay and incremental savings. The figure assumes that energy reports generate 100 kWh of savings per home in the first year; that savings increase at a decreasing rate in subsequent years; and that the savings decay rate is 20% in the second year and all subsequent years. The time path of annual savings in Figure 4 is consistent with the annual savings observed in actual HER programs, as was shown in Figure 1. Figure 4 shows incremental savings with diagonal lines and avoided decay with cross-hatches, and color-codes savings from energy reports attributable to the year reports were sent.

Figure 4. Illustration of Avoided Decay and Incremental Savings



In each year (except Year 1), energy reports generate incremental savings and avoid savings decay. For the first year, all savings from energy reports are incremental; avoided decay does not occur in the first program year. In subsequent years, homes continue to receive energy reports. In Year 2, the savings per home increase to 150 kWh: savings from energy reports sent in Year 1 equal 80 kWh (with the 20% rate of savings decay) and energy savings from reports sent in Year 2 equal 70 kWh. Approximately one-third of the savings from Year 2 HERs derives from avoided decay and approximately two-thirds derive from incremental savings. In Year 3, savings per home increases to 188 kWh. Avoided decay savings and incremental savings account for 30 kWh and 38 kWh, respectively.

In summary, Figure 4 illustrates the two effects of continuing to send HERs. It shows that additional reports not only avoid the decay of savings that would have been lost, but also generate new savings. The amount of avoided savings decay depends on the length of time that homes receive reports and how strongly their energy-savings habits have formed. Incremental savings, which are also dependent on the program age, are expected to be greatest early in the program and decrease over time.

Implications for EERS Goals

In most jurisdictions, regulators define energy-efficiency resource standards (EERS) for HERs using first-year savings targets and assuming a one-year measure life. This policy/practice attributes all HER savings measured in a year to that year's savings goal.[9]

If savings from HERs had a one-year measure life, this approach would make sense: all savings in a program year could be properly attributed to spending in that year. However, HER savings persist after treatment, making this approach invalid. As Figure 3 and Figure 4 showed, some annual savings in the second and subsequent years can be attributed to spending in previous years. Therefore, it is incorrect to attribute all savings in the second and subsequent years only to spending in that year. Savings attributable to those years should include the avoided decay and incremental savings, but not the persistence savings. Using first-year savings as a metric, it is incorrect to credit the persistence savings toward the annual EERS goal.

To illustrate how savings persistence affects accounting toward EERS savings goals, Table 2 shows a comparison of the accounting approach used in most jurisdictions (one-year measure life) to the approach that accounts for savings persistence. This example assumes that only first-year savings count towards the EERS goal and that the HER program runs for five years, using the values of annual incremental savings, avoided decay, and persistence savings from Figure 4.

In jurisdictions with EERS goals based on first-year savings, regulators should only count HER savings attributable to first-year spending. Attributable savings in subsequent years are then the sum of incremental savings and avoided decay savings.

*Table 2. Accounting for EERS Savings Goals**

Approach Currently Used in Most Jurisdictions					
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Incremental savings	100	50	38	23	13
Avoided decay	0	20	30	38	42
Persistence savings from spending in previous years	0	80	120	150	169
Total	**100**	**150**	**188**	**211**	**224**
Alternative Approach for Accounting Toward EERS Savings Goals					
Multiyear measure life (incremental + avoided decay)	100	70	68	61	55

* The annual incremental, avoided decay, and persistence HER savings are from Figure 4.

[9] Wisconsin is an exception; this state uses lifecycle savings for EERS goals. See Quackenbush and Bakkal (2013).

Under the conventional accounting approach, total savings, the sum of incremental savings, avoided decay, and persistence savings (savings from spending in previous years) all count toward the annual EERS goal. These savings are shown as the Total in Table 2. In contrast, with a multiyear measure life, only incremental savings and avoided decay count toward the annual EERS savings goal. These savings are shown in the last row of Table 2.

COST-EFFECTIVENESS OF HER PROGRAMS

In this section, we describe how accounting for post-treatment savings affects calculations of HER measure life and program cost-effectiveness. Current practices for calculating measure life and cost-effectiveness are inconsistent with growing evidence that HER savings persist after treatment ends. We recommend that regulators begin assigning HER measure lives and calculating cost-effectiveness that accounts for post-treatment savings. This approach would more accurately capture the lifetime benefits delivered by HER programs.

Estimating HER Measure Life

In general, a measure is cost-effective when its benefits exceed its costs; that is, when the measure achieves a benefit/cost ratio greater than 1.0. For energy efficiency in general, computation of cost-effectiveness requires:

- Costs to implement an intervention, often incurred up front
- Benefits resulting from such an intervention, which

often occur over a long period of time

- A method to temporally align these benefits and costs
- Identification of stakeholders impacted by the intervention

For HER programs, the most controversial input has been the duration of benefits (or measure life).

While measure life remains a matter of debate, even in traditional energy-efficiency programs (because the effective useful life of a piece of equipment is, at best, an estimate), HER programs require an additional level of scrutiny. When conducting effective analysis for installing a piece of equipment, one makes assumption regarding how long the equipment will remain useful to the average owner (equal to the effective useful life). There is a probability distribution of equipment lifetime, and the effective useful life represents the central tendency of the distribution.

HER programs have a lack of accepted, comparable effective useful lives, complicating the measurement of a savings lifetime. Most common approaches to HER program cost-effectiveness apply a one-year effective life for each year customers receive reports. This approach is flawed, as it ignores the fact that, while savings decay, they do not end abruptly when reports stop. A more appropriate approach is to account for savings that continue to occur after the end of treatment.

For simplicity, consider a HER program that runs for only one year. We propose to measure the effective useful life as:

$$\text{HER Program Effective Useful Life} = \frac{\text{Lifetime Savings}}{\text{First Year Savings}}$$

Effective useful life is HER lifetime energy savings in first-year savings equivalents.

Lifetime savings include first-year savings, plus savings that persist after treatment. The amount of post-treatment savings depends on the annual rate of savings decay ($0<\delta<1$) and the annual attrition rate of participants from residence changes ($0<\alpha<1$):

$$\text{Lifetime Savings} = 1^{st}\text{ Yr Savings} + \sum_{t=2}^{\infty} 1^{st}\text{ Yr Savings} * (1-\delta)^{t-1} * (1-\alpha)^{t-1}$$

This formula assumes that savings decay indefinitely and at a constant annual rate $(1-\delta)*(1-\alpha)$. As this is an infinite series, it converges at:

$$\frac{\text{First Year Savings}}{\delta + \alpha - \delta * \alpha}$$

For example, if first-year savings equal 10,000 MWh, the annual savings decay rate equals 20%, and the annual rate of participant attrition is 7% (i.e., 7% of residential customers move to new homes), the series will converge to 39,062 MWh. In other words, lifetime savings equal 39,062 MWh, with a suggested effective useful life of approximately 3.9 years:

$$\text{Effective Useful Life} = \frac{39{,}062}{10{,}000} \approx 3.9\text{ Years}$$

Calculation of HER Program Cost-Effectiveness

In this section, we demonstrate the effect of assuming a multiyear measure life on HER program cost-effectiveness. For each year, we compare the program's cost-effectiveness assuming a multiyear measure life to the cost-effectiveness assuming a one-year measure life.

To illustrate, consider a HER program with $600,000 of annual deployment costs. As a result of the energy reports, participants save 13,000 MWh in the first year. If the program is deployed for more than one year, participants increase their savings by 30% in the second year and by 5%

in the third year.[10] Savings from previous treatments decay at a constant rate of 20% per year. Participant attrition due to changes in residence is assumed to be 7% per year. The avoided cost of energy is assumed to be five cents per kWh, with no increase in cost over time. We also assume that deployment costs stay at $600,000 annually regardless of the treatment duration. Table 3 summarizes these assumptions.

Table 3. Hypothetical HER Program Assumptions

Model Input	Assumption
Annual program savings (without participant attrition)	Year 1: 13,000 MWh Year 2: 16,900 MWh Year 3: 17,745 MWh
Annual deployment cost	$600,000
Annual savings decay rate	20%
Avoided cost ($/kWh)	0.05
Discount rate	8%
Participant attrition rate	7%

Figure 5 displays the expected savings attributable to HER spending in each program year for 10 years after the initial treatment. First-year spending results in incremental savings in year 1 and persistence savings in subsequent years. In the second and third years, HERs result in incremental savings and avoided decay savings, and persistence savings results in subsequent years.

After the third year, total program savings decrease monotonically because there is no additional spending, the annual savings decay stays at 20%, and recipients change residences at a rate of 7% per year.

Figure 5. Annual Savings for HER Programs

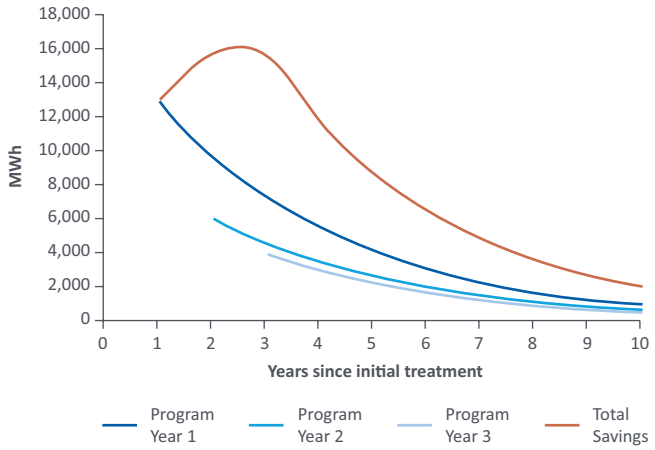


Table 4 shows HER program benefit/cost ratios for the three program years that would result under the assumptions of a one-year measure life and a multiyear measure life. The benefit/cost ratios in this example are illustrative only; they do not represent benefit/cost ratios for actual HER programs. True benefit/cost ratios depend not only on assumptions specific to programs about savings and deployment costs, but also on the avoided cost of energy and the discount rate.

Table 4. HER Program Annual Benefit/Cost Ratio Comparison

	Program Year One	Program Year Two	Program Year Three
Avoided cost ($000)	$2,089	$972	$631
Deployment cost ($000)	$600	$600	$600
Lifetime savings (MWh)	50,781	23,613	15,349
Benefit/cost ratio (multiyear measure life)	3.5	1.6	1.1
Benefit/cost ratio (one-year measure life)	1.1	1.3	1.3

[10] We based these assumptions on observed incremental savings from HER programs (based on the time path of savings since the first treatment shown in Figure 1).

Table 4 shows benefit-cost ratios for annual program spending on a year-by-year basis. The first column in Table 4 shows the benefit/cost ratio of a one-year program. The second column shows the benefit/cost ratio for year 2 of a two-year program. For a program that runs for two years, it will be necessary to consult the benefit/cost ratios for both year 1 and year 2 (3.5 and 1.6). The same applies to a three-year program—the table shows the benefit/cost ratio for the third year of spending. The table does not show a combined benefit/cost ratio for all years of a two or three-year program.

HER spending in the first program year would result in first-year savings of 13,000 MWh and lifetime savings of approximately 50,800 MWh. These savings would yield a benefit/cost ratio of 3.5 assuming a multiyear measure life and a benefit/cost ratio of 1.1 assuming a one-year measure life. In the second program year, HER program spending would result in lifetime savings of approximately 23,600 MWh. This would yield a benefit/cost ratio of 1.6 with a multiyear measure life. Assumption of a one-year measure life would yield a benefit/cost ratio of 1.3. In the third program year, HER program spending would result in lifetime savings of 15,350 MWh, yielding a benefit/cost ratio of 1.1 with a multiyear measure life and a benefit/cost ratio of 1.3 with a one-year measure life. A one-year measure life would yield a greater benefit/cost ratio because it credits all savings in the third program year to spending in that year, including some savings attributable to spending in the first and second years.

The important finding in Table 4 is that, in the first two years of the HER program, the benefit/cost ratio would be greater with a multiyear measure life than a one-year measure life, because a multi-year measure life accounts for savings persistence after treatment ends. In the third program year, the assumption of a one-year measure life results in a larger benefit/cost ratio because it incorrectly attributes all savings in year three to spending in that year, ignoring persistence of savings from the first and second years.

CONCLUSIONS AND RECOMMENDATIONS

HER programs have become widespread, well-accepted means for utilities to achieve energy savings. As many utilities have operated these programs for three or more years, we assessed the current knowledge regarding long-run savings to determine whether standard approaches for estimating savings and program cost-effectiveness should be updated.

THIS WHITE PAPER ADDRESSED THREE PRIMARY QUESTIONS:

1. **How do HER program energy savings perform over time, and how does program design affect those savings?**
2. **What happens to energy savings when homes stop receiving energy reports? In particular, do savings decay and, if so, how fast? What effects result from continuing to send HERs?**
3. **How does persistence of HER savings after treatment affect program savings and cost-effectiveness?**

To answer these questions, we reviewed saving estimates from dozens of independent impact evaluations and academic studies of HER programs, including a number of studies specifically examining post-treatment savings.

The following findings result from this review:

- HERs typically result in significant electricity savings. Our review of one implementer's programs (Opower) revealed average electricity savings between 1.5% and 2.5% per year. Though average annual savings per treated home may be small, the total savings aggregated over a large number of program homes can be substantial.
- In-treatment savings, which occur while homes are receiving reports, increase during the first and second program years before leveling off in subsequent years.
- Growing evidence indicates that HERs continue to generate savings after homes stop receiving reports. Several studies show that savings decay gradually over time after treatment ends.
- Most jurisdictions assume HERs have a measure life of one year, thus neglecting post-treatment savings. By assuming a one-year measure life, this approach may reduce the amount of savings attributable to HERs and incorrectly lower program cost-effectiveness, which may lead utilities to make less-than-optimal investments in efficiency.
- During treatment, HERs produce two savings effects: the avoided decay of savings and additional (incremental) savings.
- Accounting for post-treatment savings will increase HER program lifetime savings and effective useful life. In the cost-effectiveness example, accounting for post-treatment savings improved program cost-effectiveness in the first and second program years. The effect of a multiyear measure life on lifetime savings and annual cost-effectiveness depends on the rate of the savings decay, avoided cost of energy, discount rate, and participant attrition rate.

BASED ON THESE FINDINGS, WE OFFER THE FOLLOWING RECOMMENDATIONS:

- Utilities should account for post-treatment savings when planning HER programs and estimating cost-effectiveness. Accounting for post-treatment savings will yield savings and cost-effectiveness estimates that more accurately reflect HER programs' true benefits.

- For purposes of program planning and estimating program cost-effectiveness, we propose that utilities apply a savings-decay rate of 20% per year. Cadmus' analysis of post-treatment savings of Opower HER programs indicates that 20% per year is an appropriate savings-decay assumption.

- In jurisdictions with annual EERS goals based on first-year savings, regulators should only count HER savings attributable to first-year spending. Attributable savings are the sum of incremental savings and avoided decay savings.

- We recommend that utilities continue to evaluate HER program treatment and control group customers after the program ends to estimate post-treatment savings.

- Utilities should conduct more research regarding post-treatment savings, as relatively few studies have estimated savings after homes stop receiving energy reports. More research is needed about the relationships between post-treatment savings and treatment duration, frequency, and time since last treatment.

- Utilities should conduct more research about HER program design and delivery to optimize the programs. There may be opportunities to improve program delivery to maximize savings and cost-effectiveness.

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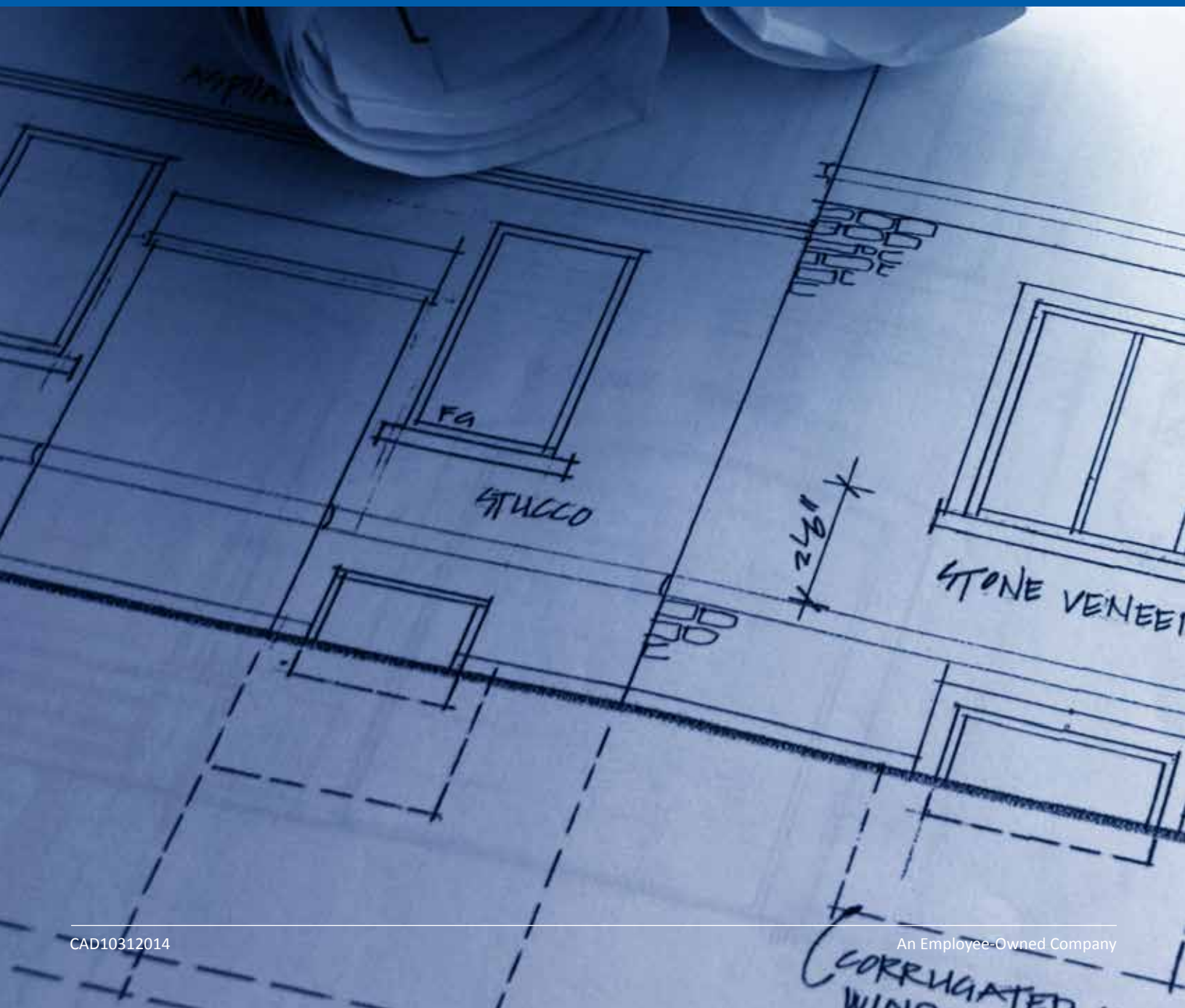


ENERGY PROBE INTERROGATORY #23

INTERROGATORY

Topic 5 – Program Types

Reference.: Exhibit B, Tab 2, Schedule 1, Page 53, Program 12 - Residential Savings by Design

a) Please indicate approximately how many new single family homes were/are forecast to be built in Enbridge's service area each year 2012-2020?

b) Please indicate approximately how many of those new homes are built by builders who have already participated in Enbridge's SBD program 2012-2015?

c) Please explain why achievement metrics go down from 2016 to 2017 when the budget remains Constant (e.g. OBC changes)?

RESPONSE

a) Please see below the requested forecast:

	2012	2013	2014	2015	2016	2017	2018	2019
	Actual	Actual	Actual	Forecast	Forecast	Forecast	Forecast	Forecast
Residential New Construction	25,406	24,224	23,595	24,730	24,346	26,261	27,427	27,968

Please note: Residential New Construction includes Single Family home and Ensuites. Enbridge has not forecasted beyond 2019.

b) Below Enbridge has provided the requested information for the years 2012 to 2014, as the Company does not have the data required to forecast accurately into future years.

	Homes built in EGD Franchise	**Builders enrolled in SBD**	**Homes Built by Participating Builders**
2012	25,406	12	2073
2013	24,224	18	2214
2014	23,595	23	4752
2015	24,730	12	Not available until January 2016

Witnesses: S. Bertuzzi
S. Hicks

c) Due to the upcoming change in the Ontario building code effective January 1, 2017, and the new SBD parameters of achieving 15% more energy efficient than the 2017 building code, Enbridge proposes a program reset, with a target decrease during the transition of the 2017 code as builders/developers will be focused on the completion of their current builds as opposed to starting new or entering programs.

The budget remains constant because a portion of it relates to the previous years' participants (2016 and before) and the forecasted incentives to be paid out for builders who previously committed to the program (three years to construct homes). Please see Enbridge's response to SEC Interrogatory #12, filed as Exhibit I.T5.EGDI.SEC.12, for further discussion of this topic.

Witnesses: S. Bertuzzi
S. Hicks

ENERGY PROBE INTERROGATORY #24

INTERROGATORY

Topic 5 – Program Types

Reference.: Exhibit B, Tab 1, Schedule 3, Table 9, Page 12 - Home Labelling Scorecard
Exhibit B, Tab 1, Schedule 4, Page 41
Exhibit B Tab 2, Schedule 1, Page 71 - Program 16 - Home Rating

a) Please explain in detail why the Scorecard has no numerical metric for Realtor commitments.

b) Please provide the Shareholder Incentives with the Scorecard as filed (100% and Upper).

c) Please provide an analysis of the recent annual listings (new and existing) of SF homes in EGD's Service area. Include a chart/profile of all listings that shows the listings per major realtor and covers the two qualitative levels of 5,000 and 10,000 listings/year.

Please provide an alternative metric that is based on number of realtors with X (determined by profile) listings enrolled and an appropriate Home Rating.

RESPONSE

a) The 2016 to 2020 scorecard no longer has a numerical metric for realtor commitments because the program has been redesigned to focus on providing energy ratings as opposed to listing energy ratings. Enbridge believes the Home Rating offer must evolve to place greater emphasis on engagement directly with consumers.

b) Enbridge's potential shareholder incentives have been allocated on a weighted scorecard basis. As such, incentives are not allocated to specific offers. The MTEM Scorecard in 2016 has a 100% earning potential of $0.94M and a maximum earning potential of $2.35M. While Home Rating has been assigned a 5% weighting on this scorecard, the interactive effects of multiple metrics on a weighted scorecard are such that the offer's impact on shareholder incentives could be greater or less than 5% of the scorecard's overall value.

Witness: S. Bertuzzi

c) The Canadian Mortgage and Housing Corporation ("CMHC") Multiple Listing Service ("MLS") residential activity for Ontario in 2014 was 205,972 sales from 367,682 listings. CMHC* posted the following Real Estate Board Sales within Enbridge's franchise area which total 133,071, or 65% of Ontario sales :

Toronto	93,278
Ottawa	14,094
Niagara	5,875
Barrie	4,795
Peterborough	2,578
Brantford	2,075
Durham	10,373
*Housing Market Outlook - Canada Edition - Date Released - First Quarter 2015	

To estimate the number of listings within Enbridge's franchise area, the Company applied the same 65% ratio to total Ontario listings, which yields a figure of approximately 238,993 listings in Enbridge's franchise area in 2014.

Of the 238,993 listings, the Company must then determine the percentage of homes listed that would have had an energy label.

According to NRCan, 506,818 homes were rated through the ecoENERGY program and approximately 32,677 through the Energy Star program from 2006 to mid-2014 totaling 539,495 potential energy labels in the Ontario marketplace. Statistics Canada reports approximately 4,887,510 Households in Ontario, so with 539,495 labelled homes, this equates to 11% (26,289) of the homes in the Ontario market that have a label.

An issue with the program as currently designed is that Enbridge cannot determine how many of these will actually be listed each year.

Through the existing program Enbridge has received 662 listings with an energy label or rating posted, or 3% of the total potential energy rated houses that could potentially be listed.

From 2012 to 2014, approximately 30% of the 662 listings received can be related to the brokerages Enbridge signed. There are several real estate agents, brokerages, offices etc. that that the Company reached through marketing information however that likely also contributed to the number of listings. A one to one relationship should not be assumed between brokerages and listings as there is great variability not only

in the number or selection of homes which could potentially be listed within a given year, but also the number of those homes listed which had an energy label.

Enbridge is concerned that the program as currently designed is not focused enough on its core objective, which is to increase the number of homes in the market with an energy rating and further encourage the active use of those ratings in evaluating the value of a home. It was originally thought that working through the realtor community this objective could be accomplished. However, Enbridge has found that this is not the case. Enbridge still believes in the core objective of this offer however, and is now proposing a different design to accomplish it. As a result, Enbridge does not see that there is an alternative metric for the number of realtors with listings enrolled.

GEC INTERROGATORY #3

INTERROGATORY

Reference: Exh. B/T1/S2 pp. 9-10:

Enbridge states that it developed, "over the past year", a "Comprehensive Energy Management" offering for larger, more complex customers.

a. What is the nature of that offer? How is it structured?
b. How many of Enbridge's customers have participated to date?
c. For those that have participated to date, what is the magnitude of the savings – in both lifetime m3 and annual percent reductions in gas use – that they achieved and/or are planning to achieve?
d. Over what time frame will the measures necessary to achieve those reductions be implemented or put in place?
e. For participants to date, how much has it cost and/or will it cost Enbridge to provide this service/offer/program to its participating customers? Please provide a breakdown of the costs to Enbridge between incentives, technical support and other (explaining what "other" entails).
f. What does Enbridge estimate to be the average savings – both in lifetime m3 and in percent of annual use – from this initiative over the course of its 2015-2020 plan?
g. How many customers does Enbridge expect to participate in this offering in each year of the 2015-2020 plan?
h. What does Enbridge expect to be its average cost per future participant? Please provide a breakdown between financial incentives, technical support and other.

RESPONSE

a) The nature and the structure of the Comprehensive Energy Management ("CEM") offer are described in Exhibit B, Tab 2, Schedule 1, p.p. 91-97.

b) As the CEM offer is still under development and has not yet been approved by the Board, Enbridge has not yet recruited any customers.

c) Please see response to b) above.

d) Implementation of the four key components of the program at each customer site will take up to one year. It is anticipated that through that time opportunities will be

Witnesses: P. Goldman
M. Lister
D. Naden
F. Oliver-Glasford

identified and wherever possible implemented. Support for the customer will continue throughout duration of the multi-year DSM Program.

e) Please see Enbridge's response to h) below for additional details regarding the costs of CEM.

Witnesses: P. Goldman
M. Lister
D. Naden
F. Oliver-Glasford

f & g) The requested information can be found in the table below:

Assumptions

Expected Avg Consumption Small-Medium Ind 340,000 =< m3 >= 500,000	413,356
Expected Avg Consumption Medium Ind 500,000 < m3 >= 2,500,000	1,076,922
Measure Life (Yrs) - Changes to be be recorded in the SOP, etc.	10
Expected Savings for the 1st year	3%
Free Ridership	50%
Capital Project is included	

			2016	2017	2018	2019	2020	2021	2022	2023	2024
Program Launched	Number Participants	Expected Savings	3%	2%	2%	1%	1%				
2016 - Small	5	Expected Gross m3	62,003	41,336	41,336	20,668	20,668				
2016 - Medium-Large	1	Saved	32,308	21,538	21,538	10,769	10,769				
Program Launched	Number Participants	Expected Savings		3%	2%	2%	1%	1%			
2017 - Small	5	Expected Gross m3		62,003	41,336	41,336	20,668	20,668			
2017 - Medium-Large	4	Saved		129,231	86,154	86,154	43,077	43,077			
Program Launched	Number Participants	Expected Savings			3%	2%	2%	1%	1%		
2018 - Small	5	Expected Gross m3			62,003	41,336	41,336	20,668	20,668		
2018 - Medium-Large	5	Saved			161,538	107,692	107,692	53,846	53,846		
Program Launched	Number Participants	Expected Savings				3%	2%	2%	1%	1%	
2019 - Small	5	Expected Gross m3				62,003	41,336	41,336	20,668	20,668	
2019 - Medium-Large	5	Saved				161,538	107,692	107,692	53,846	53,846	
Program Launched	Number Participants	Expected Savings					3%	2%	2%	1%	1%
2020 - Small	5	Expected Gross m3					62,003	41,336	41,336	20,668	20,668
2020 - Meium-Large	5	Saved					161,538	107,692	107,692	53,846	53,846
Total	45	Expected Gross M3	94,311	254,108	413,905	531,496	616,779	1,910,599			
		Expected Net CCM	471,555	1,270,540	2,069,525	2,657,479	3,083,895	9,552,994			

h) The requested information is provided in the table below:

Year	No. of Participants	EMIS Incentive per Participant (MT)	Technical Support per Participant	Financial Incentives per Participant (CCM)	Other cost per Participant	Total Cost per Participant
2016	6	$75,000	$5,333	$4,716	$1,333	$86,388
2017	9	$80,000	$3,911	$8,470	$978	$93,368
2018	10	$81,000	$5,280	$12,417	$1,320	$100,027
2019	10	$81,000	$4,160	$15,945	$1,040	$102,155
2020	10	$81,000	$3,680	$18,503	$920	$104,113

Witnesses: P. Goldman
M. Lister
D. Naden
F. Oliver-Glasford

GEC INTERROGATORY #5

INTERROGATORY

Topic 5 – Program Types

Reference: Exh. B/T1/S2 p. 11:

Enbridge states that it is building the NRCan Portfolio Manager initiative "into its portfolio and long term business practices." What exactly does that mean? How, specifically, does the Company plan to make use of Portfolio Manager?

RESPONSE

The use of data to inform and influence customer decisions with respect to Energy Conservation has been part of Enbridge's DSM offers since 2012 when the Energy Compass and Run it Right initiatives were officially launched.

Enbridge is investigating the use of Portfolio Manager's capability of capturing water and electricity benchmarking features. Portfolio Manager provides a platform developed by NRCan that can be used to facilitate evidence-based, detailed customer data.

Enbridge intends on continuing to support the commercial market by offering Energy Compass to our customers and supporting industry initiatives like The Race to Reduce and the IESO's Performance Based Conservation Pilot where participants enroll in Portfolio Manager.

Witnesses: R. Kennedy
M. Lister
F. Oliver-Glasford

GEC INTERROGATORY #17

INTERROGATORY

Reference: Exh. B/T1/S4 p. 34:

Enbridge suggests that one reason that lifetime savings is "not an ideal metric" for measuring success from Comprehensive Energy Management (CEM) and RiR initiatives is that savings are "typically small when compared to savings achieved through capital projects".

a. Is Enbridge limiting its CEM initiative to operational efficiency improvements? If so, why? Isn't it common for the strategic energy management programs run by other utility and non-utility efficiency program administrators to holistically treat all efficiency opportunities, whether related to capital investment or operational or both?

b. What is the basis for Enbridge's assertion that CEM will lead to small savings?
   i. Does the Company have any direct experience with CEM to suggest that will be the case?
   ii. Can it cite experience from other jurisdictions to support that contention?
   iii. If not, why treat CEM as likely to have outcomes similar the Company's historic experience with RiR?

RESPONSE

a) The Comprehensive Energy Management ("CEM") offer is not limited to operational improvements only; it looks at all energy efficiency opportunities. In fact, Enbridge views the identification of all opportunities, whether operational or capital investments, as integral to the holistic view of the CEM offering.

b) i) To be clear, it is Enbridge's experience with operational or behavioural measures alone that generate the conclusion that CEM will lead to small savings. In Enbridge's experience these measures may yield in the 2 to 3% range for savings. That is not to say that capital opportunities generated by working with customers through the CEM offering would necessarily be small. This is precisely why Enbridge is looking to capture the CCM results in the RA scorecard, while also measuring participants in the MTEM scorecard.

ii) Other research that supports Enbridge's own experience with respect to the savings levels from operational or behavioural programs on their own are as follows:

Witnesses: P. Goldman
M. Lister
D. Naden
F. Oliver-Glasford

- Northwest Energy Efficiency Alliance report “NEEA Market Progress Evaluation Report #6: Evaluation of NEEA’s Industrial Initiative (E11-220)” shows overall gas and electricity savings of approximately 3%.
- US Department of Energy’s Superior Energy Performance which runs in conjunction with ISO 50001 Energy Management certification standard also shows savings in the same range.

iii) As explained above, Enbridge believes that the operational or behavioural savings generated from the program is not likely to yield results greater than 2 to 3%.

Witnesses: P. Goldman
M. Lister
D. Naden
F. Oliver-Glasford

GEC INTERROGATORY #20

INTERROGATORY

Reference: Exh. B/T2/S1 pp. 8-11:

Regarding the Company's Custom Industrial program:

a. For the segmentation by size of industrial customers provided in the table on p. 9, please provide the following:
   i. The absolute number of customers in each of the three size bins
   ii. The total annual gas consumption of customers in each of the three size bins
   iii. The number of unique customers in each of the size bins that have participated in Enbridge's custom industrial program in each of the past five years.
   iv. The total annual gas consumption of customers who participated in Enbridge's custom industrial program in each of the past five years (please provide separately for each year)
   v. The number of unique customers in each of the size bins that have participated at least once over the past five years. This will not necessarily be the sum of the annual participation numbers provided in response to "iii" above. For this subpart of the question, customers who participated two or three times over the past five years should only be counted once.
   vi. The total annual consumption of customers who participate at least once over the past five years.

b. For each of the past three years, what portion of Enbridge's program participants had their financial incentive capped (i.e. at the cap of $100,000 per project)? Please provide this separately for each of the three size bins as well as for all customers in aggregate.

c. Why is Enbridge proposing to retain the existing per customer rebate cap of $100,000, particularly in light of the new tiered incentive structure designed to drive customers towards deeper levels of savings? Won't the cap likely render pointless the offer of higher incentives per m3 of gas saved, at least for larger customers?

d. Are the incentive offerings expressed as dollars per first year m3 saved? Assuming so, why use that structure when Enbridge's savings goals are expressed as lifetime m3 saved? Why wouldn't it be more appropriate to express incentives as dollars per lifetime m3 saved?

Witnesses: P. Goldman
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

RESPONSE

a) i & ii

Industrial Sector - CONSUMPTION_TIER	Number of Customers	Aggregate of Average Yearly Consumption (3 Year)
Large Industrial: Annual consumption >= 1.5 million m3	205	1,400,035,836
Medium Industrial: Annual Consumption between 340,000 m3 to 1.5 million m3	533	358,746,660
Small Industrial: Annual consumption < 340,000 m3	1,988	121,258,956
Total	**2,726**	**1,880,041,452**

iii.

CONSUMPTION TIER	2010	2011	2012	2013	2014	Grand Total
Large Industrial: Annual consumption >= 1.5 million m3	46	47	41	45	46	226
Medium Industrial: Annual Consumption between 340,000 m3 to 1.5 million m3	37	38	24	38	33	170
Small Industrial: Annual consumption < 340,000 m3	11	18	4	9	10	52
Grand Total	**94**	**103**	**69**	**92**	**89**	**448**

Please note that 2014 results are preliminary, prior to finalization of the audit and clearance processes.

Witnesses: P. Goldman
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

iv.

CONSUMPTION TIER	CONSUMPTION 2010	CONSUMPTION 2011	CONSUMPTION 2012	CONSUMPTION 2014	CONSUMPTION 2014	Grand Total
Large Industrial: Annual consumption >= 1.5 million m3	389,054,496	379,837,574	536,429,328	345,309,799	460,570,593	226
Medium Industrial: Annual Consumption between 340,000 m3 to 1.5 million m3	28,938,217	32,294,832	17,853,298	27,705,284	26,491,445	170
Small Industrial: Annual consumption < 340,000 m3	1,632,528	3,300,243	809,822	2,098,566	2,057,755	52
Grand Total	419,625,241	415,432,649	555,092,448	375,113,649	489,119,793	448

v.

CONSUMPTION TIER	Total count
Large Industrial: Annual consumption >= 1.5 million m3	115
Medium Industrial: Annual Consumption between 340,000 m3 to 1.5 million m3	123
Small Industrial: Annual consumption < 340,000 m3	44
Grand Total	282

vi.

CONSUMPTION TIER	CONSUMPTION 2010	CONSUMPTION 2011	CONSUMPTION 2012	CONSUMPTION 2014	CONSUMPTION 2014
Large Industrial: Annual consumption >= 1.5 million m3	389,054,496	379,837,574	536,429,328	345,309,799	460,570,593
Medium Industrial: Annual Consumption between 340,000 m3 to 1.5 million m3	28,938,217	32,294,832	17,853,298	27,705,284	26,491,445
Small Industrial: Annual consumption < 340,000 m3	1,632,528	3,300,243	809,822	2,098,566	2,057,755
Grand Total	419,625,241	415,432,649	555,092,448	375,000,000	489,119,793

Witnesses: P. Goldman
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

b)

Year	Portion of Participants capped @ $100k	Customer size bin
2014	0.78%	Large
2013	4.46%	Large
2012	3.45%	Large

c) The proposed Incentive cap is in effect to mitigate risk and help manage budget. Enbridge retains the flexibility to exceed the incentive cap if increased financial support is required to support a custom project.

d) Single year m^3 represents the most market-neutral measure on which custom incentives can be based for Commercial & Industrial customers. Basing incentives on cumulative cubic metres ("CCM") would introduce a perverse incentive model to the market, where projects with the highest possible CCM would be favored over those with greater annual savings.

Witnesses: P. Goldman
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

GEC INTERROGATORY #21

INTERROGATORY

Reference: Exh. B/T2/S1 pp. 11-14:

Regarding the Company's proposed Commercial Custom program:

a. For each of the last three years, what portion of Enbridge's Commercial Custom Program participants achieved savings commensurate with each of the three saving tiers shown in the table on p. 13? Please provide the response on two ways:
   i. Portion of customers
   ii. Sales/Consumption-weighted portion of customers
b. For each of the past three years what portion of Enbridge's program participants had their financial incentive capped (i.e. at the cap of $100,000 per project)? Please provide this separately for each of the three savings range bins as well as for all customers in aggregate.
c. Why is Enbridge proposing to retain the existing per customer rebate cap of $100,000, particularly in light of the new tiered incentive structure designed to drive customers towards deeper levels of savings? Won't the cap likely render pointless the offer of higher incentives per m3 of gas saved, at least for larger customers?
d. Are the incentive offerings expressed as dollars per first year m3 saved? Assuming so, why use that structure when Enbridge's savings goals are expressed as lifetime m3 saved? Why wouldn't it be more appropriate to express incentives as dollars per lifetime m3 saved?

Witnesses: R. Kennedy
M. Lister
K. Mark
S. Moffat
B. Ott

RESPONSE

a. Commercial Custom Offer Participants for 2012 to 2014:
   i. Portion of Customers in relation to proposed savings tiers are outlined in Table 1.

Table 1

2012

Completed Projects	681			
Savings Tier	**0-10%**	**10-20%**	**20+**	**Grand Total**
Count	187	133	361	681
Percentage	27%	20%	53%	100%
$100,000 Cap	1			1

2013

Completed Projects	551			
Savings Tier	**0-10%**	**10-20%**	**20+**	**Grand Total**
Count	203	111	237	551
Percentage	37%	20%	43%	100%
$100,000 Cap			2	2

2014

Completed Projects	456			
Savings Tier	**0-10%**	**10-20%**	**20+**	**Grand Total**
Count	166	131	159	456
Percentage	36%	29%	35%	100%
$100,000 Cap	1			1

Witnesses: R. Kennedy
M. Lister
K. Mark
S. Moffat
B. Ott

ii. Sales/Consumption-weighted portion of Commercial Custom offer participants outlined in Table 2.

Table 2

Consumption-weighted Projects	Number of Opportunites			
Consumption Tier	**2012**	**2013**	**2014**	**Grand Total**
>= 1,500,000	29	27	38	94
1,000,000 - 1,499,999	11	17	11	39
500,000 - 999,999	66	63	63	192
300,000 - 499,999	69	69	57	195
100,000 - 299,999	160	180	124	464
50,000 - 99,999	134	116	63	313
0 - 49,999	212	79	100	391
Grand Total	**681**	**551**	**456**	**1688**

b. See Table 1 above for 2012 to 2014 Commercial Custom Offer participants who reached the cap of $ 100,000 incentive

c. The proposed incentive cap is in effect to mitigate risk and help manage budget. Enbridge retains the flexibility to exceed the incentive cap if increased financial support is required to support a custom project.

d. In the Company's view it is more important to incent the single year m3 savings as customers would naturally factor in a measure life component when they evaluate the stream of benefits, and the life of those benefits, over time.

Witnesses: R. Kennedy
M. Lister
K. Mark
S. Moffat
B. Ott

GEC INTERROGATORY #22

INTERROGATORY

Topic 5 – Program Types

Reference: Exh. B/T2/S1 pp. 17-19:

Regarding the Company's proposed C&I prescriptive rebate program:

a. Please provide a list of the measures included in the program.
b. For each measure on the list, please provide
   i. The number of units the Company rebated in each year from 2012 through 2014.
   ii. The number of units the Company is forecasting it will rebate in each year from 2015 through 2018.
   iii. The Company's best estimate of the size of the market in its service territory for the measure. For measures purchased at time of natural replacement, that would be the annual number of units sold when existing equipment in buildings are replaced. For measures that can be retrofit (e.g. demand controls for ventilation), the estimate would be the number of units that could be installed in existing buildings.
   iv. The Company's best estimate of the baseline market share for each product. For measures purchased at natural time of replacement, percent of all product sales that would be high efficiency absent the Company's program.

Witnesses: R. Kennedy
K. Mark
F. Oliver-Glasford

RESPONSE

a. See chart below in b. for the list of measures included in the Prescriptive Offer.

b. Results and forecast by measure
   i. Number of Units rebated for 2012 to 2014

Prescriptive Measures	2012 Units	2013 Units	2014 Units
Air Doors 8x8*	1	2	1
Air Doors 8x10*	0	13	10
Air Doors 10x10*	12	3	19
Air Doors Single*	8	12	11
Air Doors Double*	38	23	15
Demand Control Kitchen Vent	7	24	21
Demand Control Kitchen Vent 2	14	30	64
Demand Control Kitchen Vent 3	5	7	13
Energy Star Dishwashers Undercounter type - High Temperature	-	-	-
Energy Star Dishwashers Undercounter type - Low Temperature [1]	23	27	75
Energy Star Fryers	156	149	186
Energy Star Convection Oven		2	3
Energy Star Stationary Rack - HT	82	70	120
Energy Star Stationary Rack - LT	116	175	219
Energy Star Steam Cookers	-	1	1
Rack Conveyor - Multi - HT	-	-	-
Rack Conveyor - Multi - LT [2]	-	-	6
Rack conveyor - Single - HT	-	-	-
Rack conveyor - Single - LT [3]	59	18	22
High Efficiency Under-Fired Broilers	1	2	-
Low-Flow Showerhead Rental for Savings Calculation	8,472	15,777	13,259
High Efficiency Boilers for School Boards - Elementary	28	5	18
High Efficiency Boilers for School Boards - Secondary	3	9	2
Tankless Water Heaters	3	-	-

Witnesses: R. Kennedy
K. Mark
F. Oliver-Glasford

Quasi Prescriptive Measures	2012 Units	2013 Units	2014 Units
Demand Control Ventilation - Single Zone Retail [4]	-	-	21
Demand Control Ventilation - Single Zone Offices [4]	-	-	-
Condensing Boilers Up to 299 MBH, 90% AFUE or greater	46	59	30
High Efficiency Boilers Up to 299 MBH, 90%AFUE or greater	3	6	2
High Efficiency Boilers 300 to 599 MBH, 85% to 88% Thermal Efficiency	47	39	11
High Efficiency Boilers 600 to 999 MBH, 85% to 88% Thermal Efficiency	-	-	14
High Efficiency Boilers 1000 to 1500 MBH, 85% to 88% Thermal Efficiency	-	-	15
High Efficiency Boilers 1501 to 2,000 MBH, 85% to 88% Thermal Efficiency	-	-	16
Energy Recovery Ventilators - Offices, Warehouses* & Schools	24	55	12
Energy Recovery Ventilators - Hotels, Restaurants & Retail	-	-	8
Energy Recovery Ventilators - Multi-family, Healthcare & Long-Term Care	-	-	2
Heat Recovery Ventilators - Offices, Warehouses* & Schools	8	10	3
Heat Recovery Ventilators - Hotels, Restaurants & Retail	-	-	1
Heat Recovery Ventilators - Multi-family, Healthcare & Long-Term Care	-	-	1
Infrared Heaters - Single Stage up to 300,000 BTU*	763	401	574
Infrared Heaters - Two Stage up to 300,000 BTU*	-	-	108
Condensing Make-Up Air Units - Single speed up to 14,000 CFM, Multi-family & Long Term Care [5]	-	-	1
Condensing Make-Up Air Units - Two speed up to 14,000 CFM, Multi-family & Long Term Care [5]	-	-	2
Condensing Make-Up Air Units - Single speed up to 14,000 CFM, Other Sectors* [5]	-	-	-
Condensing Make-Up Air Units - Two speed up to 14,000 CFM, Other Sectors* [5]	-	-	1
Ozone Laundry System - minimum 100,000 lbs/yr	72	54	17

* Applicable to industrial customers for non-process, space-heating applications

[1] Energy Star Undercounter Low-Temp distinction not available until 2015

[2] Energy Star Rack Conveyor - Multi - Low-Temp distinction not available until 2015

[3] Rack Conveyor - Single - Low-Temp distinction not available until 2015

[4] 2014 was first year for prescriptive DCV

[5] 2014 was first year for prescriptive Condensing MUA

Size of technology not specified until 2014

Witnesses: R. Kennedy
K. Mark
F. Oliver-Glasford

ii. Forecast from 2015 to 2018 for Prescriptive Measures

Prescriptive Measures	2015 Units	2016 Units	2017 Units	2018 Units
Air Doors 8x8*	1	2	2	2
Air Doors 8x10*	10	15	15	15
Air Doors 10x10*	19	28	28	28
Air Doors Single*	11	16	16	16
Air Doors Double*	15	22	22	22
Demand Control Kitchen Vent	21	30	31	31
Demand Control Kitchen Vent 2	64	93	93	94
Demand Control Kitchen Vent 3	13	19	19	19
Energy Star Dishwashers Undercounter type - High Temperature	5	7	7	7
Energy Star Dishwashers Undercounter type - Low Temperature	75	109	110	110
Energy Star Fryers	186	270	272	273
Energy Star Convection Oven	3	4	4	4
Energy Star Stationary Rack - HT	120	174	175	176
Energy Star Stationary Rack - LT	219	318	320	322
Energy Star Steam Cookers	1	1	1	1
Rack Conveyor - Multi - HT	2	3	3	3
Rack Conveyor - Multi - LT	6	9	9	9
Rack conveyor - Single - HT	5	7	7	7
Rack conveyor - Single - LT	22	32	32	32
High Efficiency Under-Fired Broilers	1	1	1	1
Low-Flow Showerhead Rental for Savings Calculation	13,259	19,226	19,358	19,491
High Efficiency Boilers for School Boards - Elementary	18	26	26	26
High Efficiency Boilers for School Boards - Secondary	2	3	3	3

Witnesses: R. Kennedy
K. Mark
F. Oliver-Glasford

Quasi Prescriptive Measures	2015 Units	2016 Units	2017 Units	2018 Units
Demand Control Ventilation - Single Zone Retail	21	30	31	31
Demand Control Ventilation - Single Zone Offices	5	7	7	7
Condensing Boilers Up to 299 MBH, 90% AFUE or greater	30	44	44	44
High Efficiency Boilers Up to 299 MBH, 90%AFUE or greater	2	3	3	3
High Efficiency Boilers 300 to 599 MBH, 85% to 88% Thermal Efficiency	11	16	16	16
High Efficiency Boilers 600 to 999 MBH, 85% to 88% Thermal Efficiency	14	20	20	21
High Efficiency Boilers 1000 to 1500 MBH, 85% to 88% Thermal Efficiency	15	22	22	22
High Efficiency Boilers 1501 to 2,000 MBH, 85% to 88% Thermal Efficiency	16	23	23	24
Energy Recovery Ventilators - Offices, Warehouses* & Schools	12	17	18	18
Energy Recovery Ventilators - Hotels, Restaurants & Retail	8	12	12	12
Energy Recovery Ventilators - Multi-family, Healthcare & Long-Term Care	2	3	3	3
Heat Recovery Ventilators - Offices, Warehouses* & Schools	3	4	4	4
Heat Recovery Ventilators - Hotels, Restaurants & Retail	1	1	1	1
Heat Recovery Ventilators - Multi-family, Healthcare & Long-Term Care	1	1	1	1
Infrared Heaters - Single Stage up to 300,000 BTU*	574	832	838	844
Infrared Heaters - Two Stage up to 300,000 BTU*	108	157	158	159
Condensing Make-Up Air Units - Single speed up to 14,000 CFM, Multi-family & LTC	1	1	1	1
Condensing Make-Up Air Units - Two speed up to 14,000 CFM, Multi-family & LTC	2	3	3	3
Condensing Make-Up Air Units - Single speed up to 14,000 CFM, Other Sectors*	1	1	1	1
Condensing Make-Up Air Units - Two speed up to 14,000 CFM, Other Sectors*	1	1	1	1
Ozone Laundry System - minimum 100,000 lbs/yr	17	25	25	25

* Applicable to industrial customers for non-process, space-heating applications

Witnesses: R. Kennedy
K. Mark
F. Oliver-Glasford

iii. Size of market

Enbridge does not have a complete understanding of the market size for both replacements and/or retrofit opportunities in our Franchisee area for the prescriptive measures. There are a number of nuances that need to be considered when evaluating the size of the market compared to the approved measures for the Commercial and Industrial prescriptive Offer.
For example, in the case of Infrared heaters, the prescriptive offer is not for "like for like" projects, the prescriptive offer is for customers who are replacing an existing unit heater. The Potential Study conducted by Navigant Consulting outlines in sections 5.20 the achievable potential for the top Commercial technologies.

iv. Baseline market share

As highlighted above Enbridge does not have baseline market share data that would provide potential for the number of units that could be installed for each of measures supported through the prescriptive offer.

Witnesses: R. Kennedy
K. Mark
F. Oliver-Glasford

GEC INTERROGATORY #23

INTERROGATORY

Reference: Exh. B/T2/S1 pp. 22-29:

Regarding the Company's proposed HEC program:

a. The Company has identified several features of homes that it has considered to be the target market for the program for the program in the past (p. 24).
   i. Does the Company still consider this to be the target market? If not, what has changed?
   ii. How many still unserved homes does Enbridge estimate are in this target market?
   iii. Are these the only homes that could potentially benefit from program services? Or do homes with other characteristics (e.g. dwellings built more than 30 years ago) have potential to participate as well? If no homes with different characteristics are likely to be good candidates for the program, please explain why.
b. What is the basis for the statement that past federal and provincial incentives reached approximately $10,000 per home (p. 24)?
c. The Company is proposing a three-tiered incentive structure: 1) for savings between 15 and 25%; (2) for savings between 26% and 49%; and (3) for savings of 50% of more. Historically, what portion of the Company's program participants fell into each of these three categories?
d. What is the actual average annual consumption of the programs 2014 participants prior to their participation?

RESPONSE

a)

i. No, Enbridge is not only considering the target market it approached in the past. Our modified new target market has been broadened to include all homes in the Enbridge franchise area that can save 15%+ in annual gas savings.

ii. In 2016, Enbridge will open the program up franchise wide where we have approximately 1.9 million residential customers. As per EB-2015-0049, at Exhibit C, Tab1, Schedule 1, page 32 and 33 of 160, "Enbridge does not track the housing type associated with its accounts." Therefore, we assume that 5% of

Witnesses: S. Bertuzzi
M. Lister
K. Mark
F. Oliver-Glasford

the 1.9 million residential customers are individually metered condos/apartments which would not qualify for the program leaving approximately 1.8 million residential customers minus program participants to date leaving approximately 1.79 million participants unserved.

Please note, there are unserved participants that will be unable to qualify for the program as they will not be able to achieve the savings required.

Examples of those would be:

- ecoENERGY program participants (approx. 200,000)
- Energy Star built home customers (approx.. 30,000)
- Homes built to code in the last 10 years (approx. 200,000)

Using these examples would reduce the total potential to serving approximately 1.36 million residential customers

iii. Please see above answer in a) i

b) The basis for this statement is that the provincial and federal governments had larger incentive amounts associated with their program to entice consumers to retrofit their homes. Enbridge's program offers up to a maximum of $2100 for gas savings only.

c) In 2014, Enbridge did not have a tier for 15 to 25% however since the overall customer portfolio average was required to be 25%. The Company did note some customers falling within the 15-25% range and below. The results are:

Gas Saving %	Participant
9% - 14%	5
15% - 25%	1007
26% - 49%	4095
50% +	106
Total	5213

Witnesses: S. Bertuzzi
M. Lister
K. Mark
F. Oliver-Glasford

d) The actual average annual consumption or base case prior to participation and the average annual consumption or upgrade case after participation is:

Base Case M3		Average	
	22,264,378		4271
Upgrade Case M3		Average	
	15,305,695		2936

Witnesses: S. Bertuzzi
M. Lister
K. Mark
F. Oliver-Glasford

GEC INTERROGATORY #24

INTERROGATORY

Reference: Exh. B/T2/S1:

a. Is the Company proposing to use "upstream" or "mid-stream" incentive models – in which financial incentives for efficient equipment are provided to manufacturers, distributors, and/or contractors/retailers/vendors, rather than to consumers – for any of its programs, or even for selected measures (e.g. for one or two C&I prescriptive measures)? If so, which programs and/or measures? If not, why not?
b. Did the Company explicitly consider and analyze such options for any measures or programs? If not, why not? If so, please document the research and analysis that the Company performed, providing copies of all documents reviewed and all analyses conducted.

RESPONSE

a. Enbridge considered upstream incentives offers and will continue to explore this type of offer as a method to reach the Commercial and Industrial market going forward.

b. The Company has considered options for such measures, and as indicated above, remains open to leveraging this channel to achieve results. Having said that, the Company does believe that managing an upstream incentive offer would present many challenges given the sheer size of the market place, complexity of supply chain, and geographic diversity as it relates to service coverage in Ontario. Furthermore, the complexity of ensuring that all manufacturers, distributors, wholesalers, engineering firms and contactors maintain the integrity of the offer so that a customer receives a high efficient product at the reduced price which has been offset by an Enbridge rebate may be unreasonably onerous. An upstream offer also does not allow Enbridge the opportunity to provide direct technical support to commercial customers who are evaluating replacement or retrofit of existing equipment.

   Upstream offers provide a viable solution for the residential market where customers make decisions at the point of purchase and the process can be easily managed to capture installation and other information required to properly manage the offer. The transparency of the rebate provided to a Commercial or Industrial customer to offset the cost for a high efficiency product may not be clear given the nature of the two markets.

Witnesses: R. Kennedy
M. Lister
F. Oliver-Glasford

For these reasons, Enbridge put forth the Direct Install offer as the best option to support and broaden participation in our Commercial and Industrial markets.

Witnesses: R. Kennedy
M. Lister
F. Oliver-Glasford

GEC INTERROGATORY #25

INTERROGATORY

Reference: Exh. B/T2/S1 pp. 91-97:

Enbridge states that the CEM program will be target marketed to customers in rate classes 6, 110, 115, 135, 145 and 170 with annual gas consumption of between 340,000 and 5,000,000 m3. Enbridge also states that it expects to have 75 participants in the program over the 2016 to 2020 period.

a. Are there any other rate classes whose customers would participate in the program (even if they were not part of the target market to which Enbridge will most heavily promote the program)? If so, which classes?
b. For each of the six rate classes listed (as well as any others identified in response to subpart "a" of this question), please provide the following information. If possible, please provide it separately for (A) commercial customers; (B) industrial customers and (C) all C&I customers (i.e. the sum of A and B):
    i. Number of customers in each of the following consumption bins
        1. Less than 75,000 m3 per year
        2. 75,000 to 340,000 m3 per year
        3. 340,000 to 5,000,000 m3 per year
        4. Greater than 5,000,000 m3 per year
        5. Total across all bins (i.e. the sum of the above)
    ii. Total annual sales to (i.e. annual gas consumption of) customers in each of the following bins
        1. To customers using less than 75,000 m3 per year
        2. To customers using between 75,000 and 340,000 m3 per year
        3. To customers using between 340,000 and 5,000,000 m3 per year
        4. To customers using greater than 5,000,000 m3 per year
        5. Total all customers across all bins (i.e. the sum of the above)
c. How did Enbridge choose the target of 75 participants?
d. Approximately what portion of the Company's total C&I sales are likely to be represented by the 75 participants? We understand that the answer may need to be provided as a range of percentages since the Company cannot yet know exactly which customers these will be.

Witnesses: P. Goldman
K. Mark
S. Moffat
D. Naden
F. Oliver-Glasford

RESPONSE

In the program development stage Enbridge intended to work with 75 customers. However, to limit the cost of the Comprehensive Energy Management ("CEM") program, the budget and target was set at 45 participants. Please see the response to parts f, g and h in GEC Interrogatory #3 found at I.T5.EGDI.GEC.3.

a) Rate 100 customers could also participate in the program. Currently only one customer is in rate 100.

b) Please see below.

Commercial Sector			
Rate	**Volumetric Tier**	**Number of Customers**	**2014 Annual Volume**
6	Greater than 5,000,000 m3 per year	6	60,432,562
	340,000 to 5,000,000 m3 per year	1,865	1,083,483,425
	75,000 to 340,000 m3 per year	7,556	1,160,670,129
	Less than 75,000 m3 per year	82,842	1,084,857,133
110	Greater than 5,000,000 m3 per year	2	15,567,855
	340,000 to 5,000,000 m3 per year	37	52,337,272
115	Greater than 5,000,000 m3 per year	3	62,425,477
	340,000 to 5,000,000 m3 per year	3	10,041,441
135	340,000 to 5,000,000 m3 per year	3	2,137,720
145	340,000 to 5,000,000 m3 per year	28	53,684,222
170	Greater than 5,000,000 m3 per year	13	223,919,357
	Total	**92,358**	**3,809,556,593**

Witnesses: P. Goldman
K. Mark
S. Moffat
D. Naden
F. Oliver-Glasford

Industrial Sector

Rate	Volumetric Tier	Number of Customers	2014 Annual Volume
6	Greater than 5,000,000 m3 per year	9	125,300,513
	340,000 to 5,000,000 m3 per year	478	387,159,933
	75,000 to 340,000 m3 per year	559	94,671,820
	Less than 75,000 m3 per year	1,427	34,571,797
100	340,000 to 5,000,000 m3 per year	1	3,255,048
110	Greater than 5,000,000 m3 per year	25	322,066,595
	340,000 to 5,000,000 m3 per year	153	266,046,615
	75,000 to 340,000 m3 per year	1	332,069
115	Greater than 5,000,000 m3 per year	11	491,542,725
	340,000 to 5,000,000 m3 per year	8	16,032,361
135	340,000 to 5,000,000 m3 per year	38	59,378,891
	75,000 to 340,000 m3 per year	1	334,738
145	Greater than 5,000,000 m3 per year	1	4,412,853
	340,000 to 5,000,000 m3 per year	7	11,651,338
170	Greater than 5,000,000 m3 per year	7	94,784,325
	Total	**2,726**	**1,911,541,621**

Witnesses: P. Goldman
K. Mark
S. Moffat
D. Naden
F. Oliver-Glasford

Industrial and Commercial Sector			
Rate	**Volumetric Tier**	**Number of Customers**	**2014 Annual Volume**
6	Greater than 5,000,000 m3 per year	15	185,733,075
	340,000 to 5,000,000 m3 per year	2,343	1,470,643,358
	75,000 to 340,000 m3 per year	8,115	1,255,341,949
	Less than 75,000 m3 per year	84,269	1,119,428,930
100	340,000 to 5,000,000 m3 per year	1	3,255,048
110	Greater than 5,000,000 m3 per year	27	337,634,450
	340,000 to 5,000,000 m3 per year	190	318,383,887
	75,000 to 340,000 m3 per year	1	332,069
115	Greater than 5,000,000 m3 per year	14	553,968,202
	340,000 to 5,000,000 m3 per year	11	26,073,802
135	340,000 to 5,000,000 m3 per year	41	61,516,611
	75,000 to 340,000 m3 per year	1	334,738
145	Greater than 5,000,000 m3 per year	1	4,412,853
	340,000 to 5,000,000 m3 per year	35	65,335,560
170	Greater than 5,000,000 m3 per year	20	318,703,682
	Total	**95,084**	**5,721,098,214**

c) 75 participants represent 10% of the target market. The target market consists of approximately 685 industrial customers and 90 institutional customers (hospitals, universities).

d) The 75 participants represent approximately 7% total gas sales of the target markets.

Witnesses: P. Goldman
K. Mark
S. Moffat
D. Naden
F. Oliver-Glasford

GEC INTERROGATORY #32

INTERROGATORY

Exh. B/T4/S3:

When it refers to on-bill financing (OBF), is Enbridge assuming that the capital for the initiative would come from it (or its ratepayers)? Or is the Company using the term more broadly, to include on-bill repayment of financing that may be provided through the private sector?

RESPONSE

Enbridge is gathering information and continues to participate actively in exploratory discussions regarding on-bill financing to promote and support energy efficiency implementation.

Regardless of capital source, a workable on-bill financing proposal will require that Enbridge's risk profile is not affected and that the utility be kept whole in terms of cost recovery.

Witnesses: M. Lister
E. Lontoc
F. Oliver-Glasford
J. Paris

GEC INTERROGATORY #37

INTERROGATORY

Topic 5 - Program Types

Reference B/T2/S1 p36 Home Energy Conservation.

Enbridge compares the former EcoEnergy incentives as 'reached' almost $10,000 vs Enbridge's maximum incentive of $2000.

Please provide the *average* incentives paid in the EcoEnergy program and the *average* incentives paid in the Enbridge program in 2013 and 2014.

RESPONSE

The provincial and federal governments had larger amounts of money to entice consumers to retrofit their homes with a maximum incentive of $10,000. Enbridge's program offers up to a maximum of $2000 for 25% annual average gas savings only.

The average incentive paid from the Federal government was $1400[1] and the Provincial government was $1281[2] totaling an average incentive payout of $2681. The EcoEnergy incentive was for overall energy savings and did not have a minimum requirement of gas focused savings. Enbridge paid an average of $1650/participant in 2014 for 25% annual average gas savings.

[1] https://www.nrcan.gc.ca/media-room/backgrounders/2012/3297

[2] http://www.energy.gov.on.ca/en/archive/annual-report-results-based-plan-2010-2011/

Witnesses: S. Bertuzzi
B. Ott
J. Paris

LIEN INTERROGATORY #2

INTERROGATORY

Topic 5 - Program Types

Regarding the Low Income Program, Exhibit B. Tab 2, Schedule 1, please provide for each year from 2015 to 2020:

a) The number of forecasted participants (homes) in the Home Winterproofing program in total and broken down by social housing and private market, and the % total uptake for Part 9 homes, and cumulative % uptake since program inception

b) The number of forecasted participants (buildings) in the Multi-Residential - Affordable Housing program offering in total and broken down by social housing and private market, and the % total uptake for each respective market, and cumulative % uptake since program inception for each market

c) The number of forecasted participants broken down by multi-residential buildings and Part 9 homes in the Low Income New Construction program offering, and the % uptake of each of their respective total low income new construction markets, and cumulative % uptake.

RESPONSE

a) The participant target breakdown for the Home Winterproofing offer for years 2015 to 2020 are as follows:

Year	Budget Number of Homes	Social Housing	% of Total	Private	% of Total
2015	2,171	760	35.0%	1,411	65.0%
2016	2,200	440	20.0%	1,760	80.0%
2017	2,310	462	20.0%	1,848	80.0%
2018	2,310	231	10.0%	2,079	90.0%
2019	2,310	231	10.0%	2,079	90.0%
2020	2,310	231	10.0%	2,079	90.0%

Witnesses: E. Lontoc
M. Lister
J. Paris

The breakdown of participation in the 2007 to 2014 Home Winterproofing offer (previously called Low Income Weatherization Program) is as follows:

Year	Actual Number of Homes Weatherized	Social Housing	% of Total	Private	% of Total	Cumulative Program To YE2014
2007	61	Program participation between social housing and privates were not tracked between 2007-2011.				61
2008	208					269
2009	361					630
2010	201					831
2011	599					1,430
2012	1,107	813	73.0%	294	27.0%	2,537
2013	1,839	1,329	72.0%	510	28.0%	4,376
2014*	1,107	510	46.0%	597	54.0%	5,483

*2014 results are subject to change as a result of the work of the auditor, Audit Committee and a Clearance of Accounts proceeding before the Board.

b) The participant target breakdown for the Multiresidential Affordable Housing Program Offering for years 2015 to 2020 is as follows:

Year	Budget Number of Participant Buildings	Social Housing	% of Total	Private MR	% of Total
2015	253	152	60.00%	101	40.00%
2016	217	87	40.00%	130	60.00%
2017	228	91	40.00%	137	60.00%
2018	257	103	40.00%	154	60.00%
2019	263	105	40.00%	158	60.00%
2020	270	108	40.00%	162	60.00%

Witnesses: E. Lontoc
M. Lister
J. Paris

The breakdown of participation in the 2012 to 2014 Part 3 Low Income Program is as follows:

Year	Actual Number of Participant Buildings	Social Housing	% of Total	Private	% of Total	Cumulative Program To YE2014
2012	169	169	100%	0	0%	169
2013	83	83	100%	0	0%	252
2014	104	47	45%	57	55%	356

/c

Notes:

- 2014 results are subject to change as a result of the work of the auditor, Audit Committee and a Clearance of Accounts proceeding before the Board.
- 2013 and 2012 projects were composed entirely of social housing. There were no low income private rentals in 2013 and 2012.
- Results include Low Income Prescriptive Showerheads
- Actual Number of Participant Buildings does not include Low Income Building Performance Management (Benchmarking) Program buildings.

c) The participant target breakdown for the Affordable Housing New Construction Program Offering for years 2016 to 2020 is as follows:

Year	Target Number of Participants	Part 9 – Single Family Homes	% of Total	Part 3 – MR	% of Total
2016	5	3	60.0%	2	40.0%
2017	7	4	57.1%	3	42.9%
2018	9	5	55.6%	4	44.4%
2019	8	4	50.0%	4	50.0%
2020	5	3	60.0%	2	40.0%

Witnesses: E. Lontoc
M. Lister
J. Paris

LIEN INTERROGATORY #3

INTERROGATORY

Topic 5 - Program Types

Regarding the Low Income Program, Exhibit B. Tab 2, Schedule 1, the Home Winterproofing program offering, please:

a) Describe the offering of the furnace replacement expected to launch in 2016.

b) What is the expected uptake (number of homes) in each year of 2016 to 2020?

c) Will Enbridge be providing information to customers on available financing options to assist with furnace purchase? If so, please describe the information that will be provided.

RESPONSE

a) A furnace replacement measure is not cost effective when using a base case assumption of the current furnace equipment efficiency standard of 90% AFUE. With this in mind, Enbridge will be exploring possible partnerships with low income organizations and housing providers to co-fund and administer a furnace replacement offering to low income residents as part of the Home Winterproofing Program offering, or as standalone equipment replacement especially in emergency situations.

   Enbridge will be seeking feedback from its low income stakeholders to assist in designing a program offering and implementation approach that will achieve optimal energy savings and non-energy benefits to the target market, while maintaining the cost effectiveness parameters of the overall low income program.

Witnesses: M. Lister
E. Lontoc
F. Oliver-Glasford
J. Paris

b) The Company has budgeted the following number of homes for years 2016 to 2020:

Year	Budget Number of Homes
2016	2,200
2017	2,310
2018	2,310
2019	2,310
2020	2,310

c) The Company continues to gather information from its stakeholders to ensure that any potential financing program that goes to market will be beneficial and have a high rate of participation from its customer base. It also continues to identify and explore existing financing related programs that can be leveraged to achieve the objectives of addressing the first cost and affordability barriers to energy efficiency upgrades.

Witnesses: M. Lister
E. Lontoc
F. Oliver-Glasford
J. Paris

LIEN INTERROGATORY #4

INTERROGATORY

Topic 5 - Program Types

Regarding the Low Income Program, Exhibit B. Tab 2, Schedule 1, the Home Winterproofing program offering, please:

a) Describe the guidance that Enbridge provides to those customers who are ineligible for measures due to health and safety concerns to assist these customers in addressing these concerns.

b) What percentage of low-income single family homes are prevented from participating in Home Winterproofing due to health and safety concerns?

RESPONSE

a) Customers that cannot be served by the program due to health and safety concerns are referred to their municipal housing services office.

b) Enbridge does not track the actual number of single family homes that are prevented from participating in the Home Winterproofing Program due to severe health and safety concerns such as the presence of asbestos. The program tries to accommodate cases such as hoarding and pest control as long as the health and safety of the contractors are not put at risk.

   Health and safety issues affecting large groups of participants like those in social housing are reported by delivery agents as part of their periodic status updates and issues management meetings with Enbridge.

Witnesses: M. Lister
E. Lontoc
F. Oliver-Glasford
J. Paris

SEC INTERROGATORY #3

INTERROGATORY

Topic 5 - Program Types

Reference: Ex. B/1/2, p. 17

With respect to the Collaboration and Innovation Fund:

a. Please provide details on how Enbridge plans to obtain input from stakeholders and others on new CIF projects and potential projects.

b. Please confirm that Enbridge will annually produce a plan for the CIF in advance of the year, and discuss the plan with stakeholders and/or the DSM Consultative prior to its implementation.

c. Please provide details with respect to how Enbridge proposes to include CCM or other results from CIF projects in the scorecards.

RESPONSE

a. As Enbridge is increasingly involved in collaborative activities, and as the electric utilities develop or pursue their CDM plans, the potential projects that may be appropriate for CIF funding will be clearer. Enbridge has and will continue to assess opportunities against the needs of the customer as well as the priorities as identified by the Board in its DSM Framework. Enbridge proposes the use of two thresholds for proceeding on a project:
    i) It has been reviewed and endorsed by an LDC, several LDCs, and/or the IESO
    ii) It drives forward study on a new approach and/or technology that helps drive CO_2 reductions

    CIF projects will be discussed with the Consultative and included in the end of year audit review as well.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

b. Enbridge cannot confirm that it will annually be able to produce a plan for the CIF in advance of the year. However, best efforts will be made to plan for and communicate the CIF plan. As described above, Enbridge will, at a minimum, discuss the CIF with the Consultative and within the end of year audit annually. The Company's concern is that working with 26 LDCs in a fluid market may result in a need to be flexible and nimble. Enbridge is concerned that it would not have absolute clarity at the beginning of the year as to how and in what areas collaboration may advance. Further to annual discussions and reporting, Enbridge does view the CIF as being a ring-fenced budget of one million dollars where any amounts not used would be returned to the ratepayer.

c. Enbridge intends to count any results arising from collaboration in the scorecard metric to which it is related. That is, collaboration in a Commercial Custom setting, for example, would be counted as resource acquisition CCM.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

SEC INTERROGATORY #7

INTERROGATORY

Topic 5 - Program Types

Reference: Ex. B/1/4

Please confirm that Enbridge is, in several programs, proposing increases to the incentives provides to customers or channel partners for energy efficiency projects. Please provide details of all changes to targets and scorecards that have been made to reflect the increased market penetration these increased incentives are expected to generate.

RESPONSE

Resource Acquisition Program

Commercial:

Historically, the Commercial Custom offer has included a flat incentive rate of $0.10/m^3 to a maximum of 50% of the project cost, or $100,000 per customer per year. Beginning in 2016, Enbridge is proposing an increased, tiered custom incentive structure where annual consumption savings from 0-10% has a $.10 cent/m^3 incentive, 10-20% savings has a $.20 cent/m^3 incentive and 20-30% has a $.30 cent/m^3 incentive.

The Industrial Custom offer for large gas users (annual consumption over 340,000 m^3) will provide an incentive rate of $0.10/m^3, capped at $100,000 or 50% of project cost for 2016. This is a small increase over our current tiered incentive structure which creates alignment between Enbridge and Union Gas in incentive offerings for industrial customers.

There is no expectation of increased market penetration as a result of these changes to the incentives for the Commercial or Industrial segments. Rather, Enbridge sees the need for the changed incentive levels to simply remain relevant to customers and competitive alongside electricity CDM incentives, and to drive CCM results going forward. In other words, failure to update the incentive levels will result in significantly declining results.

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
P. Goldman
M. Lister
J. Paris

The Home Energy Commissioning ("HEC") program has put forth a modest increase in the total incentive from $2000 to $2100 for those customers who save 50% or more upon completion of a retrofit. This increase is designed to motivate customers to strive for deeper savings which will result in increased cumulative cubic meter ("CCM") savings in alignment with the Board's guiding principles and key priorities.

Low Income Program:

There are no changes proposed to Low Income incentives.

Market Transformation & Energy Management ("MTEM") Program:

There are changes to both the Residential and Commercial versions of the Savings by Design ("SBD") offer. Residential SBD is proposing to add lower incentives for repeat builders who have gone through the program in the past. Specifically, builders that complete the IDP portion of the offer for the first time are eligible to receive $2000/home completed to the SBD standard (up to 50 homes). Builders that complete the IDP portion of the offer for the second time are eligible to receive $1000/home completed to the SBD standard (up to 100 homes). Builders that complete the IDP portion of the offer for the third time are eligible to receive $500 per home completed to the SBD standard (up to 200 homes). The objective is to continue to motivate builders and developers to build to the SBD standard resulting in more homes being built above Code.

SBD Commercial has lowered the threshold from 100,000 sq. ft to 50,000 sq. ft while the incentive structure has changed to a $30,000 incentive from $50,000. As in the case of SBD Residential, the objective of this change is to encourage more buildings to be built to the SBD standard.

The Home Labelling offer has changed in design and metrics and as such is not readily comparable to past versions. Please see Exhibit B, Tab 2, Schedule 2, pages 45 and 46 for further details.

SEC INTERROGATORY #12

INTERROGATORY

Topic 5 - Program Types

Reference: Ex. B/1/6, p. 7

Please advise the amount of accrued SBD commitments Enbridge proposes to add to the 2015 DSMPIDA with respect to years prior to 2015. Please advise whether those amounts are in addition to the DSM budget for 2015, or part of that budget. If they are in addition to the budget, please confirm that they are spending commitments applicable to prior years that have not been included in the DSM spending for those prior years, and will not be included in the DSM budgets for any year after 2014 either.

RESPONSE

The amount of accrued Savings by Design ("SBD") potential incentive payment commitments from the 2012 to 2014 period is not explicitly part of the 2015 budget. In 2013 and 2014 the Company did not pay out in incentive payments the amounts it forecasted and included in its budgets for these years. This remainder was added to the calculation of the DSMVA. Stated differently, the Company's potential liability remains for the incentive payment amounts which were forecast and included in the budgets for these years as a result of these amounts being included in the DSMVA calculations as a credit to ratepayers. The DSMPIDA is intended to deal with this issue and insure that the difference between the forecast budgeted amount in each year and the actual amount of incentives paid is recorded and either used in future as intended to pay incentives earned by participants or returned to ratepayers.

The program design has always included a mismatch between incentives which may be paid out up to three years after the annual budget is included in rates. Over the 2012 to 2014 timeframe, for example, 53 IDPs were recorded, but only six have been paid out, leaving a total of 47 yet to be paid out. The funds that were previously collected in rates to cover amounts for incentive payouts that were not used were returned to ratepayers.

The table below shows the SBD Residential targets, Actual IDPs undertaken, and the number that have been paid an incentive, as well as the cumulative owing amount.

Witnesses: S. Bertuzzi
M. Lister
F. Oliver-Glasford
B. Ott

	2012	2013	2014
Target	12	14	16
Actual	12	18	23
Paid Out	0	2	4
Cumulative Payouts owed	12	28	47
Cumulative Payouts owed	$ 1,200,000	$ 2,800,000	$ 4,700,000

As can be seen, the difference has arisen since the timing of the incentive payout has been different than the year in which it is budgeted, and the actual amount paid out has not coincided with the budget. Amounts that were collected in rates and not used to pay program participants for previous year's budgets were accounted for through the annual DSMVA.

Two other issues arise with the use of multi-year incentives that are not aligned with the annual budget. The first is that the actual amounts may differ from the target. For example, in 2013 and 2014 Enbridge over-achieved the target by 11 IDPs, or $1.1 M in incentive payments.

Keeping in mind that 2015 is a roll-over budget, the budget for the 2016 to 2020 timeframe represents the pace at which Enbridge expects, or forecasts, to pay out the incentives. A deferral account is needed not only to catch up on previous commitments not yet paid, but also to record differences between the budget and the actual amount that may arise either because Enbridge's forecast is inaccurate or, over time, if there are more or fewer IDPs than target.

Enbridge considered an alternative of simply collecting an amount in the budget every year associated with the target for that year (for example, with a target of 30 IDPs in 2016, Enbridge would have created a budget of $3,000,000) however, this did not seem appropriate for two reasons. One, it is not consistent with how the budget has been created for 2013 or 2014 (and by extension 2015). For each of 2013 and 2014, the budget amounts for incentive payouts were limited through negotiated settlements to amounts that were forecast to be paid out. Second, since residential builders have three years in which to build their projects, creating the budget on the current year's target would be incorrect from the outset as it would be recovering monies possibly not due and payable for several years. Instead, Enbridge decided to present a forecast of the incentives it expects to payout for each year over the term of the Multi-Year Framework. The amounts associated with incentive payouts over the term of the framework are as follows:

	2015	2016	2017	2018	2019	2020
Target	20	30	20	22	23	25
Budget for incentive payouts	$1,619,000	$2,050,000	$2,300,000	$2,250,000	$2,295,000	$2,315,000

Similarly, for the Company's Commercial SBD offer, there is a mismatch in the timing between when the IDP takes place and the customer makes a commitment to build, and when the build actually takes place which is when the incentive is paid out. Builders under the Commercial SBD offer have five years to complete eligible buildings.

The table below shows the SBD Commercial targets, Actual IDPs undertaken, and the number that have been paid an incentive, as well as the cumulative owing amount.

	2012	2013	2014
Target	8	8	12
Actual	9	12	19
Paid Out	0	0	0
Cumulative Payouts owed	9	21	40
Cumulative Payouts owed	$ 440,000	$ 1,155,000	$ 2,200,000

The amounts associated with incentive payouts over the term of the framework are as follows:

	2015	2016	2017	2018	2019	2020
Target	18	30	15	20	21	28
Budget for incentive payouts	$540,000	$900,000	$450,000	$600,000	$630,000	$840,000

Witnesses: S. Bertuzzi
M. Lister
F. Oliver-Glasford
B. Ott

SEC INTERROGATORY #14

INTERROGATORY

Topic 5 - Program Types

Reference: Ex. B/2/1, p. 11-14

With respect to the Custom Commercial program:

a. Please explain why the tiered incentive proposal doesn't disincent customers who have already implemented energy efficiency measures, and thus have less room to reduce their usage in percentage terms.

b. Please advise whether Enbridge considered establishing the tiered incentive Structure over a multi-year period, so that customers can propose multi-year Projects that, over more than one year, achieve higher percentage reductions, Rather than being required to achieve those reductions in one year.

c. Please confirm that this program is available to school boards, and can be applied to multiple locations of a single customer. If so, how would the tiered structure and annual cap work in those cases? For example, if a school board achieves 30% savings in ten schools, with aggregate annual savings of 500,000 cubic metres, would the customer be limited by the $100,000 annual cap?

d. Please advise the number of school boards that participated in the Custom Commercial program in each of 2012-2014, and the total amount of incentives paid to those school boards in each of those years.

RESPONSE

a. The 2012 to 2014 Commercial Custom offer provided customers with an incentive of $.10/M3 saved regardless of the level of savings achieved through the implementation of capital or operational measures. The proposed Custom incentive structure is aimed at motivating customers to attain deeper savings when implementing capital or operational measures. The structure provides an incentive which is equal to the 2012 to 2014 offer for customers that saved less than 10% of their building consumption, with an increased incentive for those customers that save in excess of 10% of their consumption. Any customer with less room to reduce their usage in percentage terms will be inherently less motivated to participate in the standard custom DSM offer than another customer with more room to reduce their usage in percentage terms, regardless of the incentive level. Under the proposed

Witnesses: R. Kennedy
M. Lister
K. Mark

incentive structure, customers that are already higher along the efficiency scale are at least no worse off than the previous framework, may be perfectly suited to be eligible for the Energy Leaders Initiative, or may be able to take advantage of other behavioural offers.

b. Enbridge has considered the use of a multi-year incentive mechanism, and is not specifically opposed to the idea. However, the Company believes that a multi-year incentive would raise a number of issues that would not necessarily be preferable to the incentive structure that has been proposed. It would be administratively more difficult to monitor, track, and audit;
   - In the Company's experience, most energy efficiency projects see a greater proportion of savings early on, so incentivizing the first year is to the benefit of customers;
   - The total cost of a multi-year incentive could be higher than the current proposal; and,
   - A multi-year incentive would create challenges and potential misalignment with annual budgets in that there would be years in which incentives were paid where no incremental efficiency changes have taken place.

c. The Commercial Custom offer is available to all Schools that fall within the following rates classes: 6, 110, 115, 135, 145 and 170. Multiple buildings or multiple locations within the same ownership or management group can apply for the Custom offer. Each building or account will be treated as an individual participant.

d. The following School Boards were provided incentives under the Commercial Custom offer from 2012 to 2014:

Witnesses: R. Kennedy
M. Lister
K. Mark

2012 Summary School Board	Number of Projects	Incentive Amount
Peel District School Board	27	$ 26,201
Simcoe County District School Board	39	$ 108,404
York Region District School Board	4	$ 8,522
Grand Total	**70**	**$ 143,127**

2013 Summary School Board	Number of Projects	Incentive Amount
Catholic District School Board of Eastern Ontario	1	$ 371
Ottawa-Carleton District School Board	6	$ 5,433
Peel District School Board	18	$ 15,202
Private School	2	$ 3,828
Toronto District School Board	3	$ 23,216
Grand Total	**30**	**$ 48,050**

2014 Summary School Board	Number of Projects	Incentive Amount
Conseil scholaire de district catholique Centre-Sud	4	$ 22,580
District School Board Of Niagara	1	$ 2,280
Durham District School Board	3	$ 11,146
Niagara Catholic District School Board	1	$ 5,455
Peel District School Board	5	$ 9,498
Private School	1	$ 605
Renfrew County Catholic District School Board	3	$ 2,748
Simcoe County District School Board	1	$ 2,201
Toronto Catholic District School Board	5	$ 20,845
Toronto District School Board	4	$ 23,850
Grand Total	**28**	**$ 101,208**

The incentives outlined above do not include the full breadth of DSM incentives and services provided to schools over the same period, as Enbridge has worked closely on energy efficiency improvements with school boards for many years.

Witnesses: R. Kennedy
M. Lister
K. Mark

SEC INTERROGATORY #15

INTERROGATORY

Topic 5 - Program Types

Reference: Ex. B/2/1, p. 17-19

With respect to the C/I Prescriptive (Fixed) Incentive Program:

a. Please provide a complete list of the prescriptive and quasi-prescriptive measures currently offered in this program.

b. Please identify which of the measures are listed in the current list of input assumptions filed with the Board.

c. For each prescriptive measure on the list, please provide the amount of the incentive, or the formula for calculating the incentive where applicable, both as in effect in 2014, and as proposed for 2016.

d. Please confirm that this program is available for schools in rates 6 and 100.

RESPONSE

a. Please see Table 1 provided on the following page for a complete list of the prescriptive and quasi-prescriptive measures currently offered in the Prescriptive offer.

b. Every measure in Table 1 is listed in the current list of input assumptions as filed with the Board.

c. Included in Table 1 are the 2014 and 2016 incentive values for each technology.

d. The prescriptive offer is available to all Commercial customers, including schools, that fall under rates 6, 100, 110, 115, 135, 145 and 170.

Witnesses: P. Goldman
R. Kennedy
M. Lister

Table 1.

Prescriptive Measures	2014 Incentive	2016 Incentive
Air Doors 8x8*	$ 450	$ 900
Air Doors 8x10*	$ 600	$ 1,200
Air Doors 10x10*	$ 1,200	$ 2,400
Air Doors Single*	$ 50	$ 200
Air Doors Double*	$ 100	$ 300
Demand Control Kitchen Vent	$ 500	$ 1,500
Demand Control Kitchen Vent 2	$ 1,500	$ 3,000
Demand Control Kitchen Vent 3	$ 2,500	$ 5,000
Energy Star Dishwashers Undercounter type - High Temperature	$ 100	$ 200
Energy Star Fryers	$ 100	$ 200
Energy Star Convection Oven	$ 100	$ 200
Energy Star Stationary Rack - HT	$ 100	$ 200
Energy Star Stationary Rack - LT	$ 100	$ 200
Energy Star Steam Cookers	$ 100	$ 200
Energy Star Rack Conveyor - Multi	$ 400	$ 600
Energy Star Rack Conveyor - Single	$ 250	$ 400
High Efficiency Under-Fired Broilers	$ 100	$ 200
Low-Flow Showerhead	$ 6	$ 6
High Efficiency Boilers for School Boards - Elementary	$ 1,000	$ 1,000
High Efficiency Boilers for School Boards - Secondary	$ 4,300	$ 4,300
Quasi-Prescriptive Measures		
Demand Control Ventilation - Single Zone Retail	$0.04/ft2	$0.04/ft2
Demand Control Ventilation - Single Zone Offices	$0.04/ft2	$0.04/ft2
Condensing Boilers Up to 299 MBH, 90% AFUE or greater	$ 400	$ 600
High Efficiency Boilers Up to 299 MBH, 90%AFUE or greater	$ 400	$ 600
High Efficiency Boilers 300 to 599 MBH, 85% to 88% Thermal Efficiency	$ 400	$ 600
High Efficiency Boilers 600 to 999 MBH, 85% to 88% Thermal Efficiency	$ 850	$ 850
High Efficiency Boilers 1000 to 1500 MBH, 85% to 88% Thermal Efficiency	$ 1,400	$ 1,400
High Efficiency Boilers 1501 to 2,000 MBH, 85% to 88% Thermal Efficiency	$ 2,200	$ 2,200
Energy Recovery Ventilators - Offices, Warehouses* & Schools	$0.25/CFM	$0.75/CFM
Energy Recovery Ventilators - Hotels, Restaurants & Retail	$0.4/CFM	$0.8/CFM
Energy Recovery Ventilators - Multi-family, Healthcare & Long-Term Care	$0.75/CFM	$1.5/CFM
Heat Recovery Ventilators - Offices, Warehouses* & Schools	$0.2/CFM	$0.4/CFM
Heat Recovery Ventilators - Hotels, Restaurants & Retail	$0.3/CFM	$0.6/CFM
Heat Recovery Ventilators - Multi-family, Healthcare & Long-Term Care	$0.55/CFM	$1.1/CFM
Infrared Heaters - Single Stage up to 300,000 BTU*	$ 100	$ 200
Infrared Heaters - Two Stage up to 300,000 BTU*	$ 200	$ 300
Condensing Make-Up Air Units - Single speed up to 14,000 CFM, Multi-family & Long Term Care	$0.15/CFM	$0.15/CFM
Condensing Make-Up Air Units - Two speed up to 14,000 CFM, Multi-family & Long Term Care	$0.3/CFM	$0.6/CFM
Condensing Make-Up Air Units - Single speed up to 14,000 CFM, Other Sectors*	$0.075/CFM	$0.15/CFM
Condensing Make-Up Air Units - Two speed up to 14,000 CFM, Other Sectors*	$0.15/CFM	$0.3/CFM
Ozone Laundry System - minimum 100,000 lbs/yr	$0.006 x total annual lbs	$0.01 x total annual lbs.
* Applicable to industrial customers for non-process, space-heating applicatons		

Witnesses: P. Goldman
R. Kennedy
M. Lister

SEC INTERROGATORY #16

INTERROGATORY

Topic 5 - Program Types

Reference: Ex. B/2/1, p. 19-22

With respect to the Energy Leaders program:

a. Please provide indicative information on how the incentives available to Customers in this program will differ from incentives paid in other C/I programs.

b. Please confirm that projects accepted in this program will in all case be required To pass the TRC-plus test with a ratio of greater than 1.0.

c. Please confirm that this program is available for customers with multiple locations, including but not limited to schools.

d. Please identify in the evidence the Evaluation Plan for this program.

RESPONSE

a. The intent of the Energy Leader initiative is to support Enbridge's customers who are forward thinking and are evaluating the installation of nontraditional or newer technologies that would fall outside typical projects. There will not be a predetermined incentive amount; rather Enbridge will work with customers who have already undertaken capital and operational improvements to help them address technical or other barriers that prevent them from further undertaking energy efficiency measures.

b. Enbridge needs to maintain a positive TRC greater than 1.0 at a program level. Enbridge fully intends to maintain the required positive TRC of 1.0 for the Resource Acquisition program. Therefore, Enbridge cannot confirm that all projects will necessarily pass the TRC-plus test within this offer.

c. The intent of the Energy Leads initiative is to be available to the entire commercial and industrial Markets.

Witnesses: P. Goldman
R. Kennedy
M. Lister
R. Sigurdson

d. Since the intent of the Energy Leaders initiative was not to be a standalone offer or program but to be a marketing initiative within the Resource Acquisition pool of offers, there is currently no unique evaluation plan. However, given that any savings results would be claimed through the custom offer, they will be reviewed within the context of the custom offer evaluation plan.

Witnesses: P. Goldman
R. Kennedy
M. Lister
R. Sigurdson

SEC INTERROGATORY #17

INTERROGATORY

Topic 5 - Program Types

Reference: Ex. B/2/1, p. 30-33

Please provide a side by side comparison of the proposed Small Commercial New Construction program with the Savings by Design program and the previous Design Assistance Program. For each of the years 2012-2014, please provide the number of schools that participated in SBD, and the total amount of incentives paid to those school boards in respect of that participation.

RESPONSE

It is difficult to provide a side by side comparison of the three programs as each program was designed and delivered differently in the marketplace. The Design Assistance Program ("DAP") was used from 1999 to 2012 to engage the new construction community to design and model new buildings. There were no estimated savings per project for DAP; the incentive was $3000 for the modelled energy savings report. Throughout the program 32 schools did take advantage of the DAP incentive.

Savings by Design ("SBD") Commercial was introduced to the market in 2012 to encourage builders/developers to achieve higher levels of energy and environmental performance through the application of the Integrated Design Process (IDP). The goal is to leverage the knowledge gained in the IDP to design and build 25% better than code and incent $.20/$m^3$ of gas saved for buildings that exceed code (max. $50,000). Through the building completion a $5,000 commissioning incentive is available to ensure the buildings are optimized to the initial design.

The proposed Small Commercial New Construction offer is designed to reach commercial buildings less than 50,000 sq.ft in size by providing financial incentives associated with energy performance modelling in addition to incentives for achieving specific energy efficiency targets. The proposed offer would allow Enbridge to reach a larger proportion of the new construction projects in the marketplace each year.

The table below shows the schools that participated in the 3 offers for each of the years 2012 to 2014:

Witnesses: S. Bertuzzi
S. Hicks
M. Lister

	DAP		SBD Commercial		Small Commercial New Construction	
	Participants	Incentives	Participants	Incentives	Participants	Incentives
2012	0	0	0	0	n/a	n/a
2013	n/a	n/a	1[1]	0	n/a	n/a
2014	n/a	n/a	4[2]	0	n/a	n/a

[1] 2013 Ottawa Carlton District School Board participated
[2] 2014 Ottawa Catholic District School Board, Peel District School Board, Toronto Catholic School Board and Conseil des Ecole Publiques de l'Est de l'Ontario School Board participated.

Incentives have not been paid to the above noted schools for participation in the Commercial SBD offer for m^3 saved as the projects have not yet reached the completed construction stage.

Enbridge does pay for the IDP ($30,000) for the builder / developer to participate in the offer.

Witnesses: S. Bertuzzi
S. Hicks
M. Lister

SEC INTERROGATORY #18

INTERROGATORY

Topic 5 - Program Types

Reference: Ex. B/2/1, p. 58-62

With respect to the Savings by Design – Commercial program:

a. Please confirm that the program will continue to be available to schools and school boards.

b. Please explain what steps, if any, Enbridge has taken to offer this program jointly with electricity distributors, and the results of those steps. Please advise what plans Enbridge has to integrate this offering with electricity efficiency measures.

RESPONSE

a. Yes, the Savings by Design ("SBD") Commercial offer will continue to be available to schools and school boards. Enbridge is proposing the 2016 square foot threshold change to 50,000 square feet to motivate more schools, school boards and other buildings to participate moving forward.

b. Enbridge jointly delivered High Performance New Construction and SBD Commercial together in 2013 to 2014. Enbridge will continue to look for opportunities to jointly deliver the offer with either LDC's or IESO. Regardless, the IDP process promotes electricity CDM incentives available in the market and informs the relevant electric distributors of the projects going through SBD.

Witnesses: S. Bertuzzi
S. Hicks
M. Lister

SEC INTERROGATORY #19

INTERROGATORY

Topic 5 - Program Types

Reference: Ex. B/2/1, p. 62-67

With respect to the New Construction Commissioning program:

a. Please confirm that the program will be available to schools and school boards.

b. Please explain what steps, if any, Enbridge has taken to offer this program jointly with electricity distributors, and the results of those steps. Please advise what plans Enbridge has to integrate this offering with electricity efficiency measures.

RESPONSE

a. The proposed New Construction Commissioning offer will be available to schools and school boards.

b. Once the proposed offer is approved and the design and development stages are completed, Enbridge will discuss the offering with electricity distributors.

Witnesses: S. Bertuzzi
S. Hicks
M. Lister

SEC INTERROGATORY #20

INTERROGATORY

Topic 5 - Program Types

Reference: Ex. B/2/1, p. 71-75

Please explain what steps, if any, Enbridge has taken to offer the Home Rating program jointly with electricity distributors and/or the OPA/IESO, and the results of those steps.

RESPONSE

The focus of the Home Rating offer is on energy awareness, literacy, and obtaining an energy rating and report for customers. Without direct and measureable energy savings associated, LDC's / IESO discussions to date have suggested there is currently no interest in pursuing collaboration on this offer.

Witnesses: S. Bertuzzi
M. Lister

SEC INTERROGATORY #21

INTERROGATORY

Topic 5 - Program Types

Reference: Ex. B/2/1, p. 78

Please confirm that 38% of the buildings diagnosed under the Energy Compass program to date have been schools. Please provide details on what follow-up, if any, Enbridge has undertaken to determine the savings and other benefits that have resulted from the participation by those schools in the program.

RESPONSE

38% of participants in the Energy Compass initiative from 2012 to 2014 were indeed schools.

School boards that participated in Energy Compass received a custom report from Enbridge which ranked their schools based on gas intensity relative to their predicted consumption. The report was reviewed by Enbridge with each school board that participated.

Closely related, between 2012 and 2014 schools represented 11% of participants (or 64 of the 597) in the Run it Right Offer. Further, there were 128 Custom and Prescriptive projects submitted by schools during that time period.

Witnesses: R. Kennedy
M. Lister
K. Mark
S. Moffat

SEC INTERROGATORY #22

INTERROGATORY

Topic 5 - Program Types

Reference: Ex. B/2/1, p. 79-84

With respect to the School Energy Competition program:

a. Please describe in detail Enbridge's plans to develop curriculum and other aspects of this program jointly with school boards and their educational specialists.

b. Please advise how Enbridge plans to co-ordinate student contact aspects of this program with existing energy efficiency curriculum components, and existing rules and policies with respect to student contact activities.

c. Please advise whether school boards that already have an energy monitoring system in place will be required to use the Enbridge EMIS, or will be disqualified from participation.

RESPONSE

a. Enbridge plans to work with or via school board selected curriculum development staff to develop the curriculum for the School Energy Competition in line with the Ontario Curriculum Grades 1 to 8 Science and Technology as well as the Ontario Curriculum Grades 9 to 10 and 11 to 12 Science and Technological Education. Currently, Enbridge works closely with school boards on other offers, such as Run it Right and Energy Compass. However, this offer is intended to be geared specifically towards students. On that basis, Enbridge will work with school boards to ensure the development of a successful and collaborative partnership with clearly identified performance indicators.

b. Enbridge will work with school boards to co-ordinate student contact aspects of the offer with existing energy efficiency curriculum components and existing rules and policies with respect to student contact activities. The development of a partnership agreement with the school boards will ensure that all communication strategies are clearly defined, and will align with all policies and procedures set out by the school board. As the program is developed, Enbridge will explore options - in collaboration with school board curriculum developers - such as: an online application for the

Witnesses: R. Kennedy
M. Lister
F. Oliver-Glasford

energy monitoring system ("EMIS"), texting results, media exchange, and interactive games. Since the offer is designed with the theory of 'gamification' and competition in mind, it is imperative that the students feel a sense of engagement in both competing in the competition but also reporting and measuring their successes.

c. School boards that have an EMIS in place will not be disqualified from participating. While the EMIS system provided by Enbridge will be utilized to track energy consumption it will also be utilized for tracking points and participation within the program, and illustrate to schools how they are preforming within the competition. Enbridge will look for opportunities to utilize current EMIS system where schools already have them in place.

Witnesses: R. Kennedy
M. Lister
F. Oliver-Glasford

SEC INTERROGATORY #23

INTERROGATORY

Topic 5 - Program Types

Reference: Ex. B/2/1, p. 84-88

With respect to the Run it Right program:

a. Please confirm that the program is available to schools in rates 6 and 100.

b. Please advise whether customers that have daily consumption meters that are competitive to Metretek, or have other energy monitoring capabilities, are eligible for participation in the program and, if so, whether to participate they have to shift to Metretek metering.

RESPONSE

a. Confirmed.

b. The 2012 to 2014 Run it Right Offer required that buildings have Metretek systems that included data loggers, which provided Enbridge “billing-quality data” from daily consumption reading. The goal for the Run it Right Offer in 2016 is to be inclusive for all customers to participate regardless of existing metering and data logger equipment and therefore customers would not necessarily be required to have Enbridge provided Metretek systems.

Witnesses: R. Kennedy
M. Lister
F. Oliver-Glasford

SEC INTERROGATORY #24

INTERROGATORY

Topic 5 - Program Types

Reference: Ex. B/2/1, p. 91-97

With respect to the Comprehensive Energy Management program:

a. Please confirm that the program is available to customers, such as school boards, with multiple locations having in aggregate more than 340,000 cubic meters of consumption annually. If not confirmed, please confirm that only approximately 1% (about 25) of the schools in the Enbridge franchise area would qualify for participation.

b. Please provide details of how this program integrates or interacts with the Energy Leaders program.

c. Please explain what steps, if any, Enbridge has taken to offer this program jointly with electricity distributors, and the results of those steps. Please advise what plans Enbridge has to integrate this offering with electricity efficiency measures.

RESPONSE

a. Comprehensive Energy Management ("CEM") is most suited to facilities with complex energy systems which are most common in the industrial sector. Similarly, institutional facilities such as hospitals and universities may be well-suited for CEM participation. Though in theory a school of sufficient size could participate in CEM, Enbridge's Energy Compass in conjunction with the Run-it-Right program is likely better suited to schoolboards.

b. For a discussion of how the Energy Leaders offering is related to the CEM offering, please see the response to BOMA Interrogatory # 48, filed at Exhibit I.T5.EGDI.BOMA.48.

Witnesses: P. Goldman
R. Kennedy
M. Lister

c. Though Enbridge has held several discussions with LDCs regarding the CEM offer, nothing concrete has developed as yet. To date, many LDC programs are still in development, either as a local LDC specific pilot or program, or within the context of Province-Wide program updates. For Enbridge's part, there is reluctance to move too quickly in advance of Board approval of this offer. The Company believes that CEM would be an ideal candidate for high value collaboration, where the customer can address total energy consumption, and the offer can be delivered as efficiently as possible. Enbridge will continue to engage LDCs regarding their interest in working with Enbridge to customize and/or deliver the offer.

Witnesses: P. Goldman
R. Kennedy
M. Lister

VECC INTERROGATORY #12

INTERROGATORY

Topic 5 – Program Types

Ref: B-2-1 Page 3 Preamble: The Table on Page 3 lists the 22 offerings that make up Enbridge's DSM Program Portfolio for 2016 to 2010.

a) Please recast and complete the Table with the following columns added:

- Year Program Commenced
- Customer Sector Targeted
- Rate Classes Targeted
- Geographical Reach
- Total 2016-2020 Budget $
- Total 2016-2020 Gas Savings (m3)
- Total 2016-2020 Customer Program Incentives $
- Cross Promotion of Other DSM Programs (identify program)
- Program Delivery Partners (Yes or No)
- Contractor Services (Yes or No)
- RFP Process to retain partners/services (Yes or No)
- Collaboration Opportunity with LDC (yes/no)

RESPONSE

On the following pages, please find a table with the 22 offerings recast with the requested information.

The Enbridge service territory includes the following regions.

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
B. Ott
P. Goldman
M. Lister
F. Oliver-Glasford
J. Paris

Eastern Region:
Admaston, Alfred & Plantagenet, Arnprior, Athens, Beckwith, Brockville, Carleton Place, Casselman, Champlain, Clarence-Rockland, Deep River, Drummond-North Elmsley, Elizabethtown-Kitley, Hawkesbury, Horton, Laurentian Hills, Laurentian Valley, McNab-Braeside, Merrickville-Wolford, Mississippi Mills, Montague, North Glengarry, North Grenville, North Stormont, Ottawa, Pembroke, Perth, Petawawa, Renfrew, Rideau Lakes, Russell, Smiths Falls, South Glengarry, Tay Valley, The Nation, Township of Leeds and The Thousand Islands, Whitewater Region,

Central Region:
Adjala, Ajax, Amaranth, Asphodel-Norwood, Aurora, Barrie, Base Borden, Bradford-West Gwillimbury, Brampton, Brighton, Brock, Caledon, Cavan Monaghan, Clarington, Clearview, Collingwood, Douro-Dummer, East Garafraxa, East Gwillimbury, East Luther Grand Valley, Erin, Essa, Georgina, Grey Highlands, Havelock Belmont Methuen, Innisfil, Kawartha Lakes, King, Markham, Melancthon, Midland, Mississauga, Mono, Mulmur, New Tecumseh, Newmarket, Orangeville, Oro-Medonte, Oshawa, Otonabee S- Monaghan, Penetanguishene, Peterborough, Pickering, Richmond Hill, Scugog, Severn, Shelburne, Smith-Ennismore-Lakefield, Southgate, Springwater, Tay, Tiny, Toronto, Trent Hills, Uxbridge, Vaughan, Wasaga Beach, Whitby, Whitchurch-Stouffville,

Niagara Region:
Fort Erie, Grimsby, Haldimand County, Lincoln, Niagara Falls, Niagara-on-the-Lake, Pelham, Port Colborne, St.Catharines, Thorold, Wainfleet, Welland, West Lincoln

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
B. Ott
P. Goldman
M. Lister
F. Oliver-Glasford
J. Paris

Resource Acquisition Commercial and Industrial

DSM Programs											
Resource Acquisition Programs	Year Commenced	Customer Sector Targeted	Rate Classes Targeted	Total 2016-2020 Budget	Total 2016-2020 Gas Savings	Total 2016-2020 Customer Program Incentives	Cross Promotion of other DSM Programs	Program Delivery Partners (Y or N)	Contractor Services (Y or N)	RFP Process to retain partner/services (Y or N)	Collaboration Opportunity with LDC (Y or N)
Custom Industrial		Industrial	6, 110, 115, 135, 145, 170, 100	$36,707,132	2,896,801,263	$28,320,994	NA	Y – no formal contracts	N	N	Y
Custom Commercial		Commercial	6, 110, 115, 135, 145, 170, 100								
Commercial & Industrial Direct Install Offer	NA	Commercial & Industrial	6	$24,578,728	297,658,843	$18,092,226	Energy Compass , Custom, Prescriptive, School Energy Competition . Run it Right, Small Commercial Behavioral	Y	Y	N	Y
Commercial & Industrial Prescriptive (Fixed) Incentive Offer		Commercial & Industrial	6, 110, 115, 135, 145, 170, 100	$11,271,667	665,738,177	$7,424,101	Energy Compass , Custom, DI, School Energy Competition . Run it Right, Small Commercial Behavioral	Y	Y	N	Y

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
B. Ott
P. Goldman
M. Lister
F. Oliver-Glasford
J. Paris

Resource Acquisition Residential and Small Commercial

DSM Programs											
Resource Acquisition Programs	Year Commenced	Customer Sector Targeted	Rate Classes Targeted	Total 2016-2020 Budget	Total 2016-2020 Gas Savings	Total 2016-2020 Customer Program Incentives	Cross Promotion of other DSM Programs	Program Delivery Partners (Y or N)	Contractor Services (Y or N)	RFP Process to retain partner/services (Y or N)	Collaboration Opportunity with LDC (Y or N)
Residential & Small Commercial New Construction:											
Home Energy Conservation	2012	Residential	1	$82,415,517	769,236,002	$69,297,596	Y Adaptive, Home Rating, and MHHR	Y	Y	Y	Y
Adaptive Thermostats	NA	Residential	1	$9,057,741	294,876,688	$8,353,447	Y HEC, MMHR, Home Rating	N	N	N	Y
Energy Leaders Initiative	NA	Commercial & Industrial	6, 110, 115, 135, 145, 170	$3,448,320	N/A	$2,586,240					
Small commercial New Construction	NA	Commercial	6	$9,037,741	75,365,063	$3,410,895	Y SBD Commercial & Residential	Y	Y	Y	Y
New Construction Commissioning	NA	Commercial	6	$4,835,400	N/A	$1,958,836	Y SBD Commercial & Residential	Y	Y	Y	Y

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
B. Ott
P. Goldman
M. Lister
F. Oliver-Glasford
J. Paris

Low Income

DSM Programs											
Resource Acquisition Programs	Year Commenced	Customer Sector Targeted	Rate Classes Targeted	Total 2016-2020 Budget	Total 2016-2020 Gas Savings	Total 2016-2020 Customer Program Incentives	Cross Promotion of other DSM Programs	Program Delivery Partners (Y or N)	Contractor Services (Y or N)	RFP Process to retain partner/services (Y or N)	Collaboration Opportunity with LDC (Y or N)
Low Income Programs											
Low Income Multi-Residential – Affordable Housing Program		Multiresidential social housing and income qualified privately owned buildings. Assisted housing including shelters, transitional and supportive housing.	6	$18,367,360	335,460,721	$13,591,846	Y - Comml MR program	Y	Y	Y	Y
Home Winterproofing Program (HWP)		*Residential low rise s* ocial and assisted housing providers; income-qualified private residential owners and residents	1	$31,665,867	149,291,870	$26,551,830	No	Y	Y	Y	Y
Low Income New Construction	NA	Residential and commercial affordable housing qualified builders, developers, owners	1, 6	$6,601,257	N/A	$5,430,056	Y – Resdl/Comm /SC New Constr	Y	N	Unsure	y

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
B. Ott
P. Goldman
M. Lister
F. Oliver-Glasford
J. Paris

Market Transformation and Energy Management

DSM Programs											
Resource Acquisition Programs	Year Commenced	Customer Sector Targeted	Rate Classes Targeted	Total 2016-2020 Budget	Total 2016-2020 Gas Savings	Total 2016-2020 Customer Program Incentives	Cross Promotion of other DSM Programs	Program Delivery Partners (Y or N)	Contractor Services (Y or N)	RFP Process to retain partner/services (Y or N)	Collaboration Opportunity with LDC (Y or N)
Market Transformation & Energy Management Programs											
Savings by Design – Residential	2012	Residential	1	$16,463,581	N/A	$13,930,723	Y Commercial SBD	N	Y	N	Y
Savings by Design – Commercial	2012	Commercial & Industrial	6, 110, 115, 135, 145, 170	$5,591,258	N/A	$3,211,733	Y Residential	N	Y	N	Y
Opower - My Home Health Record	NA	Residential	1	$32,005,750	96,340,435	$31,116,731	Adaptive, HEC, HWP, and Home Rating	N	Y	N	Y
Home Rating	2012	Residential	1	$5,500,000	N/A	$550,000	HEC, MMHR, Adaptive	N	Y	N	Y
Energy Compass	2012	Commercial & Industrial	6, 110, 115, 135, 145, 170	$1,314,277	N/A	$0	Custom, Prescriptive, DI, School Energy Competition. Run it Right, Small Commercial Behavioral	N	N	N	Y
School Energy Competition	NA	Commercial	6	$2,432,397	N/A	$243,240	Energy Compass , Custom, Prescriptive, DI, Run it Right, Small Commercial Behavioral	N	N	Y	Y

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
B. Ott
P. Goldman
M. Lister
F. Oliver-Glasford
J. Paris

Market Transformation and Energy Management

DSM Programs											
Resource Acquisition Programs	Year Commenced	Customer Sector Targeted	Rate Classes Targeted	Total 2016-2020 Budget	Total 2016-2020 Gas Savings	Total 2016-2020 Customer Program Incentives	Cross Promotion of other DSM Programs	Program Delivery Partners (Y or N)	Contractor Services (Y or N)	RFP Process to retain partner/services (Y or N)	Collaboration Opportunity with LDC (Y or N)
Market Transformation & Energy Management Programs											
Run it Right	2012	Commercial & Industrial	6, 110, 115, 135, 145, 170	$9,055,355	Included in Custom	$1,602,798	Energy Compass , Custom, Prescriptive, DI, School Energy Competition, Small Commercial Behavioral	Y	Y	Y	Y
Small Commercial & Industrial Behavioural Program	NA	Commercial & Industrial	6, 110, 115, 135, 145	N/A	N/A	N/A	Energy Compass , Custom, Prescriptive, DI, School Energy Competition, Run it Right,	N	N	Y	Y
Comprehensive Energy Management	NA	Commercial & Industrial	6, 110, 115, 135, 145, 170	$4,418,180	Included in Custom	$4,170,445	NA	Y – no formal contracts	Y	N- but it may change in the future	Y

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
B. Ott
P. Goldman
M. Lister
F. Oliver-Glasford
J. Paris

VECC INTERROGATORY #13

INTERROGATORY

Topic 5 – Program Types

Ref: B-2-1 Page 37 Low Income Multi-Residential – Affordable Housing

Preamble: Enbridge indicates that the social and assisted housing segment represents approximately 12% of the total multi-residential housing sector, and 8% of the total multi-residential housing sector is represented by commercial private sector multi-residential buildings.

a) Please quantify the number of existing multi-residential buildings in Enbridge's service territory.

RESPONSE

The total number of existing multi-residential buildings in Enbridge's service area is 9,802.

Witnesses: M. Lister
E. Lontoc

VECC INTERROGATORY #14

INTERROGATORY

Topic 5 – Program Types

Ref: B-2-1 Page 37 Low Income Multi-Residential – Affordable Housing

Preamble: Enbridge indicates that 42% of social and assisted housing has participated in an Enbridge incentive program.

a) Please provide the calculation for the 42%.

RESPONSE

SOCIAL & ASSISTED HOUSING	# of Customer Buildings	# of Customer Buildings in Region	Participation %
Barrie, Innisfil	1	34	3%
Mississauga, Brampton, Caledon	43	72	60%
Niagara	6	36	17%
Ottawa	23	126	18%
Peterborough, Lindsay	1	14	7%
Pickering, Ajax, Whitby, Oshawa	6	24	25%
Richmond Hill, Vaughan, Maple	11	37	30%
Toronto	388	794	49%
TOTAL	479	1137	42%

Witnesses: M. Lister
E. Lontoc

VECC INTERROGATORY #15

INTERROGATORY

Topic 5 – Program Types

Ref: EB-2012-0394 B-1-3 Page 10 Preamble: Enbridge indicates for Part 3 buildings, insuite measures from which Enbridge may choose are expanded to include, but are not limited to: clothes dryer rack, cold water wash detergent and leak repairs.

a) Are these measures still part of the offering? If not, why not?

RESPONSE

These measures have been removed from the measures list of the program as a result of feedback from building operators and stakeholders in the course of program delivery in 2013 and 2014. Clothes dryer racks promote mold issues brought about by increased moisture in the living space. When used in balconies, the clothes left on the racks attract birds.

Leak repairs are addressed as part of the showerhead offering.

Cold water washing is promoted as part of energy efficiency information to the residents.

Witnesses: M. Lister
E. Lontoc

VECC INTERROGATORY #16

INTERROGATORY

Topic 5 – Program Types

Ref: B-2-1 Page 41 Low Income Multi-Residential – Affordable Housing

a) Please explain the City of Toronto's STEP Program.

RESPONSE

The Sustainable Towers Engage People ("STEP") Program is designed to incrementally build the capacity of property owners to undertake increasingly substantial projects, and to outline the support that is available to property owners from the City of Toronto and other Tower Renewal partners like Enbridge. The program aims to harness energy savings and improve the living conditions of the building residents.

The City offers a STEP Assessment and Benchmark analysis for owners of buildings 8 stories and higher. The output of the STEP Assessment is an Action Report that recommends measures for improving building performance including an estimate of cost savings that can be attained, utility programs and incentives available, and financing options including the City of Toronto local improvement charge ("LIC") program for multi-residential buildings and the High-rise Retrofit Improvement Support Program ("Hi-RIS"). Quality of life issues such as safety, operations, recycling and community programs are also taken into consideration. The report also shows the building's historical and current performance, and provides a comparison of where the building stands to other similar buildings in STEP's benchmarking database of over 200 buildings.

Enbridge and STEP programs are directly complementary; furthermore, the approach facilitates one-stop-shopping for building owners for their energy, water, waste and resident engagement concerns and solutions. More specifically with low income buildings, the barriers to implementation are comprehensively addressed by the enhanced incentives and support services provided by the jointly delivered programs.

Witnesses: M. Lister
E. Lontoc

VECC INTERROGATORY #17

INTERROGATORY

Topic 5 – Program Types

Ref: B-2-1 Page 45 Low Income New Construction

a) Please discuss the specific needs of the Target Market.
b) Please discuss the scope of the pilot in 2015.

RESPONSE

a) The Low Income New Construction Program caters to a niche market not generally targeted under the existing new construction program offerings. The building structures cover a wide spectrum, from a handful of modest single family houses to supportive and senior housing, to apartment buildings in affordable housing communities. The builders and developers in affordable housing are predominantly made up of existing social housing providers, charitable groups and non-profit co-ops that will operate and manage these properties as a going concern. Funding for these new buildings is largely dependent on government grants and subsidies, and with these funding sources dwindling, there are substantial first cost challenges, and knowledge and information barriers that need to be addressed to mitigate these potential lost opportunities.

   With the creation of new affordable housing as part of municipalities' long term housing plans, incorporating energy efficiency and sustainability as part of the design and construction of these buildings contribute to housing affordability, preservation of the housing stock for the vulnerable population, and community resilience.

   This offer also fills a programming gap in Enbridge's affordable housing program portfolio. It enables better engagement with municipalities by providing a full suite of energy efficiency solutions, from new builds to retrofit, for their affordable housing stock.

b) The scope of the 2015 pilot includes identification and testing of a new modelling tool for smaller multi-residential applications; survey and user testing feedback from pilot participants regarding the implementation process and delivery of the program; and testing the appropriateness of the incentive levels as proposed as a key program element to influence decisions.

Witnesses: M. Lister
E. Lontoc

VECC INTERROGATORY #18

INTERROGATORY

Topic 5 – Program Types

Ref: B-2-1 Page 48 Low Income New Construction

a) Please explain further how eligibility for the additional up to $2,250 per unit, to a maximum of $100,000 per building is applied.

b) Please explain further how eligibility for the commissioning incentive of up to $10,000 is applied.

RESPONSE

a) Based on information from stakeholders and similar programs from other jurisdictions, the incremental cost to build to higher energy efficiency housing units is approximately 2 to 3% of construction costs. While the construction costs for a building varies by number of bedrooms per housing unit, Enbridge assumed an average construction cost of $112,500 for each housing unit. Enbridge further assumed that the building sizes would be predominantly low to mid-rise buildings at approximately 50 units per building.

The $100,000 cap is viewed as significant enough to demonstrate the value of energy efficiency. This will be tested during the 2015 pilot.

b) The commissioning cost for new construction buildings is estimated at 0.4% of total construction cost. The program will pay 0.4% of the total construction cost up to $10,000 of the cost of commissioning.

Witnesses: M. Lister
E. Lontoc

VECC INTERROGATORY #19

INTERROGATORY

Topic 5 – Program Types

Ref: B-2-1 Page 71 My Home health Record

a) Please explain how Enbridge determined the split between non-ebill and ebill participants.

RESPONSE

Some of Enbridge's customers have self-identified that they would prefer to communicate electronically with the utility.

Based on the size of the ramp up to 1,000,000 customers in 2016, Enbridge made a decision to break out the expansion to include approximately 25% ebill customers and 75% non-ebill customers.

This 25% ebill portion represents slightly less than half of all ebill current customers. While the 75% non-ebill portion represents slightly less than half of eligible current non-ebill customers.

Witnesses: S. Bertuzzi
S. Hicks
M. Lister

VECC INTERROGATORY #20

INTERROGATORY

Topic 5 – Program Types

Ref: B-2-1 Page 75 Home Rating

a) Please confirm the two-pronged approach.

b) When does Enbridge anticipate home rating assessments will be undertaken and confirm the proposed quantity per year?

c) Please explain further how the incentive works.

RESPONSE

a) Yes, Enbridge will still be targeting home buyer and home sellers – a two-pronged approach.

b) The home seller would complete an assessment prior to listing their home, and they will be required to provide a current listing agreement or other evidence as proof of an intent to sell. The home buyer would complete an assessment after the purchase of the home, and they will be required to provide purchase and sale agreement evidence that the transaction took place within the past year. As per Exhibit B, Tab 1, Schedule 4, pages 29 to 33, 2016 to 2020 middle targets are 596, 808, 982, 1128, 1252 respectively.

c) Once they sign on to the program, buyers and sellers will be offered a home energy education session which includes an energy audit. The buyer or seller can sign on to the program through Enbridge or through a Certified Energy Auditor ("CEA"), who will perform the education and audit functions, and ultimately provide the energy rating.

Eligibility:

- Residential Homeowner in Enbridge franchise area
- Valid Enbridge account number using space/water heating in good standing
- Home seller: must provide current listing agreement or other evidence proving plan to sell
- Home buyer: must have purchased within a year of the incentive and provide evidence via purchase and sale agreement

Witnesses: S. Bertuzzi
M. Lister

- The subject house must be at least 10 years old
- Use a program approved Certified Energy Auditor

The incentive is planned at $395.50 ($350 + HST) for the energy education and energy audit functions.

Witnesses: S. Bertuzzi
M. Lister

VECC INTERROGATORY #21

INTERROGATORY

Topic 5 – Program Types

Ref: B-2-1 Page 97 Energy Literacy

a) Why is Rate 125 excluded?

RESPONSE

a) Enbridge understands this question to be asking why Rate 125 is excluded from contributing to the Energy Literacy initiative and has answered the question on that basis.

The decision to exclude Rate 125 from contributing to the Energy Literacy initiative was based on the Rate's exclusion from DSM programs other than its contribution towards Low Income related DSM costs.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

VECC INTERROGATORY #23

INTERROGATORY

Topic 5 – Program Types

Ref: B-2-4 Page 14

a) Please explain why Rates 9, 125, 200 & 200 are not eligible for DSM programs.

RESPONSE

a) Rates 9, 125 and 200 are not eligible for DSM programs for the following reasons:

- Rate 9 applies to suppliers of compressed natural gas for transportation vehicles. Natural gas vehicles are not included in the Energy Board's Filing Guidelines.
- Rate 125 applies to large gas users, specifically power generators. They are excluded from the program under direction provided by the Board's Filing Guidelines. Enbridge's understanding is that these customers often already have access to the necessary expertise and are motivated to implement cost effective energy efficiency programs on their own in order to stay competitive. Enbridge does not necessarily have specific or adequate resources to provide meaningful value to power generation facilities.
- Rate 200 is a wholesale service available to customers outside Enbridge's franchise area.
- Rate 300 is a relatively new un-bundled distribution service for small volume gas users. Currently only two customers subscribe to this rate. Should a greater number of bundled rate customers migrate to this service, Enbridge may consider adding rate 300 to the DSM Program.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

BOARD STAFF INTERROGATORY #23

INTERROGATORY

Topic 6 – Program Evaluation

Ref: Exhibit B / Tab 2 / Schedule 2 / pp. 1-55
EB-2014-0134 / DSM Filing Guidelines / Section 7.1.3

Preamble:
The DSM Filing Guidelines state that all program result evaluations will be conducted by the Board's third-party evaluator(s). The third-party evaluators will follow the Ontario Power Authority's (OPA) EM&V protocols, where applicable and relevant to the natural gas sector.

Questions:

a) For each of Enbridge's evaluation plans:
   i. Please provide evidence that the proposed evaluation approach for each program offer is consistent with the noted EM&V protocols.

   ii. Please confirm that all the necessary data is being collected during the life of the program to successfully complete third-party impact evaluation based on the noted EM&V protocols.

RESPONSE

(i) In developing the Evaluation plans for the multi-year plan, Enbridge reviewed the Ontario Power Authority's ("OPA") evaluation, measurement and evaluation documents referred to on page 19 of the filing guidelines. The template utilized for Enbridge's Evaluation plans is based on the OPA's EM&V protocols with consideration of areas that are applicable and relevant to the natural gas sector.

More specifically, in line with the OPA's EM&V protocols, the following sections are included:

Overview: Includes goals and objectives, target market, eligibility criteria, key elements, timing, estimated participation and offer theory.
Evaluation Goals and Objectives: Includes research questions.

Witnesses: R. Idenouye
F. Oliver-Glasford
R. Sigurdson

Evaluation Approach: Includes Impact and Process Evaluation.
Data Collection Responsibilities: Includes information on data that should be collected to support the evaluation of the offer.

(ii) Enbridge believes that all of the information reasonably required for impact evaluations, will be collected during the life of the program. It is important to note that the Evaluation plans are not expected to remain static over the duration of the multi-year plan and are expected to change / evolve as a result of lessons learned, the audit process, Ontario Energy Board requirements, or other developments.

Witnesses: R. Idenouye
F. Oliver-Glasford
R. Sigurdson

BOARD STAFF INTERROGATORY #24

INTERROGATORY

Topic 6 – Program Evaluation

Ref: Exhibit B / Tab 2 / Schedule 2 / pp. 49-52

Question:

a) For the Run-it-Right offer, please indicate whether external factors affecting natural gas savings (weather, changes to building occupancy, etc.) will be controlled for in the natural gas savings analysis, which relies on metered data. If so, please list these factors and explain how these factors will be addressed as part of the evaluation.

RESPONSE

The current Run-it-Right ("RiR") offer controls for weather through utilization of heating degree day data and consumption patterns. As indicated in the response to BOMA Interrogatory #9 found at Exhibit I.T2.EGDI.BOMA.9, a clear and accepted methodology to determine and claim savings for Enbridge's RiR offer is yet to be established. The inclusion and impact of other applicable factors, such as building occupancy will need to be contemplated as part of this work.

Witnesses: R. Kennedy
R. Idenouye
F. Oliver-Glasford
R. Sigurdson

BOARD STAFF INTERROGATORY #25

INTERROGATORY

Topic 6 – Program Evaluation

Ref: Exhibit B / Tab 2 / Schedule 1 / pp. 25
Exhibit B / Tab 2 / Schedule 2 / pp. 19-20

Preamble:
Enbridge stated that the Home Energy Conservation offering is a direct-to-consumer initiative, and that incentives are provided "based on modeled natural gas savings as a result of measures installed."

Questions:

a) Please provide information on the natural gas savings modeling that will be performed, namely:
   i. What program/software will be used;
   ii. What input variables will be required;
   iii. Indicate how Enbridge will ensure that the savings calculated using this model are consistent with the actual savings experienced by the participant.

RESPONSE

a)
(i) Enbridge requires the use of an accredited modeling software program to calculate gas savings. The main product used by Enbridge's delivery partners is HOT2000.
(ii) Attached is a document containing a list of the various input fields available for HOT2000.
(iii) Measuring actual savings experienced by the participant relative to modeled savings is not within the scope of this offer.

Witnesses: S. Bertuzzi
R. Idenouye
F. Oliver-Glasford
R. Sigurdson

Appendix 1

Specific constraints for the Energuide Rating System (existing/new housing programs)

Field ID	Field Name	Mandatory	Min CK	Max CK	Min Value	Max Value	English Description
1	YearBuilt	Yes	Yes	Yes	1700	2006	Year of construction
2	ClientCity	No	No	No	0	0	City (where property is located)
3	ClientAddr	No	No	No	0	0	Address (where property is located)
4	Builder	Yes	No	No	0	0	Compound field with service organization, advisor and file sequence
5	HouseRegion	Yes	No	No	0	0	Region of country for house (province/territory)
6	WeatherLoc	Yes	No	No	0	0	Weather data location
7	EntryBy	Yes	No	No	0	0	Evaluator name
8	ClientName	No	No	No	0	0	Homeowner name
9	Telephone	No	No	No	0	0	Homeowner phone number
10	FloorArea	Yes	Yes	No	1	0	Floor area of the house (m^2)
11	Footprint	Yes	Yes	Yes	0	600	Footprint of the house (m^2)
12	FurnaceType	Yes	No	No	0	0	Type of furnace
13	FurSSEff	Yes	Yes	Yes	See note	100	Primary heating equipment efficiency
14	FurnaceFuel	Yes	No	No	0	0	Primary heating equipment fuel type
15	HPsource	Yes	No	No	0	0	Heat pump source of supply
16	COP	Yes	Yes	Yes	0	4.5	Heat pump coefficient of performance
17	pDHWType	Yes	No	No	0	0	Primary domestic hot water equipment type
18	pDHWEF	Yes	Yes	Yes	See note	1.0	Domestic hot water equipment efficiency
19	pDHWFuel	Yes	No	No	0	0	Primary domestic hot water equipment fuel type
20	DHWHPtype	No	No	No	0	0	Domestic hot water heat pump system type
21	DHWHPcop	Yes	No	No	0	0	Domestic hot water heat pump system coefficient of performance
22	CSIA	Yes	No	No	0	0	Canadian Solar Industry Association rating for solar DHW system (MJ/y)
23	TypeOfHouse	Yes	No	No	0	0	Type of house (detached or semi-detached)
24	CeilIns	Yes	No	Yes	0	25	Ceiling insulation RSI value
25	FndWallIns	Yes	No	Yes	0	10	Foundation insulation RSI value
26	MainWallIns	Yes	No	Yes	0	10	Main walls insulation RSI value
27	Storeys	Yes	Yes	Yes	0	4	Number of floors above grade
28	TotalOccupants	Yes	Yes	Yes	1	16	Total number of occupants
29	PlanShape	Yes	No	No	0	0	House shape
30	TBSMNT	Yes	Yes	Yes	0	30	Temperature of the basement in Celsius
31	TMAIN	Yes	Yes	Yes	0	30	Temperature of the main floor in Celsius
32	HSEVOL	Yes	Yes	No	100	0	House volume in m^3
33	AIR50P	Yes	Yes	Yes	0.4	50	Air leakage at 50 pascals
34	LEAKAR	Yes	No	No	0	0	Equivalent leakage area at 10 pascals
35	CenVentSysType	Yes	No	No	0	0	Ventilation type installed
36	Registration	Yes	No	No	0	0	Software registration number
37	ProgramName	Yes	No	No	0	0	Name of program used

38	EGHFconElec	Yes	Yes	No	8,760	0	Consumption of electricity in kWh
39	EGHFconNGas	Yes	No	No	0	0	Consumption of Gas in m^3
40	EGHFconOil	Yes	No	No	0	0	Consumption of oil in L
41	EGHFconProp	Yes	No	No	0	0	Consumption of propane in L
42	EGHFconTotal	Yes	Yes	No	55000	0	Total energy consumption in MJ
43	EGHSpaceEnergy	Yes	No	No	0	0	Estimated annual space heating energy consumption + ventilator electrical consumption (heating hour) heating energy in MJ
44	EGHFcostElec	Yes	Yes	No	500	0	Cost for consumption of electricity in $
45	EGHFcostNGas	Yes	Yes	No	0	0	Cost for consumption of gas in $
46	EGHFcostOil	Yes	Yes	No	0	0	Cost for consumption of oil in $
47	EGHFcostProp	Yes	Yes	No	0	0	Cost for consumption of propane in $
48	EGHFcostTotal	Yes	Yes	Yes	750	10500	Total cost of energy consumption in $
49	EGHCritNatACH	Yes	No	No	0	0	Critical natural air change per hour
50	EGHCritTotACH	Yes	No	No	0	0	Critical total air change per hour
51	EGHHLAir	Yes	No	No	0	0	Heat loss to air leakage in MJ
52	EGHHLFound	Yes	No	No	0	0	Heat lost through foundation in MJ
53	EGHHLCeiling	Yes	No	No	0	0	Heat loss to ceilings in MJ
54	EGHHLWalls	Yes	No	No	0	0	Heat loss through walls in MJ
55	EGHHLWinDoor	Yes	No	No	0	0	Heat loss through windows and doors in MJ
56	EGHRating	Yes	Yes	Yes	0	100	Actual EnerGuide rating for house
57	UGRFurnaceTyp	Yes	No	No	0	0	Proposed primary heating equipment type
58	UGRFurnaceEff	Yes	Yes	Yes	See note	100	Proposed primary heating equipment efficiency
59	UGRFurnaceFuel	Yes	No	No	0	0	Proposed primary heating equipment fuel type
60	UGRHPtype	Yes	No	No	0	0	Proposed heat pump type
61	UGRHPCOP	Yes	Yes	Yes	0	4.5	Proposed heat pump coefficient of performance
62	UGRDHWsysType	Yes	No	No	0	0	Proposed domestic hot water equipment type
63	UGRDHWsysEF	Yes	Yes	Yes	See note	1.0	Proposed domestic hot water equipment efficiency
64	UGRDHWsysFuel	Yes	No	No	0	0	Proposed domestic hot water equipment fuel type
65	UGRDHWHPtype	No	No	No	0	0	Proposed domestic hot water heat pump system type
66	UGRDHWHPcop	Yes	No	No	0	0	Proposed domestic hot water heat pump system coefficient of performance
67	UGRDHWcsia	Yes	No	No	0	0	proposed Canadian Solar Industry Association rating for solar Domestic Hot water system (MJ/y)
68	UGRCeilIns	Yes	No	Yes	0	25	Proposed ceiling insulation RSI value
69	UGRFndIns	Yes	No	Yes	0	10	Proposed insulation foundation RSI value
70	UGRWallIns	Yes	No	Yes	0	10	Proposed insulation walls RSI value
71	UGRFconElec	Yes	Yes	No	8,760	0	Proposed consumption of electricity in kWh
72	UGRFconNGas	Yes	No	No	0	0	Proposed consumption of gas in m^3
73	UGRFconOil	Yes	No	No	0	0	Proposed consumption of oil in L

74	UGRFconProp	Yes	No	No	0	0	Proposed consumption of propane in L
75	UGRFconTotal	Yes	Yes	No	55000	0	Proposed total energy consumption in MJ
76	UGRFcostElec	Yes	Yes	No	500	0	Proposed cost for consumption of electricity in $
77	UGRFcostNGas	Yes	Yes	No	0	0	Proposed cost for consumption of gas in $
78	UGRFcostOil	Yes	Yes	No	0	0	Proposed cost for consumption of oil in $
79	UGRFcostProp	Yes	Yes	No	0	0	Proposed cost for consumption of propane in $
80	UGRFcostTotal	Yes	Yes	Yes	750	9000	Proposed total energy cost in $
81	UGRAir50Pa	Yes	Yes	No	0.4	30	Proposed air leakage at 50 Pa
82	UGRHLAir	Yes	No	No	0	0	Proposed heat loss to air leakage in MJ
83	UGRHLFound	Yes	No	No	0	0	Proposed heat loss to foundation in MJ
84	UGRHLCeiling	Yes	No	No	0	0	Proposed heat loss to ceiling in MJ
85	UGRHLWalls	Yes	No	No	0	0	Proposed heat loss to wall in MJ
86	UGRHLWinDoor	Yes	No	No	0	0	Proposed heat loss to windows and doors in MJ
87	UGRRating	Yes	Yes	Yes	1	100	Proposed EnerGuide rating
88	ClientPcode	Yes	No	No	0	0	Homeowner postal code (where property is located)
89	EntryDate	Yes	No	No	0	0	Date of data entry
90	info1	No	No	No	0	0	Information field 1
91	Info2	No	No	No	0	0	Information field 2
92	Info3	No	No	No	0	0	Information field 3
93	info4	No	No	No	0	0	Information field 4
94	EGHFurnaceAEC	Yes	No	No	0	0	Annual energy consumption for the furnace in MJ
95	UGRFurnaceAEC	Yes	No	No	0	0	Proposed annual energy consumption for the furnace in MJ
96	EGHDesHtLoss	Yes	No	No	0	0	Design heat loss in Watts
97	UGRDesHtLoss	Yes	No	No	0	0	Proposed design heat loss in Watts
98	EGHFurSeasEff	Yes	No	No	0	0	Furnace Seasonal Efficiency
99	UGRFurSeasEff	Yes	No	No	0	0	Proposed Furnace Seasonal Efficiency
100	UCenVentSysType	Yes	No	No	0	0	Proposed ventilation system
101	UGRCritNatACH	Yes	No	No	0	0	Proposed critical natural air change per hour
102	UGRCritTotACH	Yes	Yes	No	0.14	0	Proposed total critical air change per hour
103	EGHHLExposedFlr	Yes	No	No	0	0	Heat loss to exposed floor in MJ
104	UGRHLExposedFlr	Yes	No	No	0	0	Proposed heat loss to exposed floor in MJ
105	EGHInExposedFlr	Yes	No	No	0	0	Exposed floor insulation RSI value
106	UGRInExposedFlr	Yes	No	No	0	0	Proposed exposed floor insulation RSI value
107	PreviousFileID	No	No	No	0	0	Previous File ID
108	MailAddr	No	No	No	0	0	Homeowner mailing address
109	MailCity	No	No	No	0	0	Homeowner mailing city
110	MailRegion	No	No	No	0	0	Homeowner mailing province
111	MailPCode	No	No	No	0	0	Homeowner mailing postal code
112	TaxNumber	No	No	No	0	0	Municipal tax roll number
113	Ownership	No	No	No	0	0	Dwelling type of housing
114	DepressExhaust	Yes	No	No	0	0	Result of the depressurization test
115	Info5	No	No	No	0	0	Information field 5
116	Info6	No	No	No	0	0	Information field 6
117	BuillderName	No	No	No	0	0	Builder Name (also for business incorporation #)
118	EGHFconWood	Yes	No	No	0	0	Consumption of wood in tonne

119	EGHFcostWood	Yes	No	No	0	0	Cost for consumption of wood in $
120	UGRFconWood	Yes	No	No	0	0	Proposed consumption of wood in tonne
121	UGRFcostWood	Yes	No	No	0	0	Proposed cost for consumption of wood in $
122	OTC	No	No	No	0	0	One Tonne Challenge
123	Vermiculite	No	No	No	0	0	Presence of Vermiculite
124	Justify	No	No	No	0	0	Justification descriptions, separated by semicolons
125	PonyWallExists	Yes	No	No	0	0	Presence of pony walls, 0 = No, 1 = Yes
126	BasementFloorAr	Yes	No	No	0	0	Basement floor area in m2
127	WalkoutFloorAr	Yes	No	No	0	0	Walkout floor area in m2
128	CrawlSpFloorAr	Yes	No	No	0	0	Crawlspace floor area in m2
129	SlabFloorArea	Yes	No	No	0	0	Slab floor area in m2
130	BlowerDoorTest	Yes	No	No	0	0	Blower door test type (None, CGSB, As operated)
131	FireplaceDamp1	Yes	Yes	Yes	0	2	Fireplace (solid fuel burning equipment) #1 Damper position, 0=closed, 1= Open, 2=N/A
132	FireplaceDamp2	Yes	Yes	Yes	0	2	Fireplace (solid fuel burning equipment) #1 Damper position, 0=closed, 1= Open, 2=N/A
133	HeatSysSizeOP	Yes	Yes	Yes	1	2	Heating system sizing option, 1 = calculated, 2 = User specified
134	TotalVentSupply	Yes	No	No	0	0	Total ventilation supply rate, L/s
135	TotalVentExh	Yes	No	No	0	0	Total ventilation exhaust rate, L/s
136	UGRTotalVentSup	Yes	No	No	0	0	Proposed total ventilation supply rate, L/s
137	UGRTotalVentExh	Yes	No	No	0	0	Proposed total ventilation exhaust rate, L/s
138	Credit_PV	Yes	No	Yes	0	5694	Photovoltaic credit in kWh
139	Credit_Wind	Yes	No	Yes	0	6570	Wind power credit in kWh
140	UGRCredit_PV	Yes	No	Yes	0	5694	Proposed photovoltaic credit in kWh
141	UGRCredit_Wind	Yes	No	Yes	0	6570	Proposed wind power credit in kWh
142	Credit_Thermost	Yes	No	No	0	0	Electronic thermostat credit in kWh
143	Credit_Vent	Yes	No	No	0	0	Ventilation system credit in kWh
144	Credit_Garage	Yes	No	No	0	0	Attached garage credit in kWh
145	Credit_Lighting	Yes	No	No	0	0	Total lighting credit in kWh
146	Credit_EGH	Yes	No	No	0	0	EGH credit in kWh
147	Credit_Oth1Oth2	Yes	No	No	0	0	Other credit in kWh
148	WindowCode	Yes	No	No	0	0	Predominant window code
149	UGRWindowCode	Yes	No	No	0	0	Proposed predominant window code
150	HRVEFF0C	Yes	No	Yes	0	90	HRV effectiveness @ 0 Deg C (%)
151	UnitsMURB	No	No	Yes	0	16	Number of unit in the MURB
152	AddressListMURB	No	No	No			List of addresses separated by ;
153	VisitedUnits	No	No	Yes	0	16	Number of units visited during data collection
154	BaseloadsMURB	No	No	No	0	0	Total MURB baseload energy (MJ/yr)
155	MURBHtSystemDis	No	No	No	0	0	MURB central distribution system (All units central, all independent, combo)
156	IndFurnaceType	Yes	No	No	0	0	Type of largest independent heating system
157	IndFurSSEff	Yes	No	No	0	0	Steady state eff. of largest independent heating system
158	IndFurnaceFuel	Yes	No	No	0	0	Fuel used by largest independent heating system
159	UGRIndFurnaceTp	Yes	No	No	0	0	Proposed type of largest independent heating system
160	UGRIndFurSSEff	Yes	No	No	0	0	Proposed steady state eff. of largest independent

							heating system
161	UGRIndFurnaceFu	Yes	No	No	0	0	Upgrade - Fuel used by largest independent heating system
162	ESTAR	Yes	No	No	0	0	ESTARperf, ESTARcchtPres or EGH
163	FURNACEMODEL	Yes	No	No	0	0	Furnace model
164	EGHHEATFconsE	Yes	No	No	0	0	Heating energy consumption - Base Electricity
165	EGHHEATFconsG	Yes	No	No	0	0	Heating energy consumption - Base Natural Gas
166	EGHHEATFconsO	Yes	No	No	0	0	Heating energy consumption - Base Oil
167	EGHHEATFconsP	Yes	No	No	0	0	Heating energy consumption - Base Propane
168	EGHHEATFconsW	Yes	No	No	0	0	Heating energy consumption - Base Wood
169	UGRHEATFconsE	Yes	No	No	0	0	Heating energy consumption - Upgrade Electric
170	UGRHEATFconsG	Yes	No	No	0	0	Heating energy consumption - Upgrade Gas
171	UGRHEATFconsO	Yes	No	No	0	0	Heating energy consumption - Upgrade Oil
172	UGRHEATFconsP	Yes	No	No	0	0	Heating energy consumption - Upgrade Propane
173	UGRHEATFconsW	Yes	No	No	0	0	Heating energy consumption - Upgrade Wood
174	FURDCMOTOR	Yes	No	No	0	0	Htg. sys. Fan/Pump Energy Eff motor 1=Yes, 0=No
175	UGRFURDCMOTOR	Yes	No	No	0	0	Upgrade Htg. sys. Fan/Pump Energy Eff motor 1=Yes, 0=No
176	HPESTAR	Yes	No	No	0	0	Air Source HP is Energy Star (ESTAR, or N/A)
177	UGRHPESTAR	Yes	No	No	0	0	Upgrade Air Source HP is Energy Star (ESTAR, or N/A)
178	nELECTHERMOS	Yes	No	No	0	0	Number of Electronic Thermostats (0,1,2,3....)
179	UGRnELECTHERMOS	Yes	No	No	0	0	Upgrade Number of Electronic Thermostats (0,1,2,3....)
180	EPACSA	Yes	No	No	0	0	Wood Fireplace or insert meets CSA-B415-M92 or 40 CFR Part10 (EPACSA or N/A)
181	UGREPACSA	Yes	No	No	0	0	Upgrade Wood Fireplace or insert meets ... (EPACSA or N/A)
182	SuppHtgType1	Yes	No	No	0	0	Supplementary heating system #1 Type
183	SuppHtgType2	Yes	No	No	0	0	Supplementary heating system #2 Type
184	SuppHtgFuel1	Yes	No	No	0	0	Supplementary heating system #1 Fuel
185	SuppHtgFuel2	Yes	No	No	0	0	Supplementary heating system #2 Fuel
186	UGRSuppHtgType1	Yes	No	No	0	0	Upgrade Supplementary heating system #1 Type
187	UGRSuppHtgType2	Yes	No	No	0	0	Upgrade Supplementary heating system #2 Type
188	UGRSuppHtgFuel1	Yes	No	No	0	0	Upgrade Supplementary heating system #1 Fuel
189	UGRSuppHtgFuel2	Yes	No	No	0	0	Upgrade Supplementary heating system #2 Fuel
190	EPACSASuppHtg1	Yes	No	No	0	0	Supp Htg sys 1 Wood... meets CSA or EPA std.
191	EPACSASuppHtg2	Yes	No	No	0	0	Supp Htg sys 2 Wood... meets CSA or EPA std.
192	UEPACSASuppHtg1	Yes	No	No	0	0	Upgrade Supp Htg sys 1 Wood... meets CSA or EPA std.
193	UEPACSASuppHtg2	Yes	No	No	0	0	Upgrade Supp Htg sys 2 Wood... meets CSA or EPA std.
194	HVIEQUIP	Yes	No	No	0	0	HVI certified HRV (HVI or N/A)
195	UGRHVIEQUIP	Yes	No	No	0	0	Upgrade HVI certified HRV (HVI or N/A)
196	AIRCONDTYPE	Yes	No	No	0	0	Type of A/C System or "Not installed"
197	UGRAIRCONDTYPE	Yes	No	No	0	0	Proposed type of A/C System or "Not installed"
198	AIRCOP	Yes	No	No	0	0	Efficiency of A/C system
199	UGRAIRCOP	Yes	No	No	0	0	Proposed efficiency of A/C system

200	ACCENTESTAR	Yes	No	No	0	0	Central A/C is ESTAR (ESTAR or N/A)
201	UGRACCENTESTAR	Yes	No	No	0	0	Upgrade Central A/C is ESTAR (ESTAR or N/A)
202	ACWINDESTAR	Yes	No	No	0	0	Num of Window unit A/C that are ESTAR (0,1,2,3,4...)
203	UGRACWINDESTAR	Yes	No	No	0	0	Num of Upgrade Window unit A/C that are ESTAR (0,1,2,3,4..)
204	FNDHDR	Yes	No	No	0	0	Header insulation value (RSI) – basement
205	UGRFNDHDR	Yes	No	No	0	0	Upgrade header insulation value (RSI) – basement
206	NUMWINDOWS	Yes	No	No	0	0	Total number of installed windows
207	NUMWINESTAR	Yes	No	No	0	0	Number of installed ESTAR windows
208	UGRNUMWINESTAR	Yes	No	No	0	0	Number of ESTAR windows (installed + recommended)
209	NUMDOORS	Yes	No	No	0	0	Total number of installed doors
210	NUMDOORESTAR	Yes	No	No	0	0	Number of installed ESTAR doors
211	UGRNUMDOORESTAR	Yes	No	No	0	0	Number of ESTAR doors (installed + recommended)
212	ACWINDNUM	Yes	No	No	0	0	Number of window unit A/C
213	UGRACWINDNUM	Yes	No	No	0	0	Number of window unit A/C (installed + recommended)
214	HEATAFUE	Yes	No	No	0	0	Primary heating equipment AFUE value
215	UGRHEATAFUE	Yes	No	No	0	0	Proposed primary heating equipment AFUE value
216	CEILINGTYPE	Yes	No	No	0	0	Ceiling type
217	UGRCEILINGTYPE	Yes	No	No	0	0	Upgrade ceiling type
218	ATTICCEILINGDEF	Yes	No	No	0	0	Description of attic insulation
219	UATTCEILINGDEF	Yes	No	No	0	0	Proposed description of attic insulation
220	CAFLACEILINGDEF	Yes	No	No	0	0	Description of cathedral or flat roof insulation
221	UCAFLCEILINGDEF	Yes	No	No	0	0	Proposed description of cathedral or flat roof insulation
222	FNDTYPE	Yes	No	No	0	0	Type of foundation
223	UGRFNDTYPE	Yes	No	No	0	0	Proposed type of foundation
224	FNDDEF	Yes	No	No	0	0	Description of foundation insulation
225	UGRFNDDEF	Yes	No	No	0	0	Proposed description of foundation insulation
226	WALLDEF	Yes	No	No	0	0	Description of wall insulation
227	UGRWALLDEF	Yes	No	No	0	0	Proposed description of wall insulation
228	EINCENTIVE	Yes	No	No	0	0	Est. incentive $ if recommended retrofits are implemented (for existing housing only)
229	LFTOILETS	Yes	No	No	0	0	Number of low-flow toilets
230	ULFTOILETS	Yes	No	No	0	0	Proposed number of low-flow toilets
231	DWHRL1M	Yes	No	No	0	0	Drain-water heat recovery smaller than 1 m
232	UDWHRL1M	Yes	No	No	0	0	Proposed number of Drain-water heat recovery smaller than 1 m
233	DWHRM1M	Yes	No	No	0	0	Drain-water heat recovery greater than 1 m
234	UDWHRM1M	Yes	No	No	0	0	Proposed number of Drain-water heat recovery greater than 1 m
235	WthData	Yes	No	No	0	0	Weather data file
236	sDHWType	Yes	No	No		0	Secondary domestic hot water type
237	sDHWEF	Yes	No	No	0	0	Secondary domestic hot water efficiency
238	sDHWFuel	Yes	No	No	0	0	Secondary domestic hot water fuel
239	sDHWHPtype	Yes	No	No	0	0	Secondary domestic hot water heat-pump type

240	sDHWHPcop	Yes	No	No	0	0	Secondary domestic hot water heat-pump coefficient of performance
241	UGRsDHWsysType	Yes	No	No	0	0	Proposed secondary domestic hot water type
242	UGRsDHWsysEF	Yes	No	No	0	0	Proposed secondary domestic hot water efficiency
243	UGRsDHWsysFuel	Yes	No	No	0	0	Proposed secondary domestic hot water fuel
244	UGRsDHWHPtype	Yes	No	No	0	0	Proposed secondary domestic hot water heat-pump type
245	UGRsDHWHPcop	Yes	No	No	0	0	Proposed secondary domestic hot water heat-pump coefficient of performance
246	EXPOSEDFLOOR	Yes	No	No	0	0	Type of exposed floor
247	UGEXPOSEDFLOOR	Yes	No	No	0	0	Proposed type of exposed floor
248	MURBHSESTAR	Yes	No	No	0	0	Number of Energy Star heating systems in MURB
249	MURBWOODEPA	Yes	No	No	0	0	Number of EPA/CSA heating systems in MURB
250	MURBASHPESTAR	Yes	No	No	0	0	Number of ENERGY STAR qualified air-source heat pump in MURB
251	MURBDWHRL1M	Yes	No	No	0	0	Number of Grey/Drain water heat recovery coils with efficiency between 30 to 42 % in MURB
252	MURBDWHRM1M	Yes	No	No	0	0	Number of Grey/Drain water heat recovery coils with efficiency between 43 and 54 percent in MURB
253	MURBHRVHVI	Yes	No	No	0	0	Number of HVI heat recovery ventilators in MURB
254	MURBDHWINS	Yes	No	No	0	0	Number of instantaneous DHWs in MURB
255	MURBDHWCOND	Yes	No	No	0	0	Number of condensing DHWs in MURB
256	MURBWOODHEAT	Yes	No	No	0	0	Number of wood appliances present in the MURB units
257	MURBFURNACETYPE	Yes	No	No	0	0	Up to three types (type1;type2;type3) of heating system
258	MURBFURSSEFF	Yes	No	No	0	0	Up to three values (type1;type2;type3) of heating system steady state efficiency
259	MURBFURNACEFUEL	Yes	No	No	0	0	Up to three types (type1;type2;type3) of heating system fuel
260	MURBFURDCMOTOR	Yes	No	No	0	0	Up to three values (type1;type2;type3) of heating system Fan/Pump Energy Eff motor 1=Yes, 0=No
261	MURBHEATAFUE	Yes	No	No	0	0	Up to three values (type1;type2;type3) of heating system AFUE
262	Info7	No	No	No	0	0	Information field 7
263	Info8	No	No	No	0	0	Information field 8
264	Info9	No	No	No	0	0	Information field 9
265	Info10	Yes	No	No	0	0	Information field 10
266	TYPE1CAPACITY	Yes	No	No	0	0	Capacity of the Type 1 Heating System (Watts)
267	pDHWESTAR	Yes	No	No	0	0	ESTAR if the primary DHW is energy star, ecoLIST when ecoEnergy, ESTARecoLIST when both are checked, N/A otherwise
268	sDHWESTAR	Yes	No	No	0	0	ESTAR if the secondary DHW is energy star, N/A otherwise
269	UGRpDHWESTAR	Yes	No	No	0	0	ESTAR if the upgrade primary DHW is energy star, N/A otherwise
270	UGRsDHWESTAR	Yes	No	No	0	0	ESTAR if the upgrade secondary DHW is energy star, N/A otherwise
271	MURBDHWINSES	Yes	No	No	0	0	Total # of E* instantaneous DHW in the units

					0	0 Total # of E* instantaneous DHW in the units in the upgrade case.
272	UMURBDHWINSES	Yes	No	No		
273	MURBDHWCONDINSES	Yes	No	No	0	0 Total # of E* instantaneous (condensing) DHW in the units.
274	UMURBDHWCONDIN	Yes	No	No	0	0 Total # of E* instantaneous (condensing) DHW in the units in the upgrade case.
275	HPCAP	Yes	No	No	0	0 Heat pump capacity Watts
276	ACModelNumber	Yes	No	No	0	0 Model # of the A/C or HP with Heating/Cooling
277	MIXUSE	Yes	No	No	0	0 = 1 when Mixed Use flag is indicated, else zero
278	WindowCodeNum	Yes	No	No	0	0 Most frequently used window code (Base case)
279	UWindowCodeNum	Yes	No	No	0	0 Most frequently used window code (Upgrade case)
280	priDHWModel	Yes	No	No	0	0 Primary Domestic Hot Water equipment model
281	NUMSOLSYS	Yes	No	No	0	0 The total number of solar DHW systems in the file
282	TOTCSIA	Yes	No	No	0	0 Sum of the CSIA ratings for solar DHW systems in the file.
283	LARGESTCSIA	Yes	No	No	0	0 CSIA rating of the largest solar DHW system in the file

BOMA INTERROGATORY #26

INTERROGATORY

Topic 6 – Program Evaluation (including Adjustment Factors)

Ref: Exhibit B, Tab 2, Schedule 1, page 12 of 100.

How does Enbridge account for the interactive effects of multiple measures in a custom project?

RESPONSE

First, it should be noted that in Enbridge's experience it is rare to find situations where one applied energy efficiency measure will have an impact on another measure being implemented at the same time.

In those rare situations where interactive effects may be taking place, Enbridge's Energy Solutions Consultants ("ESC") will first consider the project as a whole – as if all the proposed measures were being implemented. In doing so, they will identify a "lead" measure – a measure that impacts the output of other measures in this project, but whose output itself is not affected by them. Once identified, they will quantify the savings resulting from the lead measure in isolation. They will then use a new base case, one that assumes the lead measure is already implemented, as the basis for calculating the savings of the next measure, and so on.

For example, if a customer is simultaneously implementing a measure that will reduce the amount of wasted heat, while another measure in which heat from the same waste stream is recovered, Enbridge would calculate the savings related to reducing the waste stream first and then use the new, reduced waste stream volume as the basis for a follow-up calculation of the savings associated with the waste heat recovery.

Witnesses: P. Goldman
M. Lister
D. Naden
R. Sigurdson
T. Whitehead
A. Zaidi

BOMA INTERROGATORY #27

INTERROGATORY

Topic 6 – Program Evaluation (including Adjustment Factors)

Ref: Exhibit B, Tab 2, Schedule 1, page 12 of 100.

How are "resulting natural gas savings accurately projected? How does Enbridge know?

RESPONSE

For additional context, the following is an expansion of the quote referred to above:

> …. Enbridge…will provide the custom incentive so long as the resulting natural gas savings can be accurately projected.

The sentence is intended to convey that if Enbridge cannot, with reasonable accuracy, predict project savings the Company does not pay an incentive. In determining that an "accurate projection" of a project has been achieved, specific steps which include establishing a base case through evaluation of the existing equipment, assessing the energy efficiency of new equipment or system and determining the savings through the application of engineering calculations must be completed. Finally, the reasonableness of the projected savings is checked by an independent third party engineering consultant as part of the annual audit.

Witnesses: P. Goldman
M. Lister
D. Naden
R. Sigurdson

BOMA INTERROGATORY #55

INTERROGATORY

Topic 6 – Program Evaluation (including Adjustment Factors)

Reference Exhibit B, Tab 4, Schedule 1, page 11 of 11.

> "*The differing methods and standard used for the evaluation and verification of results."*

Please explain the different methods and standards used for evaluation and verification of results.

RESPONSE

For context, the reference above is to one of seven barriers to larger scale collaboration with electricity CDM outlined by Enbridge in the multi-year plan.

One example of these differing methods and standards is intervenor involvement in joint research for the gas utilities; a practice which is not present for LDCs (e.g., in the development of the Technical Reference Manual). Another example is the difference in audit processes between the gas and electricity distributors.

These differences can lead to varying requirements, objectives and timelines and thus can act as a barrier to collaboration with LDCs.

Witnesses: R. Idenouye
F. Oliver-Glasford
R. Sigurdson

ENERGY PROBE INTERROGATORY #29

INTERROGATORY

Topic 6 – Program Evaluation (including Adjustment Factors)

Reference: Exhibit B, Tab 2, Schedule 2 - Evaluation Plan Exhibit B, Tab 3, Schedule 1, pages 3-5-Stakeholdering

a) Please provide an Organization Chart for Evaluation etc. showing the Structure, Committees membership, as well as primary functions and roles.

b) Please provide an Organization Chart showing EGD's interpretation of the structure, and new/amended membership, primary functions and roles reflecting the Board Report Demand Side Management Framework for Natural Gas Distributors (2015 to 2020) ("DSM Framework") and accompanying Filing Guidelines.

RESPONSE

a) As per EB-2011-0295 Joint Terms of Reference ("ToR") on Stakeholder Engagement, evaluation priorities were to be established by the Technical Evaluation Committee ("TEC"). With respect to a current organization chart, as stated on page 9 of the ToR, "the structure of the Committee is to be similar to a corporate Board of Directors which has representation from shareholders, management, and independent members."

   The TEC is comprised of seven individuals:

   - three intervenor members selected by intervenors
   - two utility members - one from Enbridge and one from Union Gas Limited.
   - two independent members with technical and other relevant expertise, selected from the public, to add independence and objective perspective to the TEC.

   The primary responsibility for critical review of evaluation research and input assumptions was to rest with the TEC. This was meant to streamline the DSM audit process. The TEC was also tasked with establishing a common natural gas DSM technical body to facilitate collaboration on evaluation research, and harmonization of DSM programs across the two utilities. The development of a common TRM was meant to represent best practice in DSM administration. Please refer to EB-2011-0295 for additional information on the intended roles and scope of work for the TEC.

Witnesses: F. Oliver-Glasford
R. Sigurdson

b) The information provided in the Board's Report: Demand Side Management Framework for Natural Gas Distributors (2015 to 2020) and accompanying Filing Guidelines is not granular enough to produce an organization chart. The Board specifically states in section 7.1, page 16, of the Filing Guidelines, that they will "set out the specific roles and responsibilities for the parties involved in the different steps of the evaluation and audit process in a future correspondence".

As stated at Exhibit B, Tab 3, Schedule 1, Enbridge understands that the Board will be taking a more active role in providing guidance in the evaluation and audit process. More specifically, the Board will be taking on a co-ordination role with continued involvement of both utilities and stakeholders.

For additional information on Enbridge's organizational structure, please refer to BOMA Interrogatory #1, filed at Exhibit I.T3.EGDI.BOMA.1.

Witnesses: F. Oliver-Glasford
R. Sigurdson

GEC INTERROGATORY #6

INTERROGATORY

Reference: Exh. B/T1/S2 p. 11:

With respect to stakeholder processes related to evaluation work, Enbridge suggests a principle of "heavy weighting on members with objective evaluation expertise, but inclusive of an intervenor(s), the gas utilities and Board Staff."

a. What does the Company mean by "members with objective evaluation expertise"? Does that clause refer to intervenors, utility staff and Board staff, or does it imply the involvement of individuals or firms that are independent of both the utilities and intervenors? If the former, how would Enbridge determine whether an intervenor or utility staff person or Board staff person had "objective evaluation expertise"?
b. What is the Company's view regarding how many intervenor representatives should be involved?

RESPONSE

a) GEC's question is around the second of nine principles that Enbridge suggested for consideration in all Stakeholdering processes moving forward (Exhibit B, Tab 1, Schedule 2, page 25). By "members with objective evaluation expertise", the company is referring to the importance of having involvement of individuals or firms that are independent of both the utilities and intervenors and that have direct technical/program implementation experience related to the work being undertaken.

b) Enbridge did not put forth a recommendation on the number of intervenor representatives that should be involved as it may vary depending on factors such as the mandate of the group.

Witnesses: F. Oliver-Glasford
B. Ott
R. Sigurdson

GEC INTERROGATORY #26

INTERROGATORY

Reference: Exh. B/T2/S2 p. 5:

a. Please provide a breakdown of actual evaluation spending in 2013 and 2014 for the categories shown in the Table for 2016-2020.
b. How did Enbridge determine how much should be spent on evaluation in aggregate, and individual categories in particular?

RESPONSE

a) Actual evaluation spending for 2013 and 2014 is provided below. Note categories for the 2016 to 2020 evaluation budget vary slightly from the categories that were used in the 2012 to 2014 evaluation budget, as such Enbridge has made best efforts to re-categorize invoices as appropriate.

2013-2014 Actual Evaluation Spend and 2016 - 2020 Estimated Process and Impact Evaluation Budget

Program/Category	Description	2013	2014	2016	2017	2018	2019	2020
Resource Acquistion								
	Residential	$ 25,213	$ 105,605	$ 220,000	$ 260,000	$ 260,000	$ 265,620	$ 271,352
	Commercial	$ 172,840	$ 182,732	$ 290,000	$ 330,000	$ 330,000	$ 337,133	$ 344,409
	Industrial	$ 24,600	$ 162,605	$ 170,000	$ 210,000	$ 210,000	$ 214,539	$ 219,169
							$ -	$ -
Low Income		$ 14,684	$ 109,132	$ 105,000	$ 145,000	$ 145,000	$ 148,134	$ 151,331
Market Transformation and Energy Management		$ 9,944	$ 8,337	$ 100,000	$ 120,000	$ 120,000	$ 122,594	$ 125,240
Audit (including Audit Committee)		$ 165,422	$ 207,068	$ 215,000	$ 215,000	$ 215,000	$ 219,647	$ 224,388
Joint Evaluation Research		$ 214,170	$ 186,633	$ 150,000	$ 170,000	$ 170,000	$ 173,675	$ 177,423
Evalution Advisory Forum and Consultative		$ 104,136	$ 48,019	$ 250,000	$ 250,000	$ 250,000	$ 255,404	$ 260,916
Grand Total		**$731,009**	**$1,010,131**	**$ 1,500,000**	**$ 1,700,000**	**$ 1,700,000**	**$ 1,736,746**	**$ 1,774,228**

b) Consideration of the aggregate and individual categories for the Evaluation budget included the total cost of Evaluation as a proportion of the total DSM budget for each year, internal resources, pending Board governance structure, historical costs and key priority areas.

Witnesses: R. Idenouye
K. Mark
S. Moffat
F. Oliver-Glasford
R. Sigurdson

SEC INTERROGATORY #4

INTERROGATORY

Topic 6 - Program Evaluation

Reference: Ex. B/1/2, p. 25

Please advise whether Enbridge agrees that, as a general rule, the discussions at the audit committee and at any committee advising on evaluation studies (i.e. any successor to the TEC) should be public, on the record, and fully transparent. Please provide a detailed explanation of any categories of information for each committee that in Enbridge's view have to be protected through confidentiality, and the reasons for confidentiality in each case. Where possible, please make specific reference to the Board's confidentiality rules.

RESPONSE

Enbridge agrees that as a general rule the discussions at the audit committee and at any committee advising on evaluation studies (i.e., any successor to the Technical Evaluation Committee ("TEC") should be public, on the record and fully transparent. The following are areas of information that Enbridge views as requiring protection through confidentiality. These are in line with TEC endorsed guidelines as per the 2014 4th Quarter TEC report which is available on the Ontario Energy Board's website: http://www.ontarioenergyboard.ca/documents/TEC/Quarterly%20TEC%20Reports/TEC%202014%20Q4%20Report.pdf

- Portions of meetings may occur under privilege, contingent on Committee consensus.
- Discussions involving opinions on vendors should remain privileged.
- When consensus through negotiation is reached, members can disclose information about their own negotiating positions but not the negotiating positions of others.

In addition, Enbridge has an obligation to protect information which is perceived to be commercially sensitive for our customers.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

SEC INTERROGATORY #25

INTERROGATORY

Topic 6 - Program Evaluation

Reference: Ex. B/2/2, p. 2

Please advise if Enbridge has any specific proposals with respect to stakeholder involvement in supervision of the annual audit, or supervision of evaluation and other studies. In EB-2015-0029, Union Gas has made specific proposals to continue with the audit committee, and modify the TEC to become the Evaluation Advisory Forum. Please provide Enbridge's views on those proposals in as much detail as possible.

RESPONSE

While Enbridge did not put forth a specific proposal, the Company suggested a number of principles for the Board's consideration in all stakeholder processes moving forward in the Multi-year filing (Exhibit B, Tab 1, Schedule 2, p. 25). Those principles are as follows:

a) Transparency and openness;
b) For evaluation work, a heavy weighting on members with objective evaluation expertise, but inclusive of an intervenor(s), the gas utilities, and Board staff;
c) For audit work, continuing on with the currently productive process of an Audit Committee comprising intervenors and the Company, but with inclusion of a Board Staff member;
d) For program design, including a broader range of stakeholders in discussions to promote a more inclusive and continuously improving dialogue, leading ultimately to improved results;
e) Including Board Staff as an active member and/or coordinator on various committees and during stakeholder engagement activities;
f) Scaling the level of stakeholder engagement and Board oversight activities relative to the risks and rate/customer impacts. Stated differently, the resources and level of effort that is invested should differ according to the nature and potential impact of an issue;
g) Being cognizant of the concerns and investment of time of parties to help foster constructive working relationships, groups and committees;
h) Be accommodating so as to allow differences to be communicated; and

Witnesses: F. Oliver-Glasford
R. Sigurdson

i) Be consensus oriented by striving for mutual wins or productive compromises. While achieving a consensus is a goal, it may not always be possible. In such a case, the Company, as the entity ultimately accountable for its DSM activities must have the ability to determine that sufficient effort has been employed attempting to reach a consensus and that further efforts are not likely to produce results.

Witnesses: F. Oliver-Glasford
R. Sigurdson

SEC INTERROGATORY #26

INTERROGATORY

Topic 6 - Program Evaluation

Reference: Ex. B/2/2, p. 5

Please extend the table to include the years 2011 through 2015.

RESPONSE

The categories established for the 2016 to 2020 Estimated Process and Impact Evaluation Budget were done so with consideration of the new DSM Framework and Enbridge's Multi-Year Plan. As such they differ from those filed and approved as part of previous DSM filings. However, Enbridge has attempted to translate information from 2011 to 2015 into the chart as requested. Note, an Evaluation budget was not specified in EB-2010-0175, which involved the Company's 2011 DSM Plan, and is therefore not included in the table below.

Witnesses: F. Oliver-Glasford
R. Sigurdson

2012-2015 Evaluation Budget and 2016 - 2020 Estimated Process and Impact Evaluation Budget

Program/Category	Description	2012	2013	2014	2015*	2016	2017	2018	2019	2020
Resource Acquistion										
	Residential	$ 150,760	$ 105,000	$ 97,000	$ 98,940	$ 220,000	$ 260,000	$ 260,000	$ 265,620	$ 271,352
	Commercial	$ 212,187	$ 323,152	$ 255,300	$ 260,406	$ 290,000	$ 330,000	$ 330,000	$ 337,133	$ 344,409
	Industrial	$ 129,187	$ 217,500	$ 141,400	$ 144,228	$ 170,000	$ 210,000	$ 210,000	$ 214,539	$ 219,169
									$ -	$ -
Low Income		$ 20,000	$ 45,000	$ 35,000	$ 35,700	$ 105,000	$ 145,000	$ 145,000	$ 148,134	$ 151,331
Market Transformation and Energy Management		$ 20,000	$ 35,000	$ 25,200	$ 25,704	$ 100,000	$ 120,000	$ 120,000	$ 122,594	$ 125,240
Audit (including Audit Committee)						$ 215,000	$ 215,000	$ 215,000	$ 219,647	$ 224,388
Joint Evaluation Research		$ 197,965	$ 90,000	$ 361,797	$ 369,033	$ 150,000	$ 170,000	$ 170,000	$ 173,675	$ 177,423
Evalution Advisory Forum and Consultative						$ 250,000	$ 250,000	$ 250,000	$ 255,404	$ 260,916
Grand Total		**$ 730,099**	**$ 815,652**	**$ 915,697**	**$ 934,011**	**$ 1,500,000**	**$ 1,700,000**	**$ 1,700,000**	**$ 1,736,746**	**$ 1,774,228**

*please refer to Board Interrogatory #13 found at Exhibit I.T3.EGDI.STAFF.13

BOARD STAFF INTERROGATORY #26

INTERROGATORY

Topic 7 – Input Assumptions

Ref: Exhibit B / Tab 2 / Schedule 2 / pp. 49-42
EB-2014-0354 / New and Updated DSM Measures

Questions:

a) Where applicable, please provide an estimate of the simple payback period, before and after the financial incentive is applied, for each offer/initiative during the 2015-2020 period.

b) Please indicate the free ridership rate applied to the Run-it-Right offering, and for all other offerings in which free ridership rates deviate from, or are not provided for in, EB-2014-0354.

c) For all of Enbridge's program offerings:
   i. Please discuss what actions Enbridge is taking to minimize free ridership.
   ii. Please discuss the factors that Enbridge considers in establishing that a customer is not a free rider.
   iii. Please discuss whether, and how, the payback period or other financial metrics and market penetration of technologies were considered in the design of Enbridge's programs.

RESPONSE

a) Simple payback cannot be provided for each (offer/initiative) measure as it would vary project by project, or offer/initiative as it would reflect gas only payback. As stated in EB-2014-0277 Enbridge's reply submission, page 5 of the Attachment from the Auditor, Optimal Energy Inc.

> Gas-only payback" refers to the payback resulting if no other benefits or costs were derived from a measure/project other than the gas savings and the incremental project cost.
>
> In actual practice, customer payback will typically vary from this because many measures/projects include significant other benefits and costs faced by customers that are not included in this analysis. As a result, these values provide little rigorous evidence or indication by themselves of what might have driven customer decisions.

Witnesses: R. Idenouye
F. Oliver-Glasford
R. Sigurdson

b) The free ridership rate applied to the Run-it-Right offering is equal to 0%. This free ridership rate was established and accepted by the Auditor and AC in the 2013 Audit (EB-2014-0277). The free ridership rate applied for Low Income Weatherization is 0% - this rate was established and accepted by the Technical Evaluation Committee ("TEC").[EB-2014-0354]

c) (i) and (ii) As stated in EB-2014-0277 Enbridge's reply submission "input assumptions which are approved by the Ontario Energy Board are, in the case of free rider rates, approved on a market sector (i.e., aggregate) basis not on a project by project basis". Please refer to this submission (EB-2014-0277) for more on the Company's approach to free ridership.
(iii) Please refer to BOMA Interrogatory #15 filed at Exhibit I.T2.EGDI.BOMA.15

Witnesses: R. Idenouye
F. Oliver-Glasford
R. Sigurdson

BOMA INTERROGATORY #63

INTERROGATORY

Topic 7 – Input Assumptions

Reference Ibid, page 41. Please specify the input assumptions that are subject to adjustment.

RESPONSE

Please see the response to GEC Interrogatory #18 found at Exhibit I.T7.EGDI.GEC.18.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

ENERGY PROBE INTERROGATORY #25

INTERROGATORY

Topic 7 – Input Assumptions

Reference.: Exhibit B, Tab 1, Schedule 4, Page 41, TAF Adjustments

Please provide in live Excel format illustrative examples of hypothetical TAF adjustments for Residential and for Low Income RA sub-sectors.

RESPONSE

Please see the response to Board Staff Interrogatory # 8 found at Exhibit I.T2.EGDI.STAFF.8 for a hypothetical example of the TAF calculation. The mechanics of the TAF would operate the same for Residential, Low Income or any other target within Enbridge's scorecards which uses a metric of cumulative cubic metres ("CCM").

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

GEC INTERROGATORY #18

INTERROGATORY

Reference: Exh. B/T1/S4 pp. 40-41: Regarding the Company's proposed target adjustment factor (TAF):

a. Please identify which of the following input factors is the Company proposing be subject to the TAF and why :

   i. Prescriptive (TRM) measure savings and measure lifetime assumptions
   ii. Custom savings estimates
   iii. Net to gross (or free ridership) assumptions
   iv. Others (specify)

b. Please provide an Excel spreadsheet that shows, for each year, the measure by measure build-up of the Company's proposed savings targets. Please highlight in the spreadsheet the specific assumptions that would be subject to the TAF.

RESPONSE

a) Enbridge has proposed that the Target Adjustment Factor ("TAF") apply to all input assumptions and adjustment factors which contribute to the calculation of Cumulative Cubic Metres ("CCM") of gas saved through DSM. This will include prescriptive measure savings, measure life assumptions, and adjustment factors such as net to gross (or free ridership) and persistence. To the degree that custom savings calculations also incorporate pre-set, standard, or replicable input assumptions across multiple projects of a similar nature, those assumptions would also be subject to the TAF.

For an explanation of why the Company believes the application of the TAF is appropriate please see Enbridge's response to Board Staff IR#8, filed as Exhibit I.T2.EGDI.STAFF.8.

b) Enbridge did not develop its DSM targets based upon a specific measure by measure build up. Rather, Enbridge used a combination of past results, exhibited trends in achievement, knowledge of and experience in the market, the DSM Potential Study, the Board's guidance in the DSM Framework, and other inputs as appropriate to propose offer-level targets which it found to be highly challenging, but achievable at the 100% target level.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

Please see Enbridge's response to GEC Interrogatory #16, filed at Exhibit I.T2.EGDI.GEC.16, for commentary on the development of gas savings targets.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

SEC INTERROGATORY #1

INTERROGATORY

Topic 7 - Input Assumptions

No Reference

Please provide a detailed list of all cumulative savings results in the Enbridge 2014 Annual DSM Report that are derived in whole or in part using the Enbridge e-tools software. Please confirm that Enbridge plans to continue to use e-tools for 2016 and subsequent years. With respect to e-tools:

a. Please provide a list of all measures on the current Input Assumptions list for which e-tools is used to calculate savings from projects.

b. Please provide the full source code for the software.

c. Please provide a complete list of all assumptions used in the software, including without limitation software for operating conditions, useful life, baseline, and any other factors.

d. Please provide all of the algorithms used in the e-tools software to convert data, whether project specific or assumed, into savings.

e. Please advise how many Enbridge employees are trained in the e-tools software and have full access to the source code and all underlying assumptions and algorithms.

f. Please provide a list of all third parties, including but not limited to auditors, evaluation consultants, intervenor representatives, and others, who have been given full access to the source code and all underlying assumptions and algorithms.

Witnesses: D. Bullock
R. Idenouye
R. Sigurdson
T. Whitehead
A. Zaidi

RESPONSE

The following is a chart illustrating all the cumulative savings results in Enbridge's 2014 Annual DSM Report that are derived in whole or in part using the Enbridge e-tools software:

Program	Sector	Total Net CCM (m3)	Portion of CCM results where E-tools used in whole or in part to determine savings	Further portion of CCM results where E-tools used for process/ documentation
Resource Acquisition	Residential			
	Home Energy Retrofit	89,690,562	-	-
	Commercial			
	Commercial Custom	296,577,536	210,788,993	46,277,945
	Commercial Prescriptive	81,487,407	20,562,782	-
	Run It Right	3,125,440	-	-
	Industrial			
	Industrial Custom	177,320,144	20,247,670	-
	Industrial Prescriptive	7,598,262	-	-
Low Income	Single Family (Part 9)	25,673,499	-	-
	Multi-Residential (Part 3)	28,881,691	13,429,754	13,613,552
	Grand Total	710,354,541	265,029,199	59,891,497

Enbridge plans to continue to use e-tools for 2016 and subsequent years.

With respect to e-tools:

a. The measures on the current Input Assumptions list for which e-tools is used to calculate savings from projects are as follows:

Witnesses: D. Bullock
R. Idenouye
R. Sigurdson
T. Whitehead
A. Zaidi

Sector	New/Existing	Efficient Equipment	Details of Efficient Equipment
Low income	Existing	Prescriptive High Efficiency Boiler - Space Heating	83-84% Efficient, 300-2000 MBH
Low income	Existing	Prescriptive High Efficiency Boiler - Space Heating	85-88% Efficient, 300-2000 MBH
Low income	New	Prescriptive High Efficiency Boiler - Space Heating	83-84% Efficient, 300-2000 MBH
Low income	New	Prescriptive High Efficiency Boiler - Space Heating	85-88% Efficient, 300-2000 MBH
Commercial	New/Existing	Condensing Make Up Air Unit - MR and LTC	Conventional MUA with constant speed drive
Commercial	New/Existing	Condensing Make Up Air Unit - Retail and Comm	Conventional MUA with constant speed drive
Commercial	Existing	Prescriptive Higher Efficiency Boiler - Space Heating	83-84% Efficient, 300-2000 MBH
Commercial	Existing	Prescriptive Higher Efficiency Boiler - Space Heating	85-88% Efficient, 300-2000 MBH
Commercial	New	Prescriptive Higher Efficiency Boiler - Space Heating	83-84% Efficient, 300-2000 MBH
Commercial	New	Prescriptive Higher Efficiency Boiler - Space Heating	85-88% Efficient, 300-2000 MBH
Commercial	Existing	Prescriptive Schools - Elementary	hydronic boiler with 83%+ thermal efficiency
Commercial	Existing	Prescriptive Schools - Secondary	hydronic boiler with 83%+ thermal efficiency

b/c/d.

Enbridge respectfully declines to provide the full source code, list of assumptions and algorithms used in the e-tools software. E-tools is a process tool that links to other internal databases and external technical sources and references. It is therefore unlikely that a person that is unfamiliar with the model and systems will be able to generate credible and transparent results without assistance from Enbridge. This could create a situation where the effort to deconstruct a result and figure out how it was arrived is outweighed by the value of what was done. Further it is important to note that as recommended in the 2013 Audit (EB-2014-0277) and as subsequently discussed with TEC members, Enbridge is undertaking a third-party independent review of the Commercial boiler seasonal efficiency module of the e-tools software for consistency with acceptable engineering practice. It is anticipated that this work will be completed towards the end of 2015.

Enbridge suggests that a more prudent approach to this request may be for the Company to conduct a comprehensive walk-through of the tool for SEC and/or other parties during which questions with respect to the request made in b, c and d can be appropriately addressed. This is not unlike tutorials conducted for other third parties as indicated in the response to question (f).

e. There are 29 Enbridge employees that are trained on the e-tools software. Access to source code and all underlying assumptions and algorithms is restricted to 5 Enbridge employees within the DSM technical group.

Witnesses: D. Bullock
R. Idenouye
R. Sigurdson
T. Whitehead
A. Zaidi

f. The following third parties, which include Auditors and Custom Project Verification Savings Technical Evaluators and consultants, have reviewed the underlying assumptions, source code, and / or algorithms over the course of the previous framework:

- Optimal Energy Inc.,
- Energy & Resource Solutions Inc. (ERS)
- ICF Consulting Canada Inc. (formerly Marbek)
- MMM Group Ltd.,
- Building Innovation Inc.,
- Cole Engineering Group Ltd.,
- Byron J. Landry & Associates Inc.,
- WSP Canada Inc. (formerly Genivar),
- Armco Solutions Inc. (Mark Armstrong).

Witnesses: D. Bullock
R. Idenouye
R. Sigurdson
T. Whitehead
A. Zaidi

VECC INTERROGATORY #24

INTERROGATORY

Topic 7 – Input Assumptions

Ref: B-2-6 Page 2 Input Assumptions

a) Please provide the status of the new and updated DSM Measures Application EB-2014-0354.

b) Please discuss the impact on the current application if the final new and updated measures differ from those set out in the EB-2014-0354 filing.

RESPONSE

a) EB-2014-0354 was filed with the Board on March 27, 2015. The next step as per Procedural Order #1 issued by the Board on May 11, 2015 is stated below:

> Unless the OEB orders otherwise, OEB staff and intervenors wishing to file a written submission shall do so by June 23, 2015. Any submission should be filed with the OEB and copied to Union and Enbridge and intervenor(s).

b) Enbridge has proposed the use of a Target Adjustment Factor ("TAF") throughout the multi-year plan. Should the new and updated measures differ from those set out in the EB-2014-0354, Enbridge will use the TAF to adjust targets accordingly. For more information on the TAF, please refer toEB-2015-0049, Exhibit B, Tab 1, Schedule 4, page 40 to 41 and Enbridge's response to Board Staff Interrogatory #8, filed as Exhibit I.T2.EGDI.STAFF.8.

Witnesses: F. Oliver-Glasford
B. Ott
R. Sigurdson

BOMA INTERROGATORY #13

INTERROGATORY

Topic 8 – Cost-Effectiveness Screening

Ref: Exhibit B, Tab 1, Schedule 4, page 6 of *41*.

In conforming to the Framework direction to not limit efforts only to those activities which are the most cost-effective but to pursue all cost effective opportunities, what cost effective opportunities are not being pursued. Please indicate how the limitations on budgets and typical residential bill impacts limited Enbridge's ability to pursue all cost effective opportunities. Please discuss fully.

RESPONSE

In Enbridge's view, the limitation on pursuing "all" cost effective opportunities is related to budget and human resources, and it is not a function of measures or offers that have been discarded or declined. Further, Enbridge believes that as a matter of practicality the Company could not capture literally "all" cost-effective DSM opportunities within its franchise area in a single year, or even a handful of years. The Company believes however, that its current proposal represents the right balance between costs and targets to achieve a significant proportion of all cost effective opportunities, and is further in line with the Board's guidance regarding key priorities, guiding principles and budget guidelines outlined in the DSM Framework.

For further discussion of the elements within Enbridge's Multi-Year DSM Plan which are relatively less cost-effective than past results please see the Company's response to VECC Interrogatory #22, filed as Exhibit I.T8.EGDI.VECC.22.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

BOMA INTERROGATORY #14

INTERROGATORY

Topic 8 – Cost-Effectiveness Screening

Ref: Exhibit B, Tab 1, Schedule 4, page 15 of 41.

> "*The Board's direction to pursue all cost-effective DSM and tailor offers to customers with significant barriers to entry (such as small business customers) indicates that smaller consuming markets should be a priority in Enbridge's 2015 to 2020 DSM Plan, regardless of the fact that they are comparatively less cost-effective than offers directed at large commercial and industrial customers. Providing these markets their own CCM target will cement their importance within the Company's DSM portfolio.*"

Please provide the analyses that indicate that programs for small consuming customer are comparatively less cost effective than offers directed at large customers. Please indicate the free rider rate associated with smaller consuming customers compared to large customers. When was a free rides study for small consumer customers completed? Please file.

RESPONSE

Table 1: Projected cost effectiveness of large C&I versus small C&I customers

	Cost Effectiveness					
Resource Acquisition	**2015 $/CCM**	**2016 $/CCM**	**2017 $/CCM**	**2018 $/CCM**	**2019 $/CCM**	**2020 $/CCM**
Large C&I Customers (Blended)	N/A	$0.0123	$0.0126	$0.0128	$0.0130	$0.0132
Small C&I Customers (Blended)	N/A	$0.0414	$0.0417	$0.0417	$0.0417	$0.0417

2015 Cost Effectiveness based on 2015 Roll Over submission for budgets and targets

As per the above table, the cost effectiveness for large C&I customers is projected to be comparatively higher each year from 2016 to 2020 inclusive versus the small C&I customers.

The current free rider rates are listed in the assumptions table filed jointly with Union Gas on 2015-03-27 in the New and Updated DSM Measures Application: EB-2014-0354, Exhibit B, Tab 1, Schedule 2, as referenced in the application at Exhibit B, Tab 2, Schedule 6.

The Company is using the free rider rate determined for the Commercial sector, which is 12%.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott
R. Sigurdson

CCC INTERROGATORY #26

INTERROGATORY

Topic 8 - Cost-Effectiveness Screening

Reference: (Ex. B/T1/S4)

For each year 2010-2020 please provide the cost to achieve a cubic meter of gas savings for the residential programs.

RESPONSE

Please see the table provided below:

Year	Sum of Cumulative Cubic Metres (CCM)	Sum of Residential Program Spend	Sum of Cost per CCM
2010	79,164,587.12	$4,607,752.94	$0.06
2011	77,549,103.00	$4,362,834.89	$0.06
2012	36,108,688.53	$2,903,754.73	$0.08
2013	38,980,520.86	$2,376,897.10	$0.06
2014	89,690,562.24	$8,605,657.40	$0.10
2015	12,024,643.06	$1,872,720.00	$0.16
2016	126,487,337.46	$27,994,658.66	$0.22
2017	184,335,000.00	$33,069,716.00	$0.18
2018	240,223,240.74	$37,724,634.73	$0.16
2019	251,818,590.12	$38,479,127.42	$0.15
2020	261,248,521.15	$39,248,709.97	$0.15

* For Residential existing programs.

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

CCC INTERROGATORY #30

INTERROGATORY

Topic 8 - Cost-Effectiveness Screening

Reference: (Ex. B/T2/S1/p. 25)

Please provide the annual DSM benefits and costs for a customer that participates in EGD's HEC program. Please provide the annual DSM costs and benefits for an EGD residential consumer that is not a participant in the HEC program.

RESPONSE

Enbridge's HEC offer is holistic in nature incorporating a wide variety of deep saving measures and, as a result, it is difficult to pinpoint what a typical residential participant would experience in terms of benefits and costs. However, for the purpose of conducting the TRC Plus test the total net present value of lifetime natural gas, electricity and water savings for the HEC offer in 2016 is $23.6 million, while the incremental costs to the customer, after receiving an incentive from Enbridge, is $10.9 million.

For both participants and non-participants, the cost of Enbridge's DSM Programs are embedded in rates. For an analysis of the bill impacts of DSM for residential customers throughout the Multi-Year Plan please see Exhibit B, Tab 2, Schedule 4. The benefits to non-participants are largely societal in nature and include impacts such as environmental benefits through reduced greenhouse gas emission, societal benefits, particularly for low income consumers, and economic stimulus.

Witnesses: S. Bertuzzi
M. Lister
K. Mark
S. Moffat
R. Sigurdson

ENERGY PROBE INTERROGATORY #16

INTERROGATORY

Topic 8 – Cost-Effectiveness Screening

Reference.: Exhibit B, Tab 1, Schedule 4, Page 2 and Exhibit B, Tab 2, Schedule 1

Preamble: Enbridge's DSM portfolio in 2016 and beyond include [inter-alia]- A more balanced portfolio which values the achievement of all cost-effective DSM as opposed to only those opportunities with the highest levels of cost-effectiveness.

a) Please describe/discuss at a policy strategic level what *Portfolio* means in this context e.g. Is/are the portfolio(s) sectoral, or as per Table 1 2016 Budget (page 3) Program- RA, LI and MT, or are they otherwise defined e.g. Exhibit B Tab 2 Schedule 1 Page 3

b) Having defined the Portfolio(s) please indicate for each Portfolio what Cost Effective means in quantitative terms at the portfolio level. Please be specific as to which cost effectiveness criteria, tests or metrics should/will be used to develop and measure portfolio Cost Effectiveness.

c) In your responses please provide specific references to the Board DSM Framework and Guidelines and the Ministers Direction.

RESPONSE

a) Within the context cited above, the word Portfolio is intended to represent Enbridge's entire suite of DSM offers across all Programs and sectors.

b) In response to Energy Probe's inquiry, Enbridge wishes to delineate between the cost-effectiveness tests mandated by the Board as a threshold for approval of a DSM Program, and use of the term cost-effectiveness more generally. In regard to the former, Enbridge acknowledges the Board's direction to screen DSM Programs using the TRC Plus and, for the purpose of analysis, PAC tests, and has filed evidence in Exhibit B, Tab 2, Schedule 3 outlining the results of the above noted analysis. In regards to the latter, the Company points out that there can be many definitions of cost-effectiveness, regardless of what test or measures officially deem a DSM Program to be cost-effective or not cost-effective. These varied definitions of cost-effectiveness can include tests, such as the TRC Plus and PAC tests, but can also include measurements such as CCM/$.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

With respect to the specific excerpt referenced by Energy Probe, the Company was in this instance making use of the term cost-effectiveness in a general sense, without specific reference to a particular test for cost-effectiveness as mandated by the Board.

c) Please see Enbridge's response to b) above.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

ENERGY PROBE INTERROGATORY #30

INTERROGATORY

Topic 8 – Cost-Effectiveness Screening

Reference: Exhibit B, Tab 2, Schedule 3 - TRC+ and PAC Screening

a) Please provide Formulas and input assumptions.

b) Please provide, preferably in live Excel Format, the 2016 Worksheets for each of RA Low volume and Low Income. Include sources of assumptions and relate data to the respective Budgets and Scorecard metrics.

RESPONSE

a) Enbridge's input assumptions have been filed jointly with Union in EB-2015-0354. The formulas for the TRC-Plus and PAC tests can be found in section 9 of the DSM Filing Guidelines.

b) The worksheets requested above are integrated within an excel-based model built by Enbridge for the purpose of developing the Multi-Year DSM Plan. The model is linked to internal source documents and may not function correctly if distributed external to the Company. Further, the model has a high degree of complexity and depth. As a result, without significant knowledge and expertise regarding the composition and use of Enbridge's model the Company believes that a user would be likely to create dubious outcomes, working counter to the Board's efforts to evaluate evidence in this proceeding.

Respectfully, Enbridge must decline Energy Probe's request to provide these tables in excel spreadsheet format. However, the Company would be amenable to walking Energy Probe through the spreadsheet at their request.

Witnesses: K. Mark
S. Moffat
B. Ott

GEC INTERROGATORY #8

INTERROGATORY

General: Please provide in original electronic form a copy of Enbridge's annual "TRC spreadsheets" (i.e. the annual Excel file which is the companion the Company's annual evaluation report that documents, program by program and measure by measure, actual program performance in terms of savings, as well as spending and cost effectiveness screening results) for 2012, 2013 and 2014. For 2014, please provide the most recent and most accurate version (in the event that it is not yet fully adjusted to address audit recommendations)?

RESPONSE

Enbridge has provided as attachments the above noted excel spreadsheets for 2012, 2013 and 2014 commonly referred to as the "TRC spreadsheets" directly to GEC via email, copying the Board. Should any other interested party wish to receive these documents the Company requests they contact Enbridge directly. Enbridge has modified these documents to ensure that no customer information has been shared, but has left formulas intact. As implied above Enbridge's 2014 results are subject to change as a result of the audit, ensuing discussions with the Audit Committee, and ultimately a Clearance of Accounts proceeding before the Ontario Energy Board.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

GEC INTERROGATORY #27

INTERROGATORY

Topic 8 – Cost Effectiveness Screening

Reference: Exh. B/T2/S3

a. Please provide a definition of what each of the column headings in Tables 1 through 5 means.

b. Please provide the Excel spreadsheets, in native form with formulas.

RESPONSE

a. Column headings are defined as follows:

Participants or Units Installed:
Depending on the offer, this refers to the total number of individuals or projects for which an incentive was paid. Custom offers tend to measure participants whereas prescriptive offers tend to measure units installed.

Total NPV Benefits:
Sum of all avoided energy consumption (i.e. gas, water, electricity) over the measure life of all DSM measures / activities.

Total Incremental Costs:
Difference between participants' or projects' upgrade costs and the base cost absent DSM involvement.

Total Variable Costs:
Sum of incentives paid (e.g. for participants, contractors and distributors).

Total Fixed Costs:
Sum of marketing and ancillary business costs.

Total Administrative Costs:
Sum of overhead costs.

TRC Total Costs:
Sum of incremental, fixed and overhead costs.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

TRC Net Benefits:
Total Net Present Value Benefits less Total Costs.

TRC Ratio: TRC Net Benefit divided by Total Costs.

PACT Total Cost:
Total costs to administer the offer (administrative, variable and fixed costs).

PACT Net Benefit:
Total Net Present Value less PAC Total Costs.

PACT Ratio:
Total PAC Net Benefit divided by Total PAC Costs.

b. The tables located in Exhibit B, Tab 2, Schedule 3 are integrated within an excel-based model built by Enbridge for the purpose of developing the Multi-Year DSM Plan. The model is linked to internal source documents and may not function correctly if distributed external to the Company. Further, the model has a high degree of complexity and depth. As a result, without significant knowledge and expertise regarding the composition and use of Enbridge's model the Company believes that a user would be likely to create dubious outcomes. Enbridge further has concerns about the transparency of what would be done and its ability and that of the Board to evaluate the results.

   Respectfully, Enbridge must decline GEC's request to provide these tables in excel spreadsheet format. However, the Company would be amenable to walking GEC through the spreadsheet at their request.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

GEC INTERROGATORY #34

INTERROGATORY

Topic 8 - Cost Effectiveness Screening

Reference B/T1/S1 Enbridge states that its DSM programs since 1995 have helped customers save 8.8 billion m3 of natural gas.

a) Is the 8.8 billion cubic meters of gas savings the sum of the incremental annual savings from the 1995 through 2013 programs, the annual persisting savings in 2015 from programs run since 1995, the sum of the lifetime savings from each year's worth of programs from 1995 through 2013, or something else? If something else, please explain.

b) Please provide the annual (first-year) and cumulative gas savings for each year from 1995 to 2014.

c) Please provide the TRC net benefits associated with each year's savings, indicating what avoided costs were used to calculate those TRC results.

d) Please provide, in original electronic form with formulas intact, the computations used to arrive at both the net benefits and gas savings totals cited.

e) Please provide Enbridge's annual in-franchise total throughput volumes for each of the corresponding years.

RESPONSE

a) The 8.8 billion cubic meters of gas savings represents the sum of the lifetime gas savings m3 (aggregate of all years from 1995) assuming a 12 year lifetime.
b) Annual and cumulative gas savings:

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Fully Effective Annual Net Gas Savings (million m3)	3.87	18.82	18.60	36.18	52.05	58.86	79.60	78.76	77.54	62.70
Year	2005 (15 months)	2006	2007	2008	2009	2010	2011	2012	2013	2014**
Fully Effective Annual Net Gas Savings (million m3)	91.42	89.52	91.92	80.29	74.32	65.65	77.43	60.14	47.74	43.54

***Note: 2014 DSM results are pre-clearance and are not final. As a result, 2014 DSM results could be subject to change.*

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Cumulative Cubic Metres (million CCM)	58.06	282.29	278.95	542.69	780.70	882.88	1,193.98	1,181.42	1,163.17	940.45
Year	2005 (15 months)	2006	2007	2008	2009	2010	2011	2012	2013	2014**
Cumulative Cubic Metres (million CCM)	1,371.27	1,342.80	1,214.10	1,153.32	1,051.80	967.09	1,276.12	1,068.98	826.91	719.84

***Note: 2014 DSM results are pre-clearance and are not final. As a result, 2014 DSM results could be subject to change.*

Witnesses: K. Mark
S. Moffat
B. Ott

c) Total Resource Cost ("TRC") Net Benefits:

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Net TRC Benefits (million $)	4.73	24.03	23.77	54.78	57.14	74.62	166.32	147.50	125.93	135.96

Year	2005 (15 months)	2006	2007	2008	2009	2010	2011	2012	2013	2014**
Net TRC Benefits (million $)	195.67	180.67	199.80	182.71	215.83	184.59	173.18	167.68	79.37	89.62

***Note: 2014 DSM results are pre-clearance and are not final. As a result, 2014 DSM results could be subject to change.*

The avoided costs used to calculate Enbridge's TRC results are available in the DSM results spreadsheets provided in response to question (d).

d) Please see attachments to GEC IR #8, filed as Exhibit I.T8.EGDI.GEC.8 for the TRC spreadsheets relevant to 2012 through 2014. The Company has further provided TRC spreadsheets dating back to the year 2008. Due to: (i) the availability of spreadsheets from years in the distant past; (ii) the degree of effort required to ensure their accuracy with the public record: (iii) the need to modify the spreadsheets to function outside of Enbridge's systems; and (iv) the obligation to clear the sheets of any customer data the Company respectfully declines to provide TRC spreadsheets from 1995 to 2007. Enbridge will provide the above noted spreadsheets directly to GEC via email, copying the Board. Should any other interested party wish to receive these documents the Company requests they contact Enbridge directly.

e) Enbridge's annual in-franchise total throughput volumes as filed with the Board can be seen below.

Witnesses: K. Mark
S. Moffat
B. Ott

Year	Actual Volumes ($10^6 m^3$)
1995	10,390.40
1996	11,506.20
1997	11,527.10
1998	10,714.30
1999	10,992.00
2000	11,568.60
2001	11,738.00
2002	11,274.50
2003	12,646.20
2004	12,256.81
2005	12,166.00
2006	11,486.90
2007	12,073.30
2008	11,907.50
2009	11,334.80
2010	10,940.60
2011	11,503.30
2012	10,499.30
2013	11,558.00
2014	12,657.60

Witnesses: K. Mark
S. Moffat
B. Ott

GEC INTERROGATORY #35

INTERROGATORY

Topic 8 - Cost-Effectiveness Screening

Reference B/T1/S2 Enbridge's 2020 goal would reduce carbon emissions by 12 million tonnes.

a) Please restate Table 1 to provide annual savings in each of the Plan years and the corresponding carbon emission reductions.

b) Please provide Enbridge's forecasts of the total in-franchise throughput volumes in each of the years of the 2015-2020 DSM Plan.

RESPONSE

a)

Year	Budget (Millions $)	Cumulative Cubic Metres (CCM)	CO2 Reductions based on CCM [1]	Net Gas Savings (m3) [2]	CO2 Reductions based on Net Gas [1]
2015	$37,722,230	774,359,281	1,463,539	51,623,952	97,569
2016	$63,535,727	1,001,743,852	1,893,296	66,782,923	126,220
2017	$73,826,882	1,083,061,000	2,046,985	72,204,067	136,466
2018	$79,680,131	1,147,902,770	2,169,536	76,526,851	144,636
2019	$81,273,733	1,165,771,091	2,203,307	77,718,073	146,887
2020	$82,899,208	1,182,290,348	2,234,529	78,819,357	148,969
2020 Goals		**6,355,128,342**	**12,011,193**	**423,675,223**	**800,746**

1. Assumes that each m3 of natural gas consumed results in 1.89kg of carbon equivalent emissions, as per Guideline for Greenhouse Gas Emissions Reporting, Ontario Ministry of the Environment, December 2009
2. Assumes an average measure life of 15 years

b) Please see Exhibit B, Tab 2, Schedule 4, tables 2, 4, 6, 8, 10 and 12 for forecast throughput volumes from 2015 to 2020.

Witnesses: K. Mark
S. Moffat
B. Ott

VECC INTERROGATORY #22

INTERROGATORY

Topic 8 – Cost-Effectiveness Screening

Ref: B-2-3 Page 8

Preamble: Enbridge indicates that its DSM Plan seeks to balance cost-effectiveness alongside the Board's guiding principles and key priorities, many of which drive important activities which are less cost-effective than Enbridge's past results.

a) Please discuss the specific activities in the Plan that are less cost-effective than Enbridge's past results.

RESPONSE

Over the course of its DSM activities, Enbridge recognizes that the 'low-hanging fruit' in natural gas savings measures, in some markets, has been exhausted. For example, low flow shower heads and faucet aerators in the residential market, still offered by a number of utilities in other jurisdictions, saw a high degree of success in saturating the market. This was reflected by an increasing free rider rate over the course of the TAPS program, which eventually led to Enbridge phasing out the offer as delivered based on cost-effectiveness. As such, Enbridge moved to a deeper, more holistic approach to its residential market introducing, in consultation with stakeholders, the currently named Home Energy Conservation offer. This offer is less cost-effective than some of Enbridge's past residential DSM offers.

In addition to moving to harder to reach, deeper or more holistic offers which tend to be less cost-effective, the Company is also pursuing harder to reach segments. For example, Enbridge has developed its portfolio to more fully meet the needs of smaller commercial and industrial customers. Offers targeted to that market segment need to address significant barriers, which in turn drive market approaches – such as direct install approaches – and which lower cost-effectiveness relative to past results.

Lastly, overall the portfolio may be less cost-effective than in the past given the inclusion of education and literacy based initiatives which are expected to drive broader, indirect impacts versus direct, measurable results.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

BOARD STAFF INTERROGATORY #27

INTERROGATORY

Topic 9 – Avoided Costs

Ref: Exhibit B / Tab 2 / Schedule 5

Question:

a) Please provide the discount rate used for Enbridge's 2015-2020 avoided cost calculations.

RESPONSE

a) Enbridge used a 4% discount rate for the 2015-2020 avoided cost calculations. More details on this topic are found in the response to GEC Interrogatory #30 found at Exhibit I.T9.EGDI.GEC.30.

Witnesses: S. Mills
S. Moffatt
F. Oliver-Glasford

FRPO INTERROGATORY #4

INTERROGATORY

Topic 9 – Avoided Costs

Reference: Exhibit C, Tab 1, Schedule 4, Page 8 of 35

The Navigant report states: "*During the initial discovery stage of this assignment, it was concluded that Enbridge's existing avoided cost calculation methodology accurately captures all upstream avoided costs including transmission. The objective was subsequently modified from a study of both transmission and distribution avoided costs to only include the determination of the distribution or downstream avoided costs. Enbridge has calculated avoided transmission costs using a proprietary model (SENDOUT) since 1995, and plans to continue with this approach going forward.*"

Please provide the approach, methodology and underlying assumptions used to calculate the upstream and transmission costs.

RESPONSE

The avoided gas costs as shown in the table in Exhibit B, Tab 2, Schedule 5, follows the same methodology as shown in EB-2012-0394 Exhibit B, Tab 2, Schedule 2. /C
As indicated in Exhibit B, Tab 2, Schedule 5, page 1, Paragraph 2.

> …the Company is undertaking a complete update of the avoided natural gas costs, inclusive of the costs for transportation and storage in addition to commodity costs. This update will follow the methodology outlined in the 2015-2020 Guidelines, and will be filed with the Board by the Q4, 2015.

For the methodology and assumptions underpinning the calculation of the 2012 to 2014 DSM Plan, please refer to EB-2012-0394, Exhibit B, Tab 2, Schedule 2.

The 2012 to 2014 DSM Plan Avoided Costs were updated in accordance with the 2012 to 2014 Demand Side Management Guidelines ("DSM") for Natural Gas Utilities, Section 6.2.1, using commodity prices forecast by PIRA for NYMEX, Empress, Chicago and Dawn.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford

FRPO INTERROGATORY #5

INTERROGATORY

Topic 9 – Avoided Costs

Reference: Exhibit C, Tab 1, Schedule 4, Page 8 of 35

The Navigant report states: "*During the initial discovery stage of this assignment, it was concluded that Enbridge's existing avoided cost calculation methodology accurately captures all upstream avoided costs including transmission. The objective was subsequently modified from a study of both transmission and distribution avoided costs to only include the determination of the distribution or downstream avoided costs. Enbridge has calculated avoided transmission costs using a proprietary model (SENDOUT) since 1995, and plans to continue with this approach going forward.*"

Please provide the Navigant report and correspondence with the company that reports on Navigant's findings on the Enbridge approach, methodology and underlying assumptions that concludes that Enbridge's existing avoided cost calculation methodology accurately captures all upstream avoided costs including transmission.

RESPONSE

During the initial course of the study and the literature review conducted for the Avoided Distribution Cost study, Navigant, reviewed the existing avoided cost methodology and determined that based on their industry knowledge of avoided cost methodologies in other jurisdictions, that the methodology utilized by Enbridge was consistent with industry practices, and accurately captured all upstream avoided costs including transmission.

The discussions and subsequent conclusions regarding the current avoided cost methodology and revised project scope between Enbridge and Navigant happened during workshop planning meetings that included participants from the Distribution Planning, Energy Forecasting, and the DSM groups.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford

GEC INTERROGATORY #29

INTERROGATORY

Reference: Exh. B/T2/S5, p. 2 (paragraph 4):

Enbridge states that it is currently reviewing "an alternative approach to incorporation of a long-term market forecast for natural gas commodity prices into its avoided costs" which "would extend avoided cost estimates for the final 20 years of the program impacts."

a. What would be extended for the final 20 years that is not currently extended?
b. What is the "alternative approach" the company is considering?

RESPONSE

a) The current avoided cost methodology inflates the natural gas commodity price by 2% after the first 10 years of analysis.

Enbridge will review the possible inclusion of a long term commodity price forecast that will be based on reasonable predictions, concerning future natural gas price information resulting from an appropriate trading hub, or consultant service forecast for the Enbridge franchise area. This would be an alternative approach to the constant price escalation currently in effect.

b) See response to Part (a).

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford

GEC INTERROGATORY #30

INTERROGATORY

Reference: Exh. B/T2/S5, p. 3:

a. Are the avoided gas costs presented in the table the values used for cost effectiveness screening results presented in Exh. B/T2/S3? If not, what values were used for that analysis and why are they different than these?
b. Are the avoided gas costs presented in the table in nominal dollars (i.e. including inflation effects) or in real dollars (i.e. net of inflation effects, or with inflation backed out)?
c. Do the avoided costs presented include avoided transportation and avoided storage as well as avoided commodity costs? If not, why not?
d. Do the avoided costs presented in the table include the 15% non-energy benefits adder?
e. Regarding the discount rate was used to produce the NPV values in the table:
    i. What rate was used?
    ii. Is it a real discount rate or a nominal discount rate?
    iii. How was it derived? What is it based on?
f. Did Enbridge make any assumptions regarding inflation for the development of the gas avoided costs in the table? If so, what were the assumption? How were they used?
g. What methodology was used to derive the gas avoided costs in the table? Please provide all documents that describe the process used.
h. Regarding avoided commodity portion of the avoided gas costs presented in the table, what assumption was made regarding how prices will escalate through the year 2044? What were those assumptions based on?
i. Please provide all key input assumptions used to develop the gas avoided costs in the table.
j. Please provide in Excel form, with formulas intact, the analysis conducted to produce the values in the table.

RESPONSE

a. The avoided costs presented in the tables found in Exhibit B, Tab 2, Schedule 5 were used for the cost effectiveness screening results presented in Exhibit B, Tab 2, Schedule 3.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford

b. The avoided gas costs presented in the tables found in Exhibit B, Tab 2, Schedule 5 are in nominal dollars.

c. The avoided costs presented in the tables found in Exhibit B, Tab 2, Schedule 5 include the avoided transportation, storage and commodity costs.

d. The 15% non-energy benefits adder is not included in the 2015 Avoided Gas Table, found in Exhibit B, Tab 2, Schedule 5, Page 4. In accordance with the Filing Guidelines to the 2015 to 2020 DSM Framework EB-2014-0134 the Board indicates that Enbridge should screen its DSM Programs using the Total Resource Cost Plus ("TRC-Plus") Test as a primary screening mechanism. In the Filing Guidelines to the 2015-2020 DSM Framework EB-2014-0134 the Board "has determined that the natural gas utilities should screen prospective DSM programs using the Total Resource Cost-Plus ("TRC-Plus") test. The TRC-Plus test measures the benefits and costs of DSM programs for as long as those benefits and costs persist and applies a 15% non-energy benefit adder."[1].The 15% non-energy benefits adder is built-in separately into the TRC NPV Benefits calculation as show in the tables found in Exhibit B, Tab 2, Schedule 3.

e. i. A Discount Rate of 4% was used.
ii. The Discount Rate of 4% provided by the Board is a Real Rate, as found in the Filing Guidelines to the 2015-2020 DSM Framework, EB-2014-0134 "The Board is of the view that the gas utilities should use a discount rate (real) of 4% when screening prospective DSM programs to determine if they are cost-effective…"[2]
iii. Please see response to question e) sub question ii.

f. Please see response to GEC Interrogatory #29 part a) found at Exhibit I.T9.EGDI.GEC.29.

g. The avoided gas costs as shown in the table in Exhibit B, Tab 2, Schedule 5, follow the same methodology as shown in EB-2012-0394 Exhibit B, Tab 2, Schedule 2. /C

h. Please see response to GEC Interrogatory #29 part a) found at Exhibit I.T9.EGDI.GEC.29.

[1] Filing Guidelines to the 2015-2020 DSM Framework EB-2014-0134, Section 9.0 Cost-Effectiveness Screening, page 32
[2] IBID Section 10.1 Discount Rate, page 35

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford

i. The avoided gas costs as shown in the table in Exhibit B, Tab 2, Schedule 5, follow the same methodology as shown in EB-2012-0394 Exhibit B, Tab 2, Schedule 2. /C

j. Enbridge respectfully declines to provide the live model, but will respond to questions, provide clarifications and perform reasonable scenarios as requested.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford

GEC INTERROGATORY #33

INTERROGATORY

Reference: Exh. C/T1/S4 p. 4 of 35:

Navigant states "During the initial discovery stage of this assignment it was determined that Enbridge's upstream or transmission avoided costs are already fully and accurately captured in their existing avoided cost analysis."

a. What is the basis for this statement? How was this conclusion reached?
b. How is the kind of investment envisioned in the recent GTA pipeline case (and/or future needs like it) captured in Enbridge's current avoided cost estimates?

RESPONSE

a) During the initial course of the study, Navigant reviewed the existing avoided cost methodology and determined that the transmission, or upstream, avoided costs, such as commodity, transportation and storage costs, were fully captured in the existing avoided gas cost methodology.

b) For the purposes of the Avoided Distribution Cost Study, Enbridge provided Navigant with both actual and forecasted reinforcement expenditures. Reinforcement costs for larger projects such as the GTA Project were adjusted to reflect the proportion of the project costs that were directly attributable to load growth. The reinforcement costs of the GTA Project were captured in the costs shown in year 2015 in EB-2015-0049 Exhibit C, Tab 1, Schedule 4, Figure 3, page 17.

Witnesses: S. Mills
H. Thompson
F. Oliver - Glasford

GEC INTERROGATORY #42

INTERROGATORY

Topic 2 - DSM Targets

Reference B/T1/S5 Sensitivity scenarios

a) For each of the 9 scalable programs in each of the sensitivity scenarios what changes to incentive levels were assumed to be necessary to drive different savings levels?

b) What is the basis for the change in targets for each program in each sensitivity scenario?

c) If Enbridge relied upon studies, experience in other jurisdictions or any other documentation as the basis for increased savings, please describe how each was incorporated and provide copies.

RESPONSE

a) Please see Enbridge's response to GEC #19 b) found at Exhibit I.T2.EGDI.GEC.19.

b) Development of Enbridge's sensitivity analysis began with the modification of total budgets to generate three illustrative scenarios at 75%, 125% and 150% of the proposed DSM budget respectively. From there, cumulative cubic metres ("CCM") targets adjusted based on changing budgets for each of the scalable offers, incorporating a decay factor in CCM/$ as budgets increased to recognize the reality that the relationship between DSM budgets and targets is not a linear one; particularly in the case of budget increases of the magnitude illustrated in Enbridge's sensitivity analysis.

c) Enbridge relied on the Achievable Potential Study as the basis for understanding and accounting for a reasonable correlation between increased energy savings and increased budget. In this regard, Enbridge used Table 5 to19 in the Potential Study evidence found at Exhibit C, Tab 1, Schedule 1, page 132 of 160, to determine an appropriate correlation to determine a "decay factor". The basis of Enbridge's analysis can be seen on the following page:

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

Table: Extrapolated % Values from Table 5-9 of the Potential Study

Accumulative Budget & Achievable Potential by Scenario @ 2024

Scenario	Budget $M	% Budget increase	Savings Mm3	% Savings increase
A	312		882	
Base Case	350	11%	920	4%
C	385	9%	954	4%
D	424	9%	987	3%
E	465	9%	1021	3%
F	510	9%	1055	3%
G	562	9%	1089	3%
H	618	9%	1123	3%
I	676	9%	1156	3%
J	827	18%	1197	3%
K	1241	33%	1305	8%
L	1700	27%	1414	8%

Based on the total portfolio spend over the duration of the plan, Scenarios “C” through “E” were believed to provide the best signal, with “C” building in the most amount of stretch to sensitivity targets creating more aggressive sensitivity analysis target outcomes than other possible scenarios. For clarity, for every 9% of budget increase, savings increase by 4%. Using this correlation, decay factors were calculated and applied to the 125% and 150% scenarios.

Please see below an illustrative example examining a hypothetical 125% sensitivity scenario.

If a budget was to increase in an offer area by 31%, a decay factor would be determined in two steps:

1) Divide the budget increase by 9%, in this case 31% / 9% = 3.4; then,
2) Multiply the above result by 4%, to account for the corresponding decay factor in CCM savings, in this case 3.4 x 4% = 13.8%;
   Therefore, the CCM for an offer at the 125% scenario was calculated as follows:
   = (125% offer budget/($/CCM)) x (1-Decay Factor)

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

GEC INTERROGATORY #43

INTERROGATORY

Topic 9 – Avoided Costs

Ref: Exh. B/T2/S3, pp3-8 & B/T2/S5

a. Please provide a breakdown of the annual unit avoided costs by type (e.g., commodity, base capacity, storage, peaking capacity, T&D, CO2 costs).

b. Please provide all reports, analyses and workpapers supporting the avoided costs.

c. Please provide all source documents supporting the avoided costs.

d. If EGDI assumes that any avoided gas or other avoided costs originate in the US, priced in US dollars, please provide the Company's forecast of the foreign exchange rate from US to Canadian dollars.

e. Please explain how EGDI differentiates avoided gas costs between heating measures, baseload industrial measures, and any other load shapes for which EGDI developed avoided costs.

RESPONSE

a. Please see the table provided on the following page.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford

UNIT AVOIDED COSTS, BY TYPE, BY LOAD SHAPE, BY YEAR												
	Water Heating ($/m3)			Space Heating ($/m3)			Space & Water Heating ($/m3)			Industrial Process ($/m3)		
	Supply	Transportation	Storage	Supply	Transportation	Storage	Supply	Transportation	Storage	Supply	Transportation	Storage
2015	0.1461	0.0000	0.0011	0.1541	0.0000	0.0004	0.1528	0.0000	0.0005	0.1466	0.0000	0.0009
2016	0.1810	0.0066	0.0006	0.1972	0.0016	0.0006	0.1947	0.0022	0.0007	0.1822	0.0065	0.0004
2017	0.1965	0.0066	0.0007	0.2120	0.0016	0.0004	0.2094	0.0021	0.0005	0.1978	0.0065	0.0007
2018	0.2070	0.0063	0.0010	0.2225	0.0015	0.0010	0.2200	0.0021	0.0010	0.2088	0.0063	0.0008
2019	0.2218	0.0061	0.0004	0.2400	0.0013	-0.0011	0.2369	0.0018	-0.0009	0.2233	0.0060	0.0004
2020	0.2447	0.0061	0.0010	0.2874	0.0005	0.0011	0.2816	0.0012	0.0011	0.2470	0.0060	0.0010
2021	0.2598	0.0065	0.0010	0.2835	0.0005	0.0010	0.2796	0.0012	0.0011	0.2619	0.0064	0.0010
2022	0.2631	0.0066	0.0011	0.2871	0.0005	0.0011	0.2832	0.0012	0.0011	0.2652	0.0064	0.0010
2023	0.2541	0.0063	0.0010	0.2772	0.0005	0.0010	0.2734	0.0012	0.0011	0.2561	0.0062	0.0010
2024	0.2472	0.0062	0.0010	0.2697	0.0005	0.0010	0.2660	0.0011	0.0011	0.2491	0.0060	0.0010
2025	0.2521	0.0063	0.0010	0.2751	0.0005	0.0010	0.2713	0.0011	0.0011	0.2541	0.0062	0.0010
2026	0.2572	0.0064	0.0010	0.2806	0.0005	0.0010	0.2768	0.0012	0.0011	0.2592	0.0063	0.0010
2027	0.2623	0.0065	0.0010	0.2862	0.0005	0.0011	0.2823	0.0012	0.0011	0.2644	0.0064	0.0010
2028	0.2676	0.0067	0.0011	0.2919	0.0005	0.0011	0.2880	0.0012	0.0011	0.2697	0.0065	0.0010
2029	0.2729	0.0068	0.0011	0.2978	0.0005	0.0011	0.2937	0.0012	0.0012	0.2751	0.0067	0.0011
2030	0.2784	0.0069	0.0011	0.3037	0.0005	0.0011	0.2996	0.0013	0.0012	0.2806	0.0068	0.0011
2031	0.2839	0.0071	0.0011	0.3098	0.0005	0.0011	0.3056	0.0013	0.0012	0.2862	0.0069	0.0011
2032	0.2896	0.0072	0.0012	0.3160	0.0005	0.0012	0.3117	0.0013	0.0012	0.2919	0.0071	0.0011
2033	0.2954	0.0074	0.0012	0.3223	0.0006	0.0012	0.3179	0.0013	0.0013	0.2977	0.0072	0.0011
2034	0.3013	0.0075	0.0012	0.3287	0.0006	0.0012	0.3243	0.0014	0.0013	0.3037	0.0074	0.0012
2035	0.3073	0.0077	0.0012	0.3353	0.0006	0.0012	0.3308	0.0014	0.0013	0.3098	0.0075	0.0012
2036	0.3135	0.0078	0.0013	0.3420	0.0006	0.0013	0.3374	0.0014	0.0013	0.3160	0.0077	0.0012
2037	0.3197	0.0080	0.0013	0.3489	0.0006	0.0013	0.3441	0.0014	0.0014	0.3223	0.0078	0.0012
2038	0.3261	0.0081	0.0013	0.3558	0.0006	0.0013	0.3510	0.0015	0.0014	0.3287	0.0080	0.0013
2039	0.3327	0.0083	0.0013	0.3630	0.0006	0.0013	0.3580	0.0015	0.0014	0.3353	0.0081	0.0013
2040	0.3393	0.0085	0.0014	0.3702	0.0006	0.0014	0.3652	0.0015	0.0015	0.3420	0.0083	0.0013
2041	0.3461	0.0086	0.0014	0.3776	0.0007	0.0014	0.3725	0.0016	0.0015	0.3488	0.0085	0.0013
2042	0.3530	0.0088	0.0014	0.3852	0.0007	0.0014	0.3799	0.0016	0.0015	0.3558	0.0086	0.0014
2043	0.3601	0.0090	0.0014	0.3929	0.0007	0.0015	0.3875	0.0016	0.0015	0.3629	0.0088	0.0014
2044	0.3673	0.0092	0.0015	0.4007	0.0007	0.0015	0.3953	0.0017	0.0016	0.3702	0.0090	0.0014

b. Please refer to EB-2012-0394, Exhibit. B, Schedule 2, Tab 2.

c. Please refer to the response to part (b) of GEC Interrogatory #43 found at Exhibit I.T9.EGDI.GEC.43.

d. For the EB-2012-0394, Exhibit B, Schedule 2, Tab 2 Avoided Costs evidence, a foreign exchange rate of US$1 = C$0.98. For the EB-2015-0049, Exhibit B, Schedule 2, Tab 5, Avoided Costs evidence, a foreign exchange rate of US$1 = C$1.24.

e. Enbridge's Avoided Cost load shapes consist of Water Heating, Space Heating, Space and Water Heating, and Industrial Process. Within the TRC-Plus test, offers and measures (or technologies) are mapped to the most appropriate avoided cost load shape profile. For instance industrial process measures would be mapped to the Industrial Process load shape profile.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford

GEC INTERROGATORY #44

INTERROGATORY

Topic 9 – Avoided Costs

Ref: Exh. B/T2/S3

a. Please provide all forecasts of gas commodity prices at hubs relevant to the pricing of EGDI's marginal gas sources produced since January 2014 and in the possession of EGDI.

b. For each pricing point for which EGDI has access to futures or forward prices, please provide the most recent futures or forward prices for natural gas available to EGDI for each exchange or broker for which EGDI has such data.

c. Please provide the most recent futures or forward prices for natural gas basis from major trading points to trading hubs relevant to EGDI, for each exchange or broker for which EGDI has such futures or forward prices.

RESPONSE

a. Enbridge obtains its commodity price forecasts under a contract with the PIRA Energy Group. This Contract does not allow the Company to publicly disclose the forecasts as requested absent there being an order from the Board requiring the information to be treated confidentially and not disclosed publicly. The Company is therefore not at liberty to provide the information requested. As noted in evidence, given that its avoided costs are in the process of being updated with the intent of filing an update with the Board in Q4 of 2015, the Company questions the appropriateness and relevance of making a formal request for confidential treatment of the PIRA commodity price forecasts at the various hubs for the purposes of this proceeding.

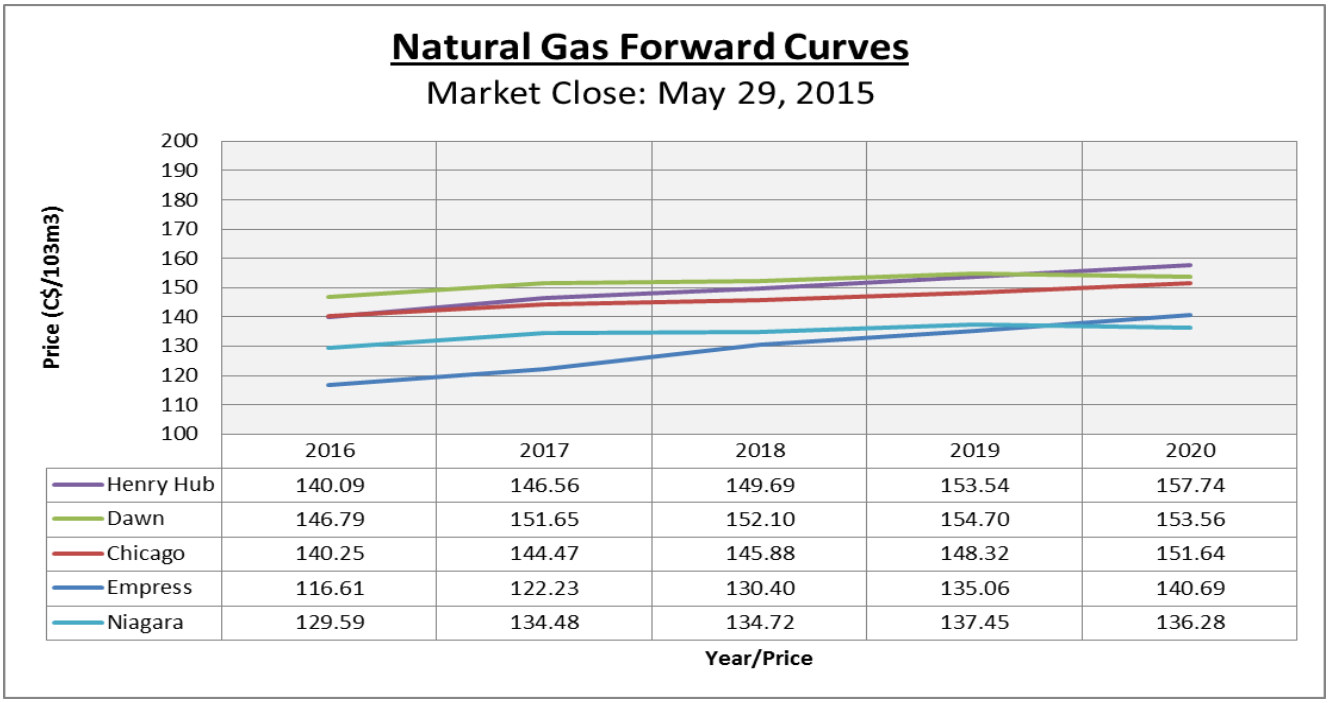
b. Please note that these futures curves are not a function of the avoided gas cost calculation that Enbridge uses for the purposes of cost effectiveness screening of its DSM offers. However in an effort to accommodate this request Enbridge has supplied the requested information.

The table below contains natural gas forward curves for the Empress, Dawn, Chicago, Henry Hub/NYMEX, and Niagara pricing points based on a collection of actual market trades from independent third party companies such as NGX and Kiodex. Each curve is the annual average of the average monthly price for the 21

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford

most recent daily closing prices for market close: May 29, 2015. A 21 day average is provided as this is consistent with the manner in which the Company calculates commodity prices for the purpose of determining gas costs pursuant to the Quarterly Rate Adjustment Mechanism ("QRAM") methodology.

Five years of forward curves are provided because Kiodex and NGX report five years of forward curves data to the Company. For forward curves beyond 2020, the forward curves will require interpolation.



	2016	2017	2018	2019	2020
Henry Hub	140.09	146.56	149.69	153.54	157.74
Dawn	146.79	151.65	152.10	154.70	153.56
Chicago	140.25	144.47	145.88	148.32	151.64
Empress	116.61	122.23	130.40	135.06	140.69
Niagara	129.59	134.48	134.72	137.45	136.28

Year/Price

c. A forecast of natural gas basis can be calculated utilizing the forward pricing curve data provided in the response above.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford

GEC INTERROGATORY #45

INTERROGATORY

Topic 9 - Avoided Costs

Ref: Exh. B/T2/S5

a. Please provide all available information regarding the Company's "undertaking of a complete update of the avoided natural gas costs, inclusive of the costs for transportation and storage in addition to commodity costs," including internal memoranda and instructions to consultants.

b. Please state when the Company initiated its update of avoided costs.

c. Please explain how the Company expects the updated avoided costs to differ from those used in this Application.

d. Please explain why the avoided costs will not be available until Q4, 2015.

e. Please explain when the Company expects to start using the new avoided costs for screening DSM and development of DSM portfolios.

RESPONSE

a. The avoided upstream costs update will be conducted in the same manner as it has in the past. This update will be consistent with the methodology described in EB-2012-0394, Exhibit B, Tab 2, Schedule 2. The process of updating avoided upstream costs does not require the use of a consultant.

b. The Company has not initiated an update of the avoided costs and as explained at EB-2015-0049, Exhibit B, Tab 2, Schedule 2, page 1, the Company anticipates that an update will be filed with the Board during the next input Assumption update. The update is expected to be filed in Q4 2015. Since the Company has not yet completed an update to the avoided costs it is unable to comment or speculate on differences between the avoided costs filed in this application and the updated avoided costs to be filed later this year.

c. Please see response to b) above.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford

d. Please see response to b) above.

e. The new avoided costs would be applied for screening purposes to offers occurring in 2016.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford

GEC INTERROGATORY #46

INTERROGATORY

Topic 9 - Avoid Costs

Reference: Exh. B/T2/S5

a. Please provide all reports, analyses and workpapers supporting the avoided electric costs.

b. Please explain how the estimate of avoided electric costs reflect generation capacity costs, required reserves, line losses, the costs of renewable energy, CO2 costs, and avoided T&D.

c. Please explain why EGDI forecasts electric avoided costs to escalate at the CPI.

d. Please provide any analysis EGDI has conducted regarding the relationship among the market prices of electricity, the CPI, gas prices, and other cost drivers.

RESPONSE

a) Enbridge developed its avoided electric costs based on the IESO Monthly Market Report for December 2014. Please refer to attachment.

b) Please see response to part a.

c) Historically, it has been Enbridge's practice to escalate the electric avoided costs at the CPI, an approach deemed reasonable by the Company.

d) Enbridge has not conducted any analysis regarding the relationship among the market prices of electricity, the CPI, gas prices, and other cost drivers.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford

MONTHLY MARKET REPORT

December 2014

ieso
Independent Electricity System Operator

Table of Contents

List of Figures

This report provides a summary of key market data from the IESO-administered markets. It is intended to provide a quick reference for all market stakeholders. In all cases, the data used to produce all graphs in this report, are available for download from the Market Summaries page of the IESO Web site. Any data used in this report is provided for information purposes only, and should not be used for settlement purposes.

1. Market Prices

1.1 Introduction

This section provides information on several of the key prices in the Ontario wholesale electricity market. A brief description of each displayed price item is included. For more information on any of the price items, please refer to appropriate market rules, market manuals and IESO Marketplace Training materials, or contact the IESO Customer Relations.

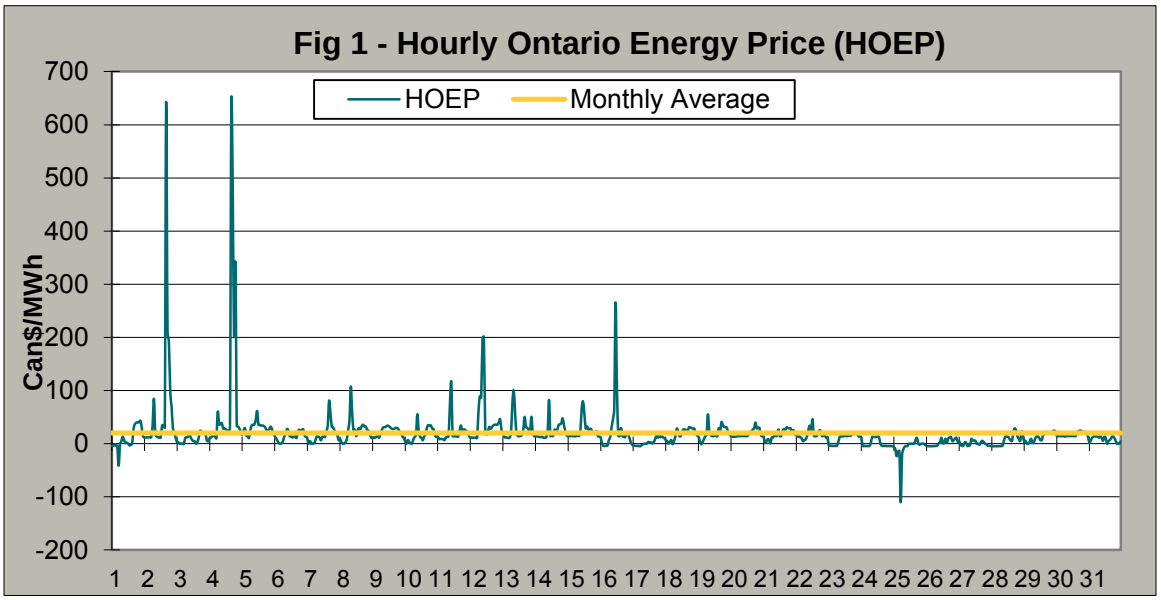
1.2 Hourly Ontario Energy Price (HOEP)

HOEP is the hourly price that is charged to Local Distributing Companies and other non-dispatchable loads. HOEP is also paid to self-scheduling generators. HOEP becomes the basis of the commodity charges in the Retail electricity market if customers receive their electricity from their Local Distributing Company. Customers who have arranged contracts with licensed Retailers are not affected by HOEP, but instead are charged their particular contract rate for the commodity.

Note: The IESO provides a convenient graph of HOEP prices for the current and previous day on the Today's Market page on the IESO Web site. These graphs also provide an estimate of future HOEP prices for the remainder of the day, and by afternoon, estimates for the next day. The estimates for future Hourly Ontario Energy Prices are extracted from an IESO report referred to as the pre-dispatch. Pre-dispatch data is updated every hour. All future prices are derived by simulating a supply/demand balance, using prices offered by suppliers in the market, prices bid by price-sensitive consumers in the market, and the IESO's forecast of the total demand for electricity in the province. The actual supply/demand balance can vary from these projections for a number of reasons:

- The actual demand for electricity can fluctuate as factors such as weather, (temperature, amount of cloud cover, wind etc.), affect the amount of electricity required by consumers.
- At the same time, operational difficulties or delays in a generation unit returning from an outage can result in higher priced generation being called on to fill the gap.
- Finally, any changes in price resulting from such variations can cause some price-sensitive loads to make alternative consumption decisions, or cause importers and exporters to revise their plans.

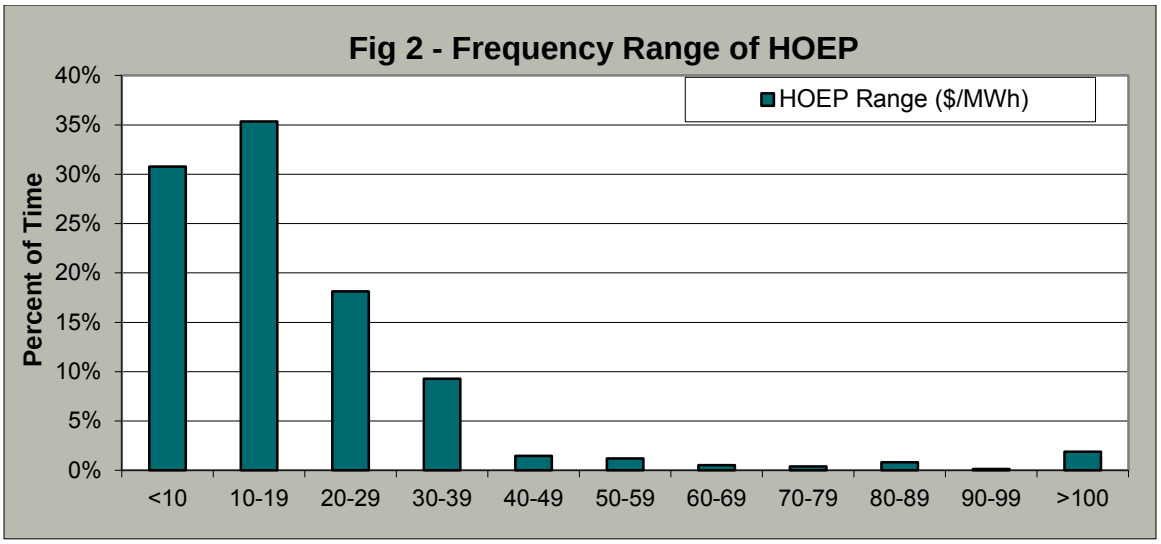
In this report, two graphs of HOEP are provided; the first shows a chronological graph of hourly HOEP prices for the month. The second graph shows the frequency at which the HOEP fell within specific price bands.



Hourly Ontario Energy Price $/MWh			
	For the month	On-Peak	Off-Peak
Average	20.19	31.94	10.52
Maximum	643.00	643.00	100.24
Minimum	-110.10	-4.51	-110.10

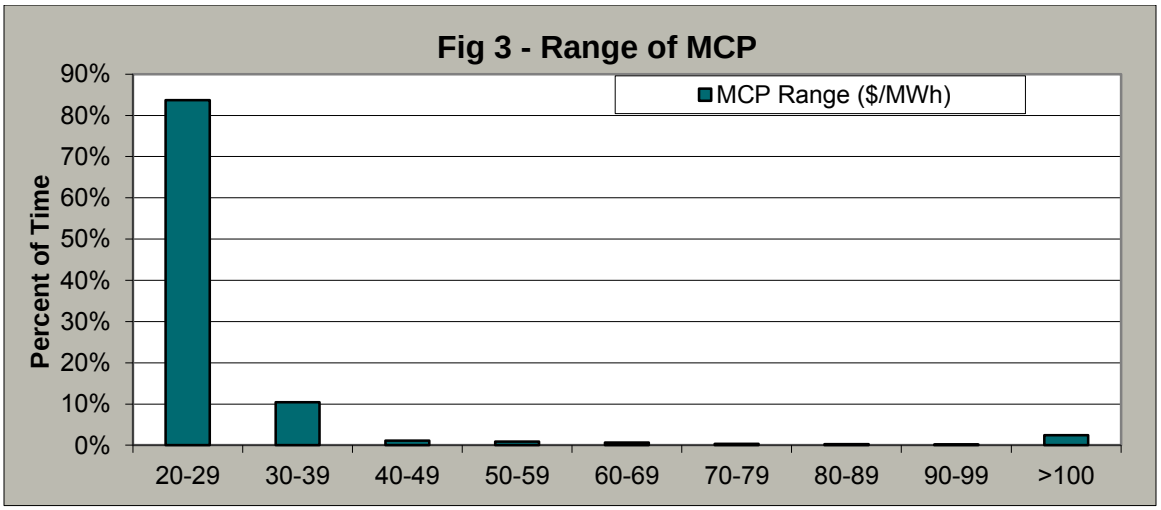
Monthly Weighted Average based on Ontario Demand = $22.43/MWh or 2.24 ¢/kWh. This weighted average is provided as information, and may be of use to customers whose consumption pattern, or that of their local distributing company, approximates that of the total Ontario system.

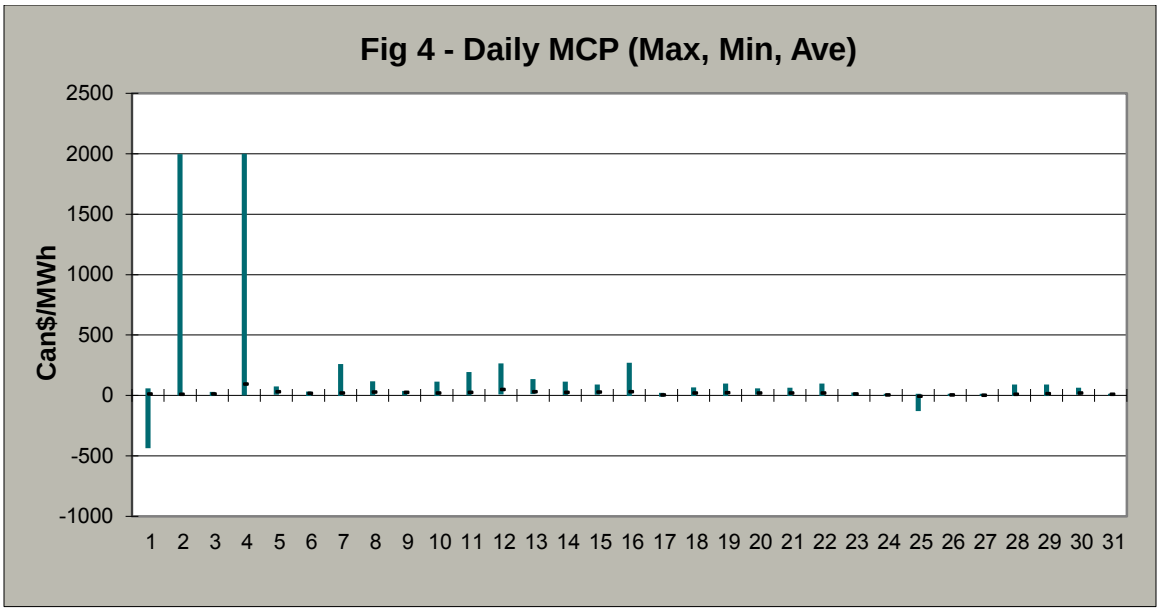
Note: On Peak average price is the straight arithmetic average of HOEP in hours 8 to 23 (EST), Monday to Friday (5 x 16). Off Peak average price is the straight arithmetic average of HOEP for all remaining hours in the week. The wholesale market does not use a formal definition of on and off-peak hours. The IESO is providing this calculation purely for information purposes, and will continue to use this definition throughout the year.



1.3 Ontario 5-Minute Market Clearing Price (MCP)

The Ontario 5-minute MCP is the price paid to dispatchable generators and charged to dispatchable loads. All other participants are charged or paid using hourly prices. The 5-minute price is calculated immediately after the fact for every 5-minute interval, using the unconstrained dispatch algorithm. The algorithm takes generator offers to sell and price-sensitive loads' bids to buy and dispatches these resources to achieve a supply-demand balance, and resulting price. The price is posted on the Market Data page on the IESO Web site, within 5-minutes of the conclusion of an interval. The 5-minute price, by its nature, will fluctuate more than the HOEP (an arithmetic average of the 12 MCPs for any particular hour), as it more directly reflects the short-term supply/demand variations caused by unexpected fluctuations in the demand for electricity or by equipment breakdowns.



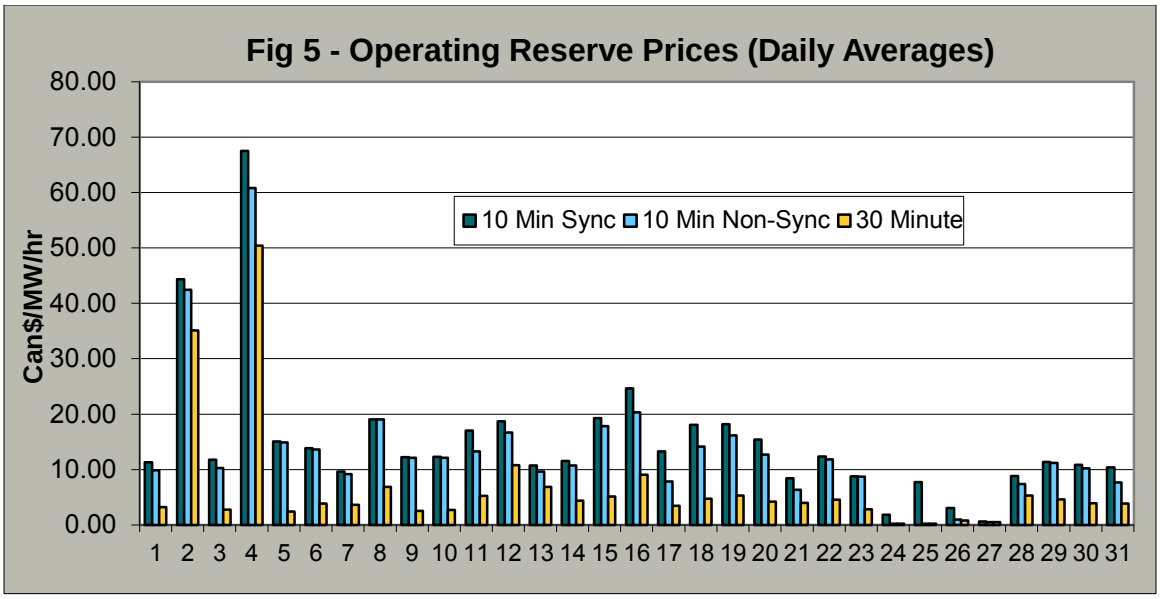


1.4 Operating Reserve Prices

Operating Reserve is generation capacity or load reduction capacity that the IESO can call upon on short notice. Operating Reserve is purchased by the IESO in amounts needed to meet the reliability rules established by the North American Electricity Reliability Council (NERC), and the Northeast Power Coordinating Council (NPCC). The IESO recovers the required funds to pay for the purchased operating reserve from all customers in the wholesale market, via the Hourly Uplift Settlement Charges. These Charges are discussed further and presented in Section 1.5 of this report.

The IESO purchases defined amounts of Operating Reserve from Participants via three real-time markets; a 10 minute synchronized reserve market, a 10 minute non-synchronized reserve market, and a 30-minute reserve market.

The operating reserve is like a buffer - a shock absorber to maintain the reliability of the system by allowing for sudden unexpected surges in demand or unanticipated reductions in supply - that is, in available generation. Like energy dispatch instructions, Operating Reserve schedules are determined every 5 minutes, with a resultant price for each type of operating reserve for every 5-minute interval. The IESO's decisions, on who will provide the market with operating reserve, and who will supply the market with energy, are integrated to arrive at the optimum market outcome. This creates a strong correlation between the energy price fluctuations and the fluctuations in reserve prices.



Average Operating Reserve Prices for this month were:

10 minute synchronized reserve:	$15.10/ MW/hr
10 minute non-synchronized reserve:	$13.19/ MW/hr
30 minute reserve:	$6.56/ MW/hr

1.5 Hourly Uplift Settlement Charges

Uplift charges will now only be reported in one spot in this report – in the Table in Section 7. The Daily Uplift which was introduced in October 2011 will also be added to this table. The hourly uplift, IOG and monthly uplift values incorporate a few additional charge types that were not previously included.

Definitions of Uplift charges can now be found on the IESO web page:
http://www.ieso.ca/imoweb/manuals/marketdocs.asp .
.

1.6 Monthly Uplift Charges

Uplift charges will now only be reported in one spot in this report – in the Table in Section 7. The Daily Uplift which was introduced in October 2011 will also be added to this table. The hourly uplift, IOG and monthly uplift values incorporate a few additional charge types that were not previously included.

Definitions of Uplift charges can now be found on the IESO web page:
http://www.ieso.ca/imoweb/manuals/marketdocs.asp .

1.7 Transmission Rights Auction

The Transmission Rights Market is a financial market that is based on the import and export of electricity on the interconnection lines between Ontario and its surrounding markets in Manitoba, Quebec, New York, Michigan and Minnesota. The transmission capacity of these interconnections is limited. When the interconnection lines reach their limits, energy prices can differ between Ontario and its surrounding markets. The Transmission Rights Market allows participants to buy financial protection ahead of time, to hedge against the possible price differences. These transmission rights are financial only. They do not give the holder of these rights any scheduling priority and do not limit other participants' access to physical transmission across the interconnection lines.

The Transmission Rights contracts are auctioned off by the IESO. Successful bidders pay the market clearing price for the particular Transmission Right, in return for the right to receive revenues from the IESO in amounts proportional to the financial congestion which may occur over that interface for the duration of the contract.

This month, the IESO conducted one transmission rights auction. The market clearing prices in the auctions are listed in the table below. The prices have been rounded to the nearest dollar.

	Short Term Auction December 2014 $/MW	
Intertie Zone	Import to Ontario	Export from Ontario
New York	136	6,049
Michigan	119	6,245
Minnesota	351	1,674
Manitoba	380	701
Quebec - AT	131	3,169
Quebec - D5A	3	5
Quebec - D4Z	11	
Quebec - P33C	12	
Quebec - X2Y	12	
Quebec - H4Z		151
Quebec - B5D/B31L	15	

1.8 Transmission Rights Payments

The holders of Transmission Rights Contracts own the right to receive congestion payments from the IESO whenever congestion results in differences between the Ontario price and the relevant external zone price. The table in this section shows the payments that a holder of a 1 MW Transmission Rights Contract received from the IESO in this month. These payments would be made to holders of either Long - Term Transmission Rights Contracts that encompass this month, or Short -Term Transmission Rights contracts for this month.

Intertie Zone	Import to Ontario ($ per 1 MW contract)	Export from Ontario ($ per 1 MW Contract)
Manitoba		1,412
Michigan		7,217
Minnesota		3,210
New York		2,994
Quebec - B5D/B31L		
Quebec - D4Z		
Quebec - D5A		
Quebec - H4Z		
Quebec - P33C		
Quebec - X2Y		
Quebec - AT	27	242

1.9 Transmission Rights Clearing Account

The table below provides the activity of the Transmission Rights Clearing Account on a monthly basis for the past 12 months. It shows the revenues from the Transmission Rights Auctions, congestion rents from the market, interest earned on the balance and the Transmission Rights payments to Transmission Rights holders in millions of dollars. Long term auction revenues are allocated evenly over the applicable 12 month term and the table below does not include revenues from future months. As per Chapter 8, section 4.18 of the market rules the reserve threshold as set by the IESO Board is equal to $20 million.

$Millions

Transmission Rights (TR) Summary	Previous Balance	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	LTD Total
Allocated TR Auction Revenues	$349.5	$6.2	$5.7	$6.3	$5.8	$6.2	$7.3	$8.4	$7.4	$6.4	$5.3	$6.2	$6.9	$427.4
Congestion Rents Received from the Mark	$492.5	$19.0	$1.3	$2.8	$3.8	$10.2	$8.0	$3.9	$5.6	$13.3	$18.7	$15.9	$16.4	$611.3
Interest earned on TR Bank Account	$1.3	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$2.6
TR Payments to Rights Holders	-$692.7	-$21.2	-$2.6	-$3.6	-$5.0	-$14.1	-$10.4	-$4.5	-$8.0	-$16.9	-$20.2	-$13.8	-$8.6	-$821.6
TR Clearing Account Disbursement	-$92.0	-$3.5	-$3.5	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	-$99.0
Total	**$58.6**	**$0.5**	**$1.0**	**$5.6**	**$4.7**	**$2.4**	**$4.9**	**$7.9**	**$5.1**	**$2.9**	**$3.9**	**$8.4**	**$14.8**	**$120.6**

2. Market Demand

2.1 Market Demand Definitions and Graphs

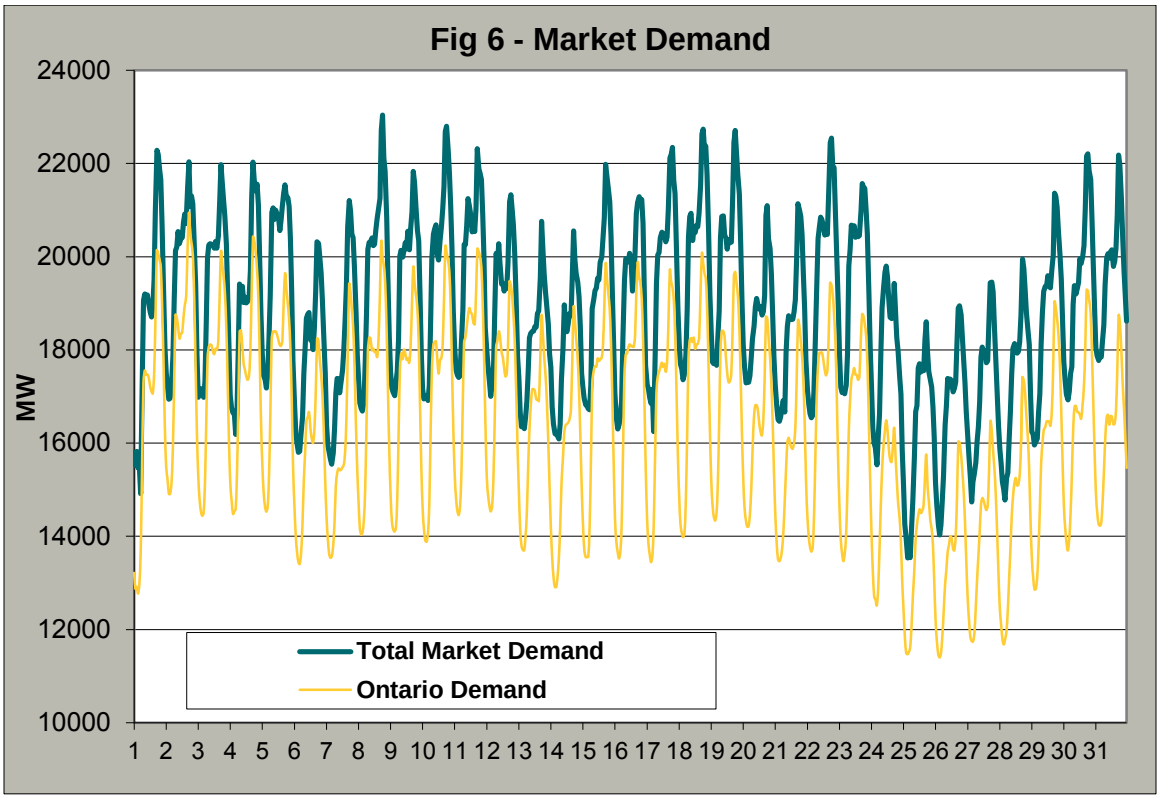
The graph below plots values for both Total Market Demand and Ontario Demand.

Total Market Demand represents the total energy that was supplied from the IESO-Administered Market.

The IESO calculates Total Market Demand by summing all output from generators registered in the Market plus all scheduled imports to the province. It is also equal to the sum of all load supplied from the Market plus exports from the province, plus all line losses incurred on the IESO-controlled grid.

Ontario Demand represents the total energy that was supplied from the IESO-Administered Market for the sake of supplying load within Ontario.

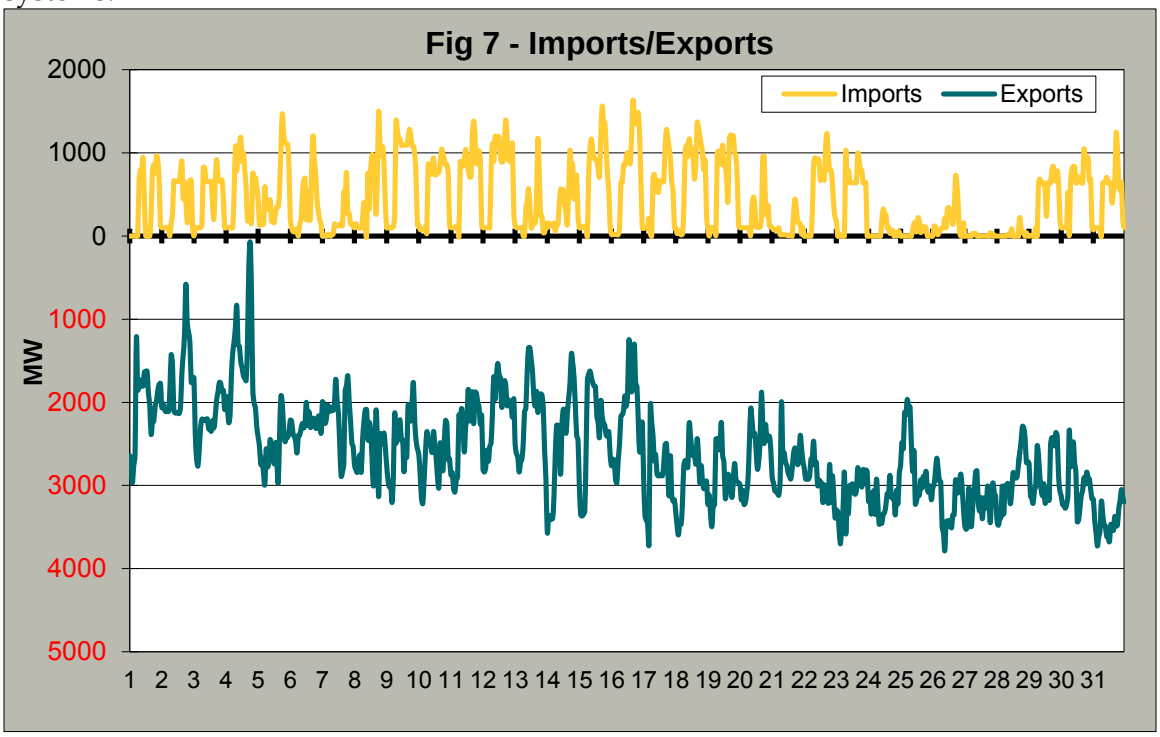
It is also equal to the sum of all load within Ontario which is supplied from the Market, plus all line losses incurred on the IESO-controlled grid.



Demand	Total Market Demand	Ontario
Average hourly values for the month:	18,873MW	16,348MW
Maximum hourly values for the month:	23,041MW	20,938MW
Minimum hourly values for the month:	13,536MW	11,398MW
Total Demand for the month:	14,041,798MWh	12,163,283MWh

2.2 Imports & Exports

The graph below plots both imports to Ontario and exports from Ontario during the month. Economic **imports** and **exports** are scheduled into/out of Ontario on an hourly basis, up to the physical capabilities of the Grid and the interconnections between the systems.



Average export schedule for the month = 2,593MW
Average import schedule for the month = 432MW
Average net intertie schedule = 2,161MW net export

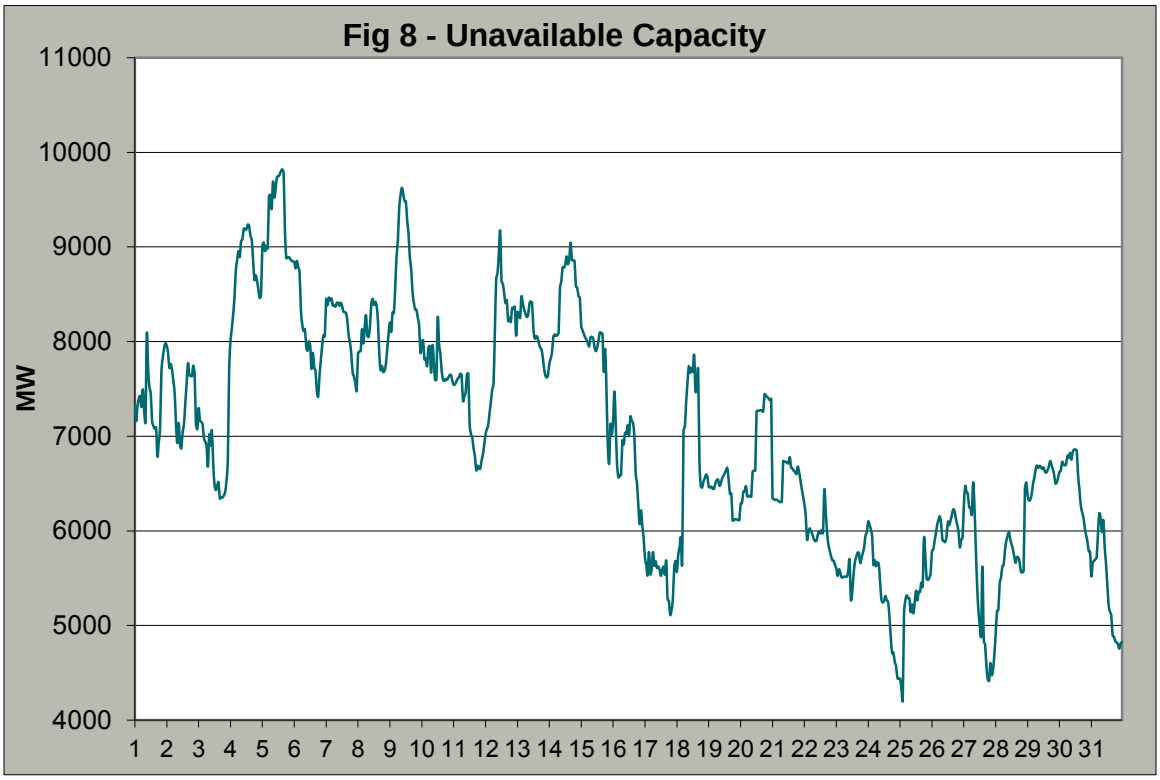
3. Unavailable Capacity

3.1 Unavailable Capacity

It is clear from the various graphs in this report that the demand for electricity varies greatly; from hour to hour, from day to day, and from season to season. The amount of generation available for operation also varies greatly over these same timeframes. The graph in this section shows the total capability of generation within Ontario that is unavailable for operation. These quantities are published by the IESO several times per day in the System Status Reports (SSR). The values in this graph are calculated by summing the following quantities (all in MW):

- capacity of generators on planned and forced outages
- capacity of planned and forced deratings
- unscheduled capacity from Intermittent, Self-Scheduling , and Transitional Scheduling Generators
- constrained capacity due to operating security limits

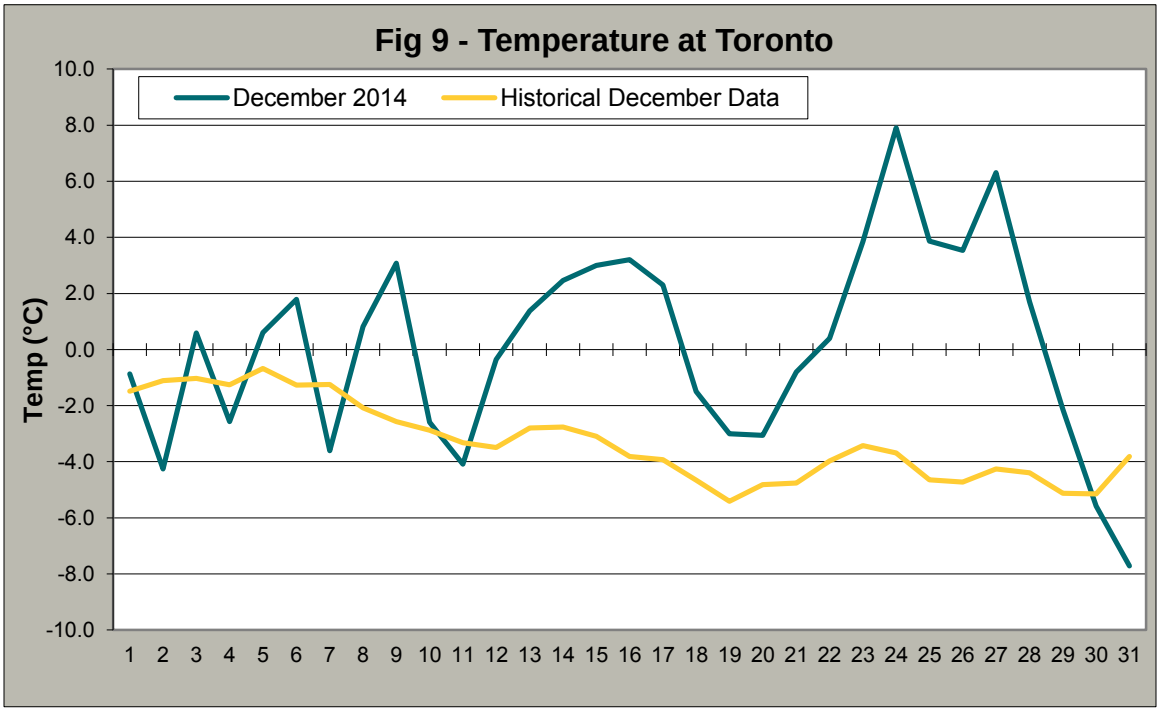
and plotting the highest value for each day. The values are taken from the most up-to-date SSR at any point in time.



4. Weather

4.1 Temperature

Demand for electricity is affected by weather in many ways. By far the most significant factor is temperature, with warm summer-like temperatures causing an increase in load due to air conditioning use, and cold winter temperatures resulting in additional heating load. The graph below shows the average daily temperature in Toronto throughout this month, and compares it to historic average temperatures for the corresponding days. This graph displays Toronto temperatures. However, the IESO monitors weather conditions (temperature, humidity, wind speed, illumination, storm activities) across the entire province and factors these conditions into our demand forecasting and our operational decisions.

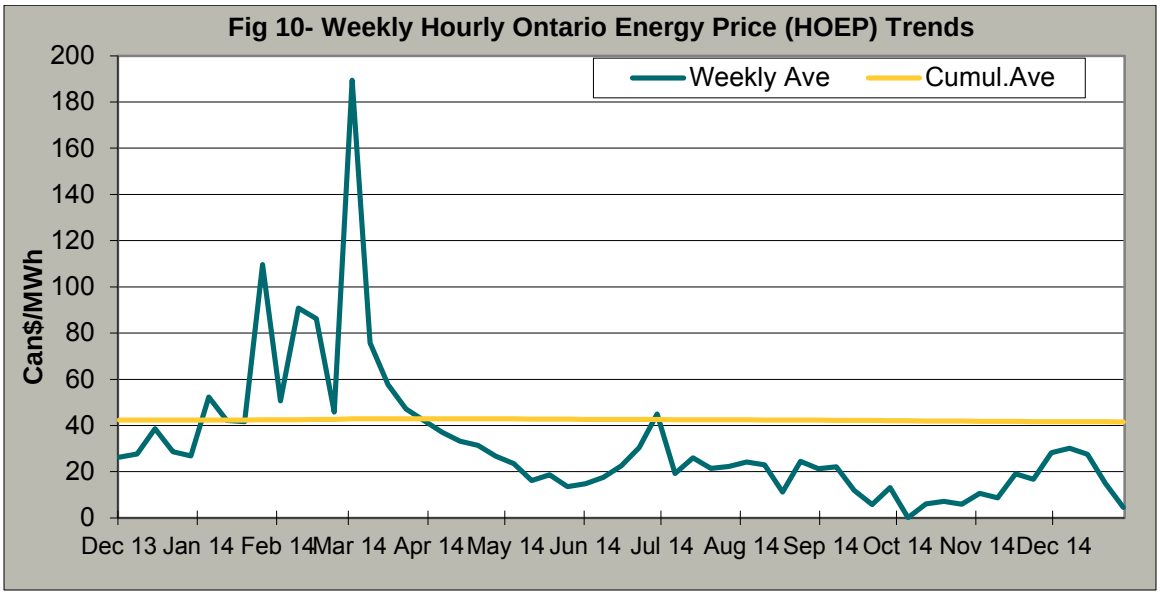


5. Longer-Term Trends

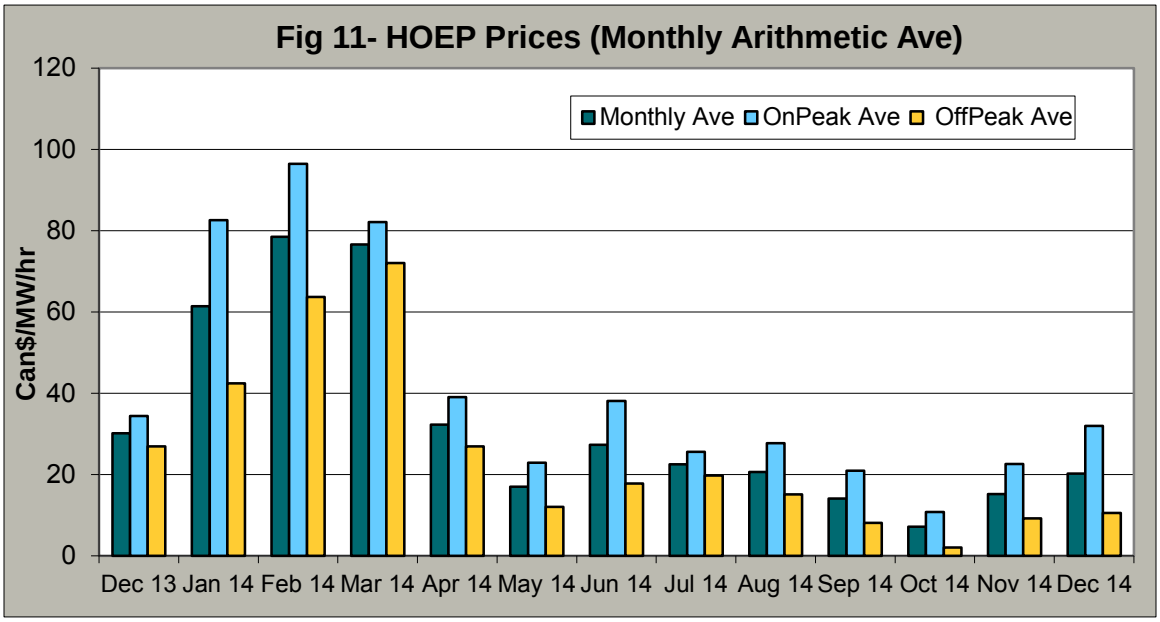
This section provides graphs that display average quantities over longer periods of time than what is available in either the Monthly graphs or in the IESO's Weekly Market Reports. This longer-term perspective will allow seasonal variations to be observed. For additional background on the particular information being graphed, please refer to the relevant monthly graph and write-up presented earlier in this report.

Starting in January, 2004, the Monthly Market Report incorporated nine new graphs. All of these graphs have been produced based on data previously included in the Market Surveillance Panel Reports, and depict a small subset of the tabular data from these reports. In the January 2004 Monthly Market Report these graphs showed information from market opening to January 2004. Starting with the February 2004 Monthly Market Report, the graphs show the most recent month plus one year of history.

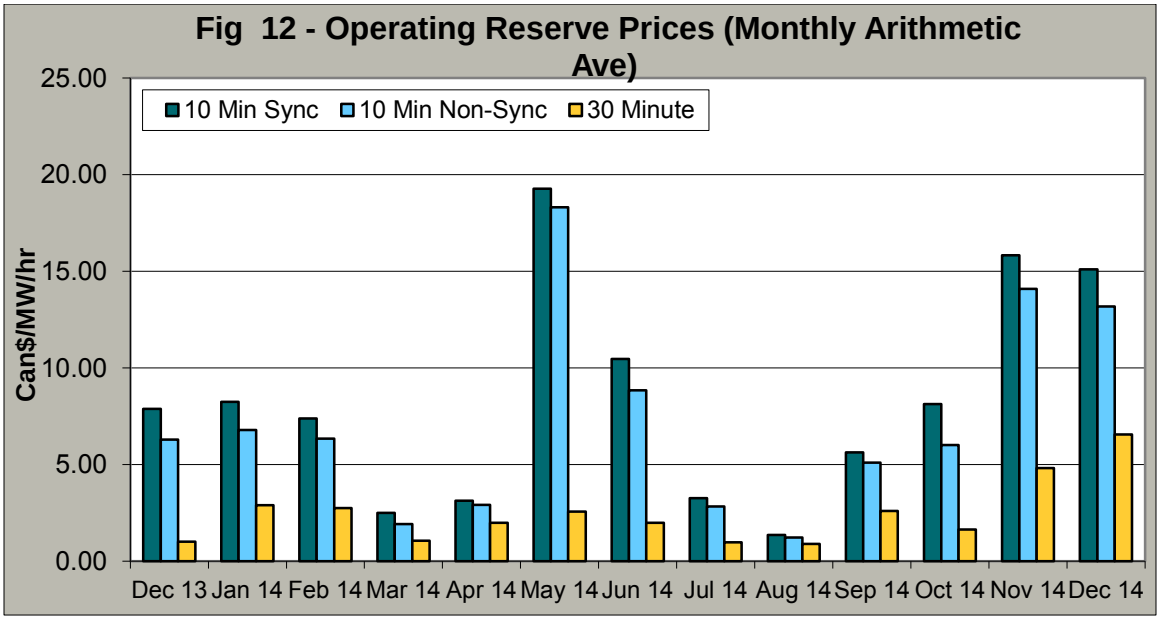
5.1 Weekly Hourly Ontario Energy Price (HOEP) Trends



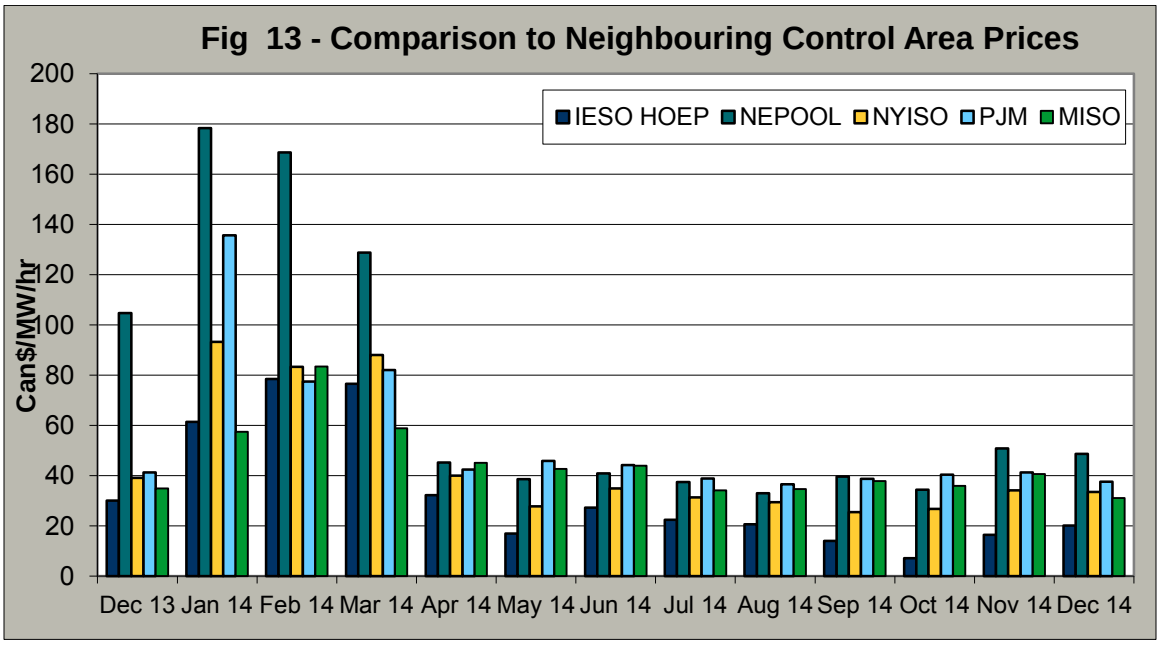
5.2 HOEP Prices (Monthly Arithmetic Ave)



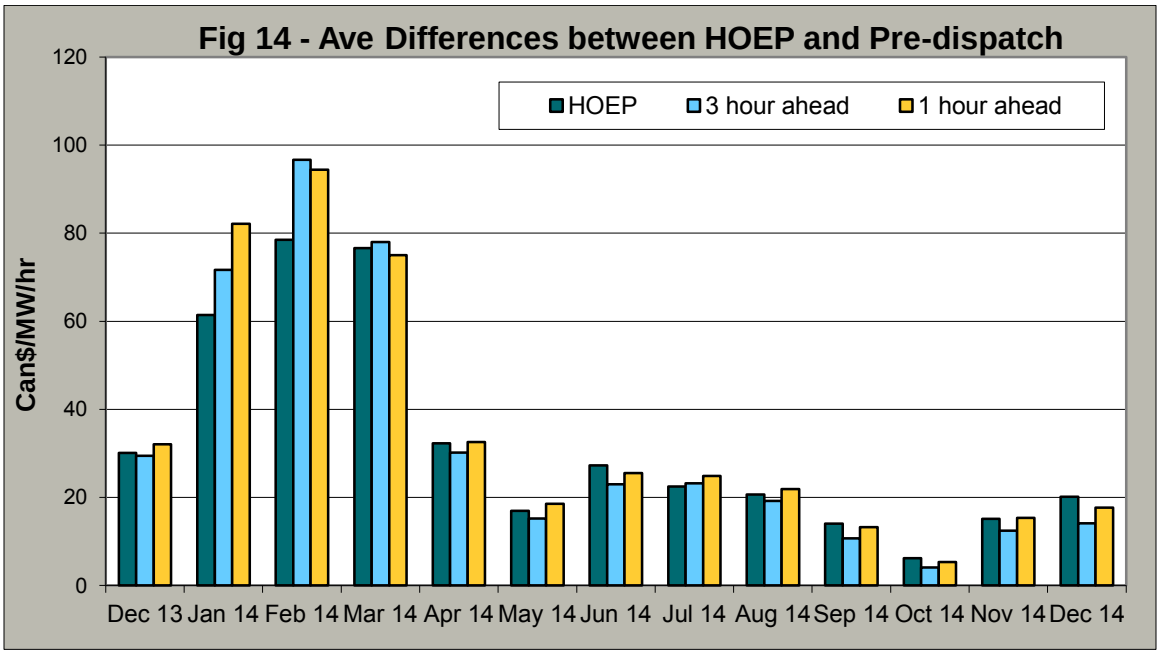
5.3 Operating Reserve Prices (Monthly Arithmetic Ave)



5.4 Comparison to Neighbouring Control Area Prices

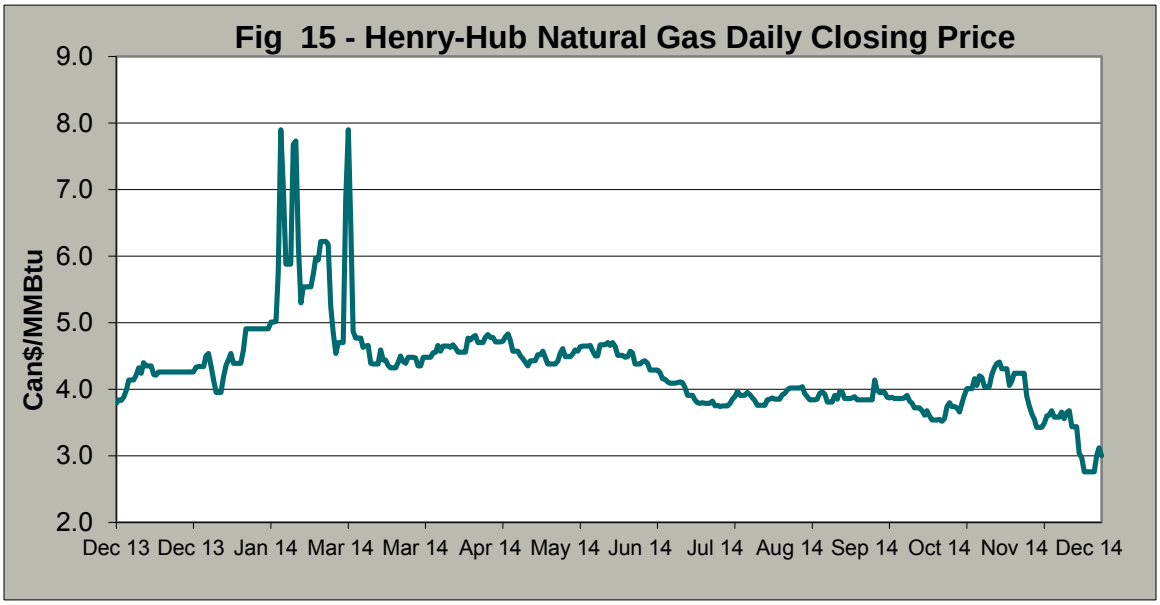


5.5 Ave Differences between HOEP and Pre-dispatch

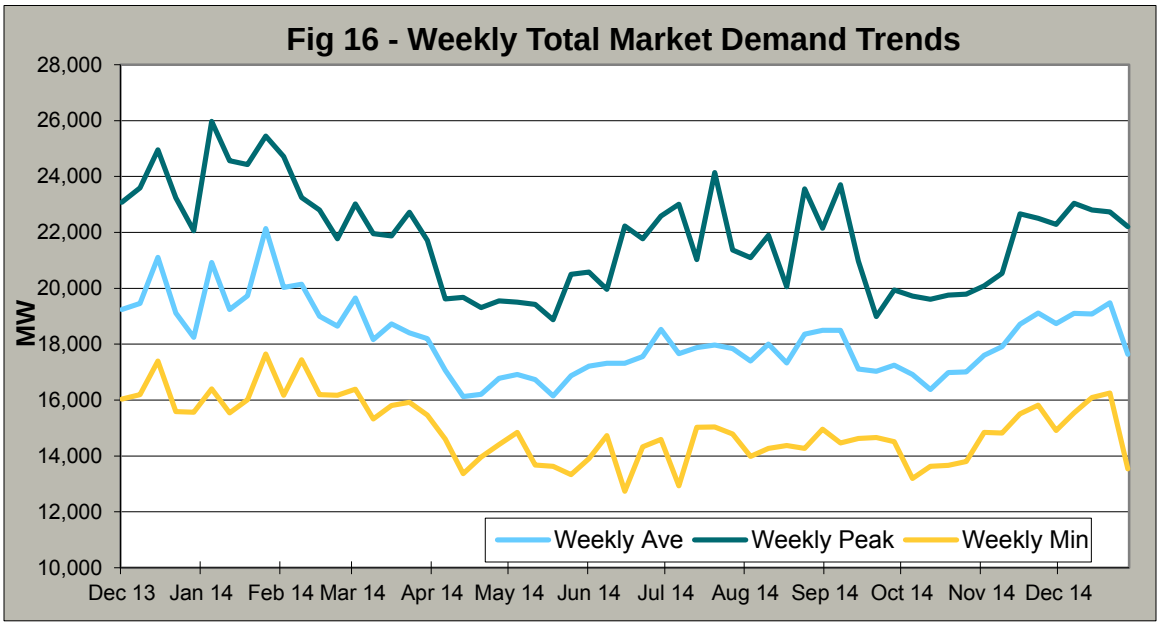


5.6 Henry-Hub Natural Gas Closing Price

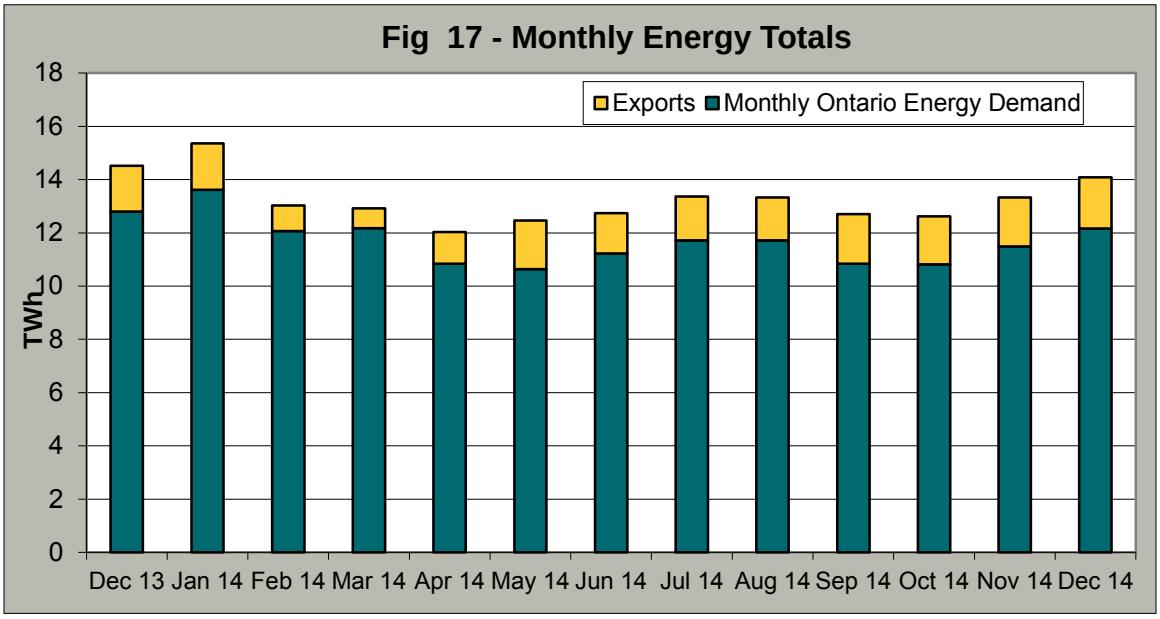
Natural gas is a fuel for some Ontario-based generation, and when dispatched, is often the marginal source of electricity in Ontario. In addition, gas prices influence import offers into Ontario and export bids out of the province.



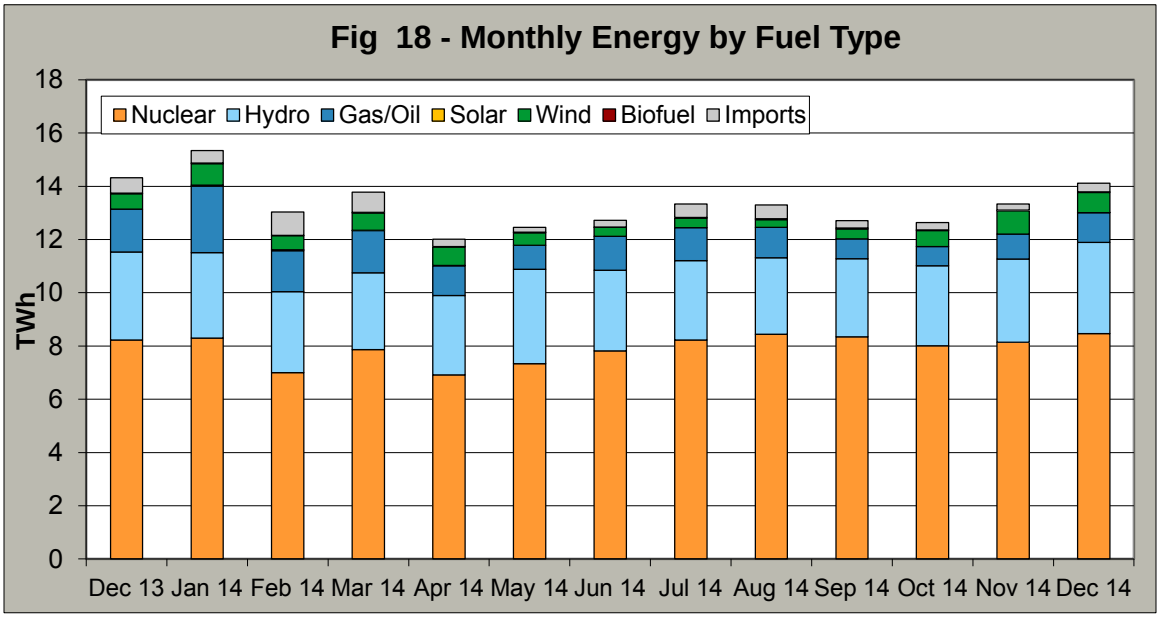
5.7 Weekly Market Demand Trends



5.8 Monthly Energy Totals

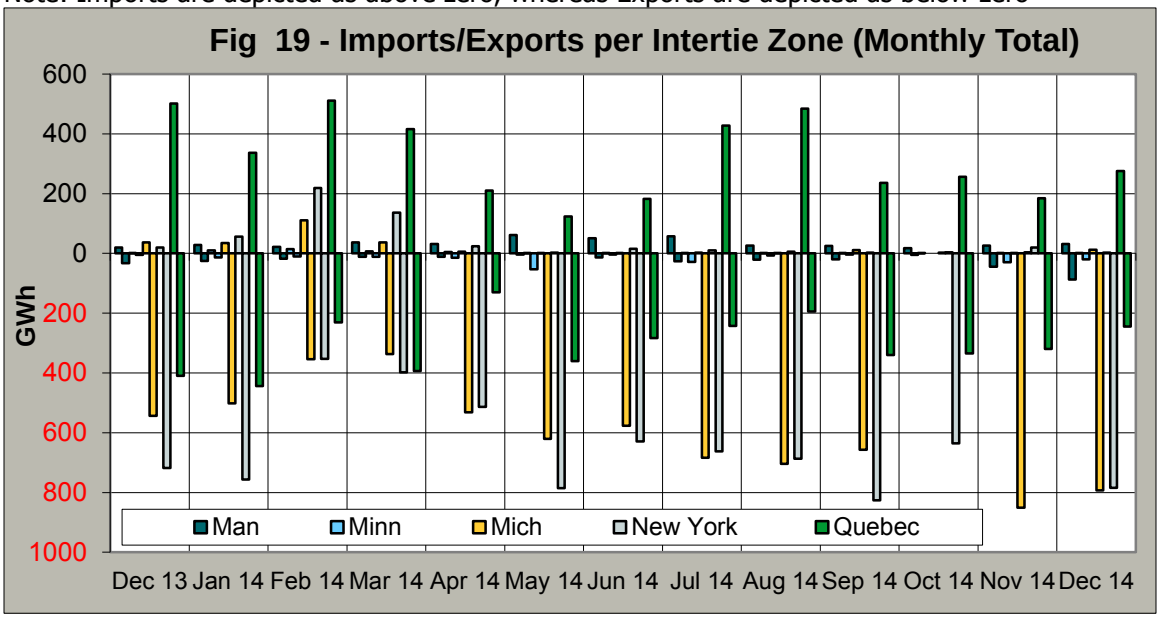


5.9 Monthly Energy by Fuel Type



5.10 Imports/Exports per Intertie Zone (Monthly Total)

Note: Imports are depicted as above zero, whereas Exports are depicted as below zero



5.11 Weekly Average Hourly Uplift Charges Trends

Uplift charges will now only be reported in one spot in this report – in the Table in Section 7. The Daily Uplift which was introduced in October 2011 will also be added to this table. The hourly uplift, IOG and monthly uplift values incorporate a few additional charge types that were not previously included.

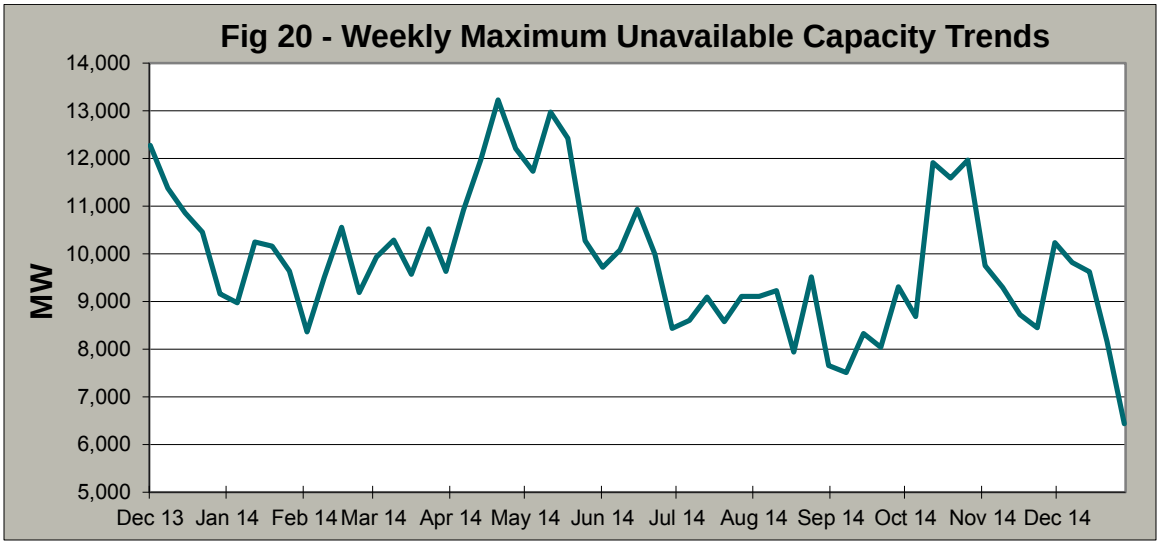
Definitions of Uplift charges can now be found on the IESO web page:
http://www.ieso.ca/imoweb/manuals/marketdocs.asp .

5.12 Hourly Uplifts (Monthly Total)

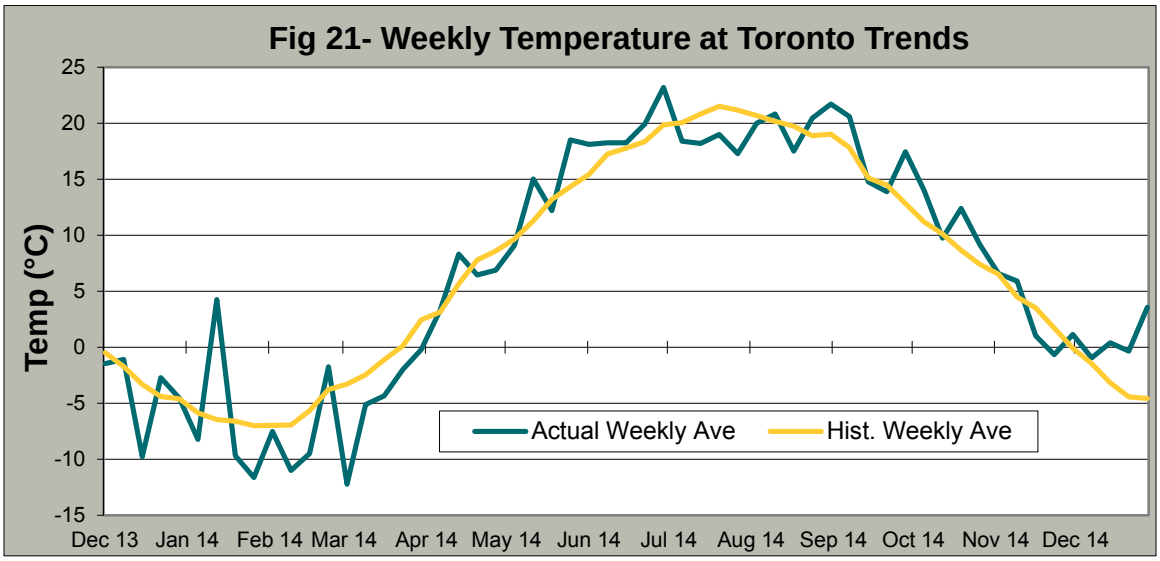
Uplift charges will now only be reported in one spot in this report – in the Table in Section 7. The Daily Uplift which was introduced in October 2011 will also be added to this table. The hourly uplift, IOG and monthly uplift values incorporate a few additional charge types that were not previously included.

Definitions of Uplift charges can now be found on the IESO web page:
http://www.ieso.ca/imoweb/manuals/marketdocs.asp .

5.13 Weekly Maximum Unavailable Capacity Trends



5.14 Weekly Temperature at Toronto Trends

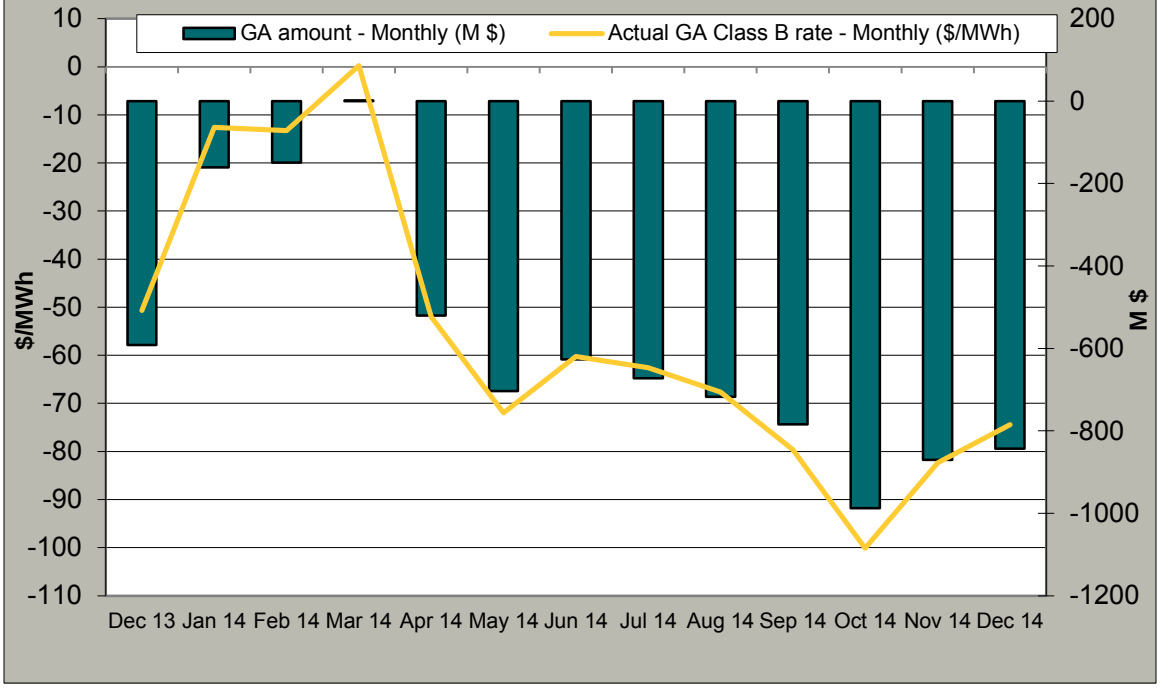


6. Global Adjustment

The global adjustment is the difference between the total payments made to certain contracted or regulated generators/demand management projects, and any offsetting market revenues. The adjustment may be positive or negative.
The global adjustment includes the following:
• OPG's regulated baseload generation
• Ontario Electricity Financial Corporation contracts for generators including non-utility generators (NUGs)
• Ontario Power Authority contracts with generators and suppliers of demand response and conservation

The global adjustment is calculated as a total dollar amount for each month. The global adjustment for the month is applied to the settlement statement for the last trade day of the month for all market participants who withdraw energy from the grid (except exporters). Consumers with an average demand over five megawatts pay for the global adjustment based on a coincident peak calculation. Consumers with an average demand under five megawatts are called Class B consumers and pay the global adjustment based on the total amount of energy they used for the month. The total GA amount and the actual Class B rate are depicted in the chart below.

Fig. 22 - Global Adjustment



7. Summary of Wholesale Market Electricity Charges in Ontario's Competitive Marketplace

In early August 2002, the IESO released "A Guide to Electricity Charges in Ontario's Competitive Marketplace". That guide shows how market charges flow from the wholesale market to the retail market, and how these charges may appear on a typical consumer's utility bill. The bar chart contained in this section is taken directly from that Guide. Also shown here, is a summary of this month's market results that correspond with the charge items indicated in the chart

IESO WHOLESALE MARKET	Arithmetic Average		Weighted Average	
	Current Month	Year-to-Date	Current Month	Year-to-Date
Commodity Charge				
HOEP	$20.19	$32.39	$22.43	$35.96
Actual Global Adjustment Class B Rate	$74.44	$54.59	$74.44	$54.59
Total	$94.63/MWh or 9.46¢/kWh	$86.98/MWh or 8.70¢/kWh	$96.87/MWh or 9.69¢/kWh	$90.55/MWh or 9.06¢/kWh
Wholesale Market Service Charges				
Hourly Uplift - CMSC	$0.52	$0.93	$0.54	$1.00
Hourly Uplift - IOG	$0.01	$0.22	$0.01	$0.24
Hourly Uplift - Other	$1.37	$1.10	$1.46	$1.17
Daily Uplifts	$0.03	$0.19	$0.03	$0.19
Monthly Uplift	$0.41	$0.71	$0.41	$0.71
IESO Administration	$0.80	$0.80	$0.80	$0.80
OPA Administration	$0.44	$0.44	$0.44	$0.44
Rural/Remote Settlement	$1.30	$1.27	$1.30	$1.27
Overall Total	$4.88/MWh or $0.49¢/kWh	$5.66/MWh or $0.57¢/kWh	$4.99/MWh or $0.50¢/kWh	$5.82/MWh or $0.58¢/kWh
Wholesale Transmission Charge	$9.63/MWh or 0.96 ¢/kWh	$10.29/MWh or 1.03 ¢/kWh	$9.63/MWh or 0.96 ¢/kWh	$10.28/MWh or 1.03¢/kWh
Debt Retirement Charge	$7.00/MWh or 0.70 ¢/kWh	$7.00/MWh or 0.70 ¢/kWh	$7.00 /MWh or 0.70 ¢/kWh	$7.00/MWh or 0.70 ¢/kWh
TOTALS	$116.14/MWh or 11.61¢/kWh	$109.93 /MWh or 10.99¢/kWh	$118.49 /MWh or 11.85¢/kWh	$113.15/MWh or 11.32¢/kWh

Note: Year-to-Date is since January 1, 2014

There are two commodity charges quoted above. The arithmetic average price would be representative of the average commodity charge for a customer whose electrical demand is relatively consistent throughout the day, the night and the weekends. The weighted average price would be applicable to a customer whose consumption mirrored that of the total system. The actual average commodity price paid by a wholesale customer will be very sensitive to their consumption pattern.

The Wholesale Transmission Charge listed above has been calculated by summing all transmission-related fees paid by all loads in the province, and dividing that sum by the total energy delivered to those loads. As such, this number is not representative of the fee paid by any particular customer. Rather, each customer's actual fee for transmission service will depend on many factors such as peak consumption pattern and the types of transmission services applicable to the customer.

Renewable Generation Connection

In addition to the wholesale market charges listed above, participant invoices now include settlement amounts to recover certain costs incurred by distribution companies for the connection of new renewable generation to their local distribution system.

These charges are covered under charge type 1463 - Renewable Generation Connection - Monthly Compensation Settlement Credit. Costs are charged to participants based on their proportion of Allocated Quantity of Energy Withdrawn (AQEW) for the month, including embedded generation for LDCs. The monthly rates are summarized below:

Month, Year	Rate ($/MWh)	Preliminary/Final
November, 2014	0.1446	Final
December, 2014	0.1367	Preliminary

The recovery of these costs was enabled by Regulation 330/09, and the amounts are approved by the Ontario Energy Board. Further details regarding the decision EB-2010-0191 can be found on the OEB website: http://www.oeb.gov.on.ca.

Questions on any information contained in this report should be directed to:
IESO Customer Relations
1-888-448-7777
customer.relations@ieso.ca

GEC INTERROGATORY #47

INTERROGATORY

Topic 9 – Avoided Costs

Ref: Exh. C/T1/S1, Table B-1

a. For each load shape, please provide a breakdown of the annual unit avoided costs by type (e.g., commodity, base capacity, storage, peaking capacity, T&D, CO_2 costs).

b. Please provide all reports, analyses and workpapers supporting the avoided gas costs.

c. Please provide all source documents supporting the avoided costs.

d. If EGDI assumes that any avoided gas or other avoided costs originate in the US, priced in US dollars, please provide the Company's forecast of the foreign exchange rate from US to Canadian dollars.

e. Please provide the all reports, analyses and workpapers supporting the avoided electric costs.

f. Please provide a breakdown of the avoided electric costs by component (e.g., market energy, capacity, losses, reserve margin, T&D, and CO_2 costs).

RESPONSE

During the course of providing the data requirements for the Natural Gas Energy Efficiency Potential Study the most recent Avoided Costs available at the time were the 2012 Avoided Costs as filed in EB-2012-0394. Enbridge refers GEC to this proceeding and the evidence filed at Exhibit B, Tab 2, Schedule 2. As avoided costs will be updated in a process outside of this proceeding later this year, Enbridge does not believe that it is helpful to file all of the information requested by this interrogatory which related to the 2012 Avoided cost.

For responses to this interrogatory, please see GEC Interrogatory #43 found at Exhibit I.T9.EGDI.GEC.43 and GEC Interrogatory #46 found at Exhibit I.T9.EGDI.GEC.46 which reflect the most recent Avoided Costs as filed in EB-2015-0049.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford

GEC INTERROGATORY #48

INTERROGATORY

Topic 9 - Avoided Costs

Ref: Exh. C/T1/S1, Table B-3

a. Please provide the derivation of the 4.8% line-loss factor.

b. Please explain whether this value is intended to be an on-peak energy, off-peak energy, or peak load loss factor.

c. Please explain whether this value is intended to be a marginal loss or average loss factor, and explain why EGDI chose to use the type of loss it used.

RESPONSE

a) The line loss factor is based on a weighted average of line losses reported for Toronto Hydro ("THESL") and Hydro Ottawa for customers below 5,000 kW. The line losses of 1.0536 for THESL and 1.0358 for Hydro Ottawa were averaged using a simple 2 to 1 weighting for Toronto versus Ottawa (i.e. (1.0536*2+1.0358)/3 = 1.048).

   We note that given the low level of electric savings relative to natural gas savings resulting from the measures a minor change in the loss factor would not have a material impact on the measure economics or the resulting level of potential.

b) The loss factor is applied to all electricity savings, including on-peak, off-peak and peak demand.

c) The model's loss factor represents the average loss factor. This information was used as it represents the loss factor used by the electric distribution utilities in billing customers for consumption and is publicly available.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford

As indicated above, the distribution loss factor does not have a material impact on the level of potential determined by the study.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford

GEC INTERROGATORY #49

INTERROGATORY

Topic 9 – Avoided Costs

Ref: Exh. C/T1/S4

a. Please provide all data and instructions provided to Navigant by EGDI with regard to the development of this document.

b. Please provide all memoranda, draft reports, presentations, and other materials provided to EGDI by Navigant regarding the development of this document and its results.

RESPONSE

(a) Exhibit C, Tab 1, Schedule 4 is the final report and captures the data provided by Enbridge and the methodology and conclusions as determined by Navigant. The data provided by Enbridge to Navigant is captured in the final report at the following locations:

- Actual and Forecast Reinforcement – Exhibit C, Tab 1, Schedule 4, Figure 3 (page 17)
- Actual and Forecast Peak Day Demand – Exhibit C, Tab 1, Schedule 4, Figure 4 (page 18)
- Load Shapes – Exhibit C, Tab1, Schedule 4, Appendix B

The instructions provided by Enbridge to Navigant are summarized in the "Background and Objectives" at Exhibit C, Tab 1, Schedule 4, page 5.

(b) A review of all documentation, including all memoranda and draft reports, would require an inordinate amount of time that is out of proportion to the value of the exercise. The relevant information can be found in the document referenced.

Witnesses: S. Mills
F. Oliver-Glasford
H. Thompson

GEC INTERROGATORY #50

INTERROGATORY

Topic 9 – Avoided Costs

Ref: Exh. C/T1/S4, Table 1

a. Please provide all workpapers supporting the derivation of the avoided distribution costs, by load shape, in the form of Excel spreadsheets with working formulae.

RESPONSE

a. Please see the response to GEC Interrogatory #49 found at Exhibit I.T9.EGDI.GEC.49.

The derivation of the avoided distribution costs is based on a proprietary model that is owned by Navigant. If there are specific areas of interest and, if relevant, Enbridge and / or Navigant will respond as appropriate.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford

GEC INTERROGATORY #51

INTERROGATORY

Topic 9 – Avoided Costs

Ref: Exh. C/T1/S4, Table 5

a. Please provide the avoided distribution costs estimated in EBRO 487, EBRO 492, and EBRO 497.

b. Please provide any available documentation of the derivation of the avoided distribution costs estimated in EBRO 487, EBRO 492, and EBRO 497.

RESPONSE

a. Attached please find the following:

- EBRO 487 - The Avoided Distribution costs can be found at Exhibit D, Tab 6, Schedule 1, pages 71 to 105. (Attachment 1).
- EBRO 492 - Avoided Distribution costs can be found at Exhibit D, Tab 6, Schedule 1, pages 148 to 158. (Attachment 2).
- EBRO 497 - The Avoided Distribution costs can be found at Exhibit D, Tab 6, Schedule 1, pages 238 to 253. (Attachment 3).

b. Due to the length of time that has transpired since EBRO 487, 492 and 497 Enbridge has been unable to locate any documentation on the derivation of the avoided distribution costs beyond what is found in the documents referenced above.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford

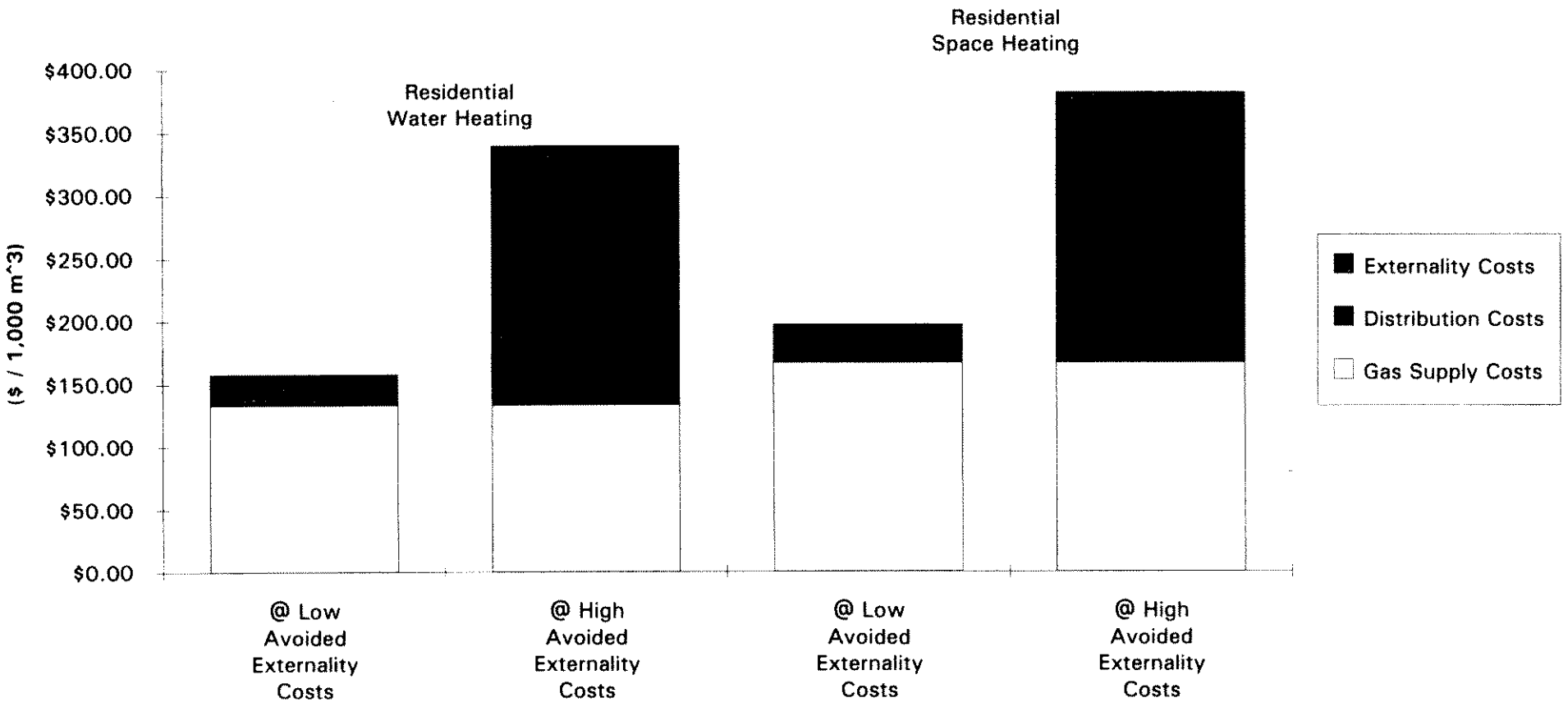
VI. DEVELOPMENT OF AVOIDED COSTS

A. OVERVIEW

Avoided costs can be calculated from a variety of perspectives, according to who avoids them, e.g., a DSM program participant, the sponsoring utility, or society. This chapter describes the avoided costs that Consumers Gas calculated as inputs to its determination of the cost-effectiveness of potential DSM programs. These calculations include the avoided costs of: gas supply (commodity, transmission, peaking services and storage), the gas distribution system, the participants' retail rates, and both environmental and economic social externalities.

In order to assess the reasonableness of these estimates, it is important to understand the relative magnitude or importance of each type of avoided costs. The analyses presented in this chapter show that the two most important avoided costs from a social perspective are avoided gas supply costs and avoided environmental externalities. The relative importance of these two categories can be seen in Figure VI.1, which presents, for illustrative purposes, various unit avoided costs resulting from two different types of residential load reduction (water heating and space heating) and two levels of environmental externalities (high and low). The underlying calculations (presented in Tables VI.1 and VI.2 as example calculations), are based on the avoided cost estimates described in this chapter.

Figure VI.1: Illustrative Social Avoided Costs
Residential End-Uses, 1999



Sources: Tables VI.1 and VI.2.

Table VI.1: Illustrative Unit Avoided Costs For Reduction in Residential Water Heating in 1999

This example assumes a decrement of 118 m3 with an 80% load factor (1), (2).

AVOIDED GAS SUPPLY COSTS

Period	Decrement (1,000 m3)	Unit Avoided Cost ($/1,000 m3)	(3)	Annual Avoided Cost ($)	(%)
Peak Day (capacity and energy)	0.40	$1,974.17	=	$789.67	5%
Winter Season Days (energy)	51.52	$158.77	=	$8,179.83	52%
Summer Season Days (energy)	66.08	$102.01	=	$6,740.82	43%
	118.00			$15,710.32	100%
Average ($ per year / 10 3 m3 per day)				$133.14	

AVOIDED DISTRIBUTION SYSTEM COSTS

Period	Decrement (1,000 m3)	Unit Avoided Cost ($/1,000 m3)	(4)	Annual Avoided Cost ($)	(%)
Peak Day (capacity and energy)	0.40	$622.00	=	$248.80	100%
Winter Season Days (energy)	51.52	$0.00	=	$0.00	0%
Summer Season Days (energy)	66.08	$0.00	=	$0.00	0%
	118.00			$248.80	100%
Average ($ per year / 10 3 m3 per day)				$2.11	

AVOIDED ENVIRONMENTAL EXTERNALITY COSTS (5)

	Unit Avoided Cost ($/1,000 m3)
@ Low Avoided Externality Costs	$22.43
@ High Avoided Externality Costs	$204.39

TOTAL AVOIDED BURNER-TIP AND SOCIETAL COSTS

@ Low Avoided Externality Costs	$157.68
@ High Avoided Externality Costs	$339.64

(1) Refer to Appendix VIII-A, page 7
(2) Winter fraction is .44 and summer fraction is .56
(3) Table VI.6
(4) Table VI.8
(5) Table VI.11

Table VI.2: Illustrative Unit Avoided Costs For Reduction in Residential Space Heating in 1999

This example assumes a decrement of 285 m3 with a 20% load factor (1),(2).

AVOIDED GAS SUPPLY COSTS

Period	Decrement (1,000 m3)	Unit Avoided Cost ($/1,000 m3)	(3)	Annual Avoided Cost ($)	(%)
Peak Day (capacity and energy)	3.52	$1,974.17	=	$6,949.08	15%
Winter Season Days (energy)	207.38	$158.77	=	$32,925.72	69%
Summer Season Days (energy)	74.1	$102.01	=	$7,558.94	16%
	285.00			$47,433.74	100%
Average ($ per year / 10^3 m^3 per day)				$166.43	

AVOIDED DISTRIBUTION SYSTEM COSTS

Period	Decrement (1,000 m3)	Unit Avoided Cost ($/1,000 m3)	(4)	Annual Avoided Cost ($)	(%)
Peak Day (capacity and energy)	3.52	$622.00	=	$2,189.44	100%
Winter Season Days (energy)	207.38	$0.00	=	$0.00	0%
Summer Season Days (energy)	74.1	$0.00	=	$0.00	0%
	285.00			$2,189.44	100%
Average ($ per year / 10^3 m^3 per day)				$7.68	

AVOIDED ENVIRONMENTAL EXTERNALITY COSTS (5)

	Unit Avoided Cost ($/1,000 m3)
@ Low Avoided Externality Costs	$22.69
@ High Avoided Externality Costs	$207.19

TOTAL AVOIDED BURNER-TIP AND SOCIETAL COSTS

@ Low Avoided Externality Costs	$196.81
@ High Avoided Externality Costs	$381.31

(1) Refer to Appendix VIII-A, page 25
(2) Winter fraction is .74 and summer fraction is .26
(3) Table VI.6
(4) Table VI.8
(5) Table VI.11

B. ESTIMATION OF AVOIDED GAS COSTS

1. Overview

Gas costs represent the total costs Consumers Gas incurs to have gas available at its receipt points for sendout to its customers. These costs include the cost of gas commodity, pipeline transportation, storage, and peaking services paid by Consumers Gas. In 1995, these costs represent approximately 68% of the Company's total revenue requirements.

Consumers Gas used a decrement approach to estimate the gas costs that it would "avoid" as a result of various types of load reductions from candidate DSM programs. In this approach, the Company first determined the long-term system supply costs it would incur to meet future demand under a "business-as-usual" scenario or Base Case. It then determined the long-term system supply costs it would incur to meet future demand under three separate "decrement" scenarios: Peak Day, Winter Season, and Summer Season.

Unit avoided gas costs were then calculated for each decrement scenario by dividing the difference in the total system supply cost between the Base Case and the scenario, by the corresponding difference in demand between the Base Case and the scenario. All of the analysis was conducted in nominal dollars.

The key features of, and input assumptions for, this methodology are as follows:

- Choice of decrement method;
- Determination of optimal supply mix;
- Long-term forecast of annual requirements;
- Selection of decrement scenarios;
- Identification of supply resources; and
- Projection of unit costs of supply resources.

The following subsections discuss these features and assumptions in detail.

2. Choice of Decrement Method

There is no standard industry-wide method for calculating avoided gas costs. The various approaches to this issue can be grouped into two broad categories: direct calculation and the use of a proxy.

The most comprehensive approach under the direct calculation category uses a planning model to project the utility's total revenue requirements before and after a given decrement of load. This is referred to as the "Differential Revenue Requirements" approach. However, the more common approach under the direct

calculation category is the use of a planning model to project the utility's gas supply costs. This approach is known as the "Decrement/Increment[1]" approach.

The Decrement Approach may be applied using a relatively simple "dispatch" model or a sophisticated optimization model that not only acquires gas from existing supply resources but also acquires optimal quantities of new resources, subject to operating constraints and the availability of new resources.

Proxy methods, which represent the other broad alternative approach to avoided cost estimation, determine the value of a decrement or increment in terms of a specific avoided supply resource or resources identified by the planner. The avoided resources used for this purpose may be a specific proxy, such as the utility's next avoidable supply block or a composite proxy, made up of several resources. The proxy approach relies upon the judgment of a utility planner viewing the supply mix.

Consumers Gas chose a direct calculation approach rather than a proxy approach because it is more exact and is directly related to the approach the Company is taking towards its long-term gas supply planning. Due to time constraints, a decrement method, rather than differential revenue requirements method was used. Within the overall decrement approach, however, proxy resources are used in certain instances to represent specific categories of resources, e.g., "Michigan storage". The decrement approach uses the same long-term planning model that the Company already uses to develop its gas supply strategy.

3. Determination of Optimal Supply Mix

Consumers Gas used Sendout™, a proprietary computer model, to determine the best supply mix to meet future demand in the Base Case and in each of its decrement scenarios.

In using the model, the goal of Consumers Gas, referred to as the "objective function", was to meet the load forecast at the lowest system supply cost over the planning horizon. Next, the Company specified the supply resources available to it, including their projected physical quantities and unit costs, and any constraints on the use of specific resources. Given these inputs, the model identified the best or "optimal" mix of resources, including the quantity of each incremental resource to be acquired and the timing of that acquisition.

The model used an "iterative" search technique to determine the best level(s) of capacity over the study period. Using this technique, the model identified sets of capacity levels at successively lower costs. At each step, the total system cost at the current capacity level(s) were evaluated using the Sendout™ linear programming ("LP") algorithm. LP is a mathematical method for solving practical problems by means of

[1] Load reduction DSM measures result in decrements in load relative to the Base Case; load building DSM measures result in increments in load.

linear functions where the variables are subject to physical, operational, and contractual constraints. The LP code incorporated in Sendout™ uses the simplex algorithm to guarantee a minimum-cost gas supply schedule. When the objective function is minimized, then the "Least Cost" gas supply plan covering the entire study period has been found.

4. Long-term Forecast of Annual Requirements

Base Case Forecast

To establish a Base Case demand forecast, Consumers Gas began with the most recent long-term forecast available at the time that avoided gas costs were being calculated for this DSM Plan. This was the 10-year demand forecast prepared annually by the Company's Gas Demand Forecasting Committee ("GDFC"). The most recent GDFC forecast available in October 1993 had been developed in February 1993, the "1993 GDFC Forecast", and covered the period fiscal 1994 through fiscal 2003.

The 1993 GDFC Forecast had to be adjusted in order to develop a Base Case forecast for this report. The 1993 GDFC Forecast included demand reductions due to forecasted DSM activity resulting from the types of DSM programs identified by Tellus Institute in its 1992 Preliminary IRP Study. Since the Base Case forecast is meant to represent future requirements in the absence of any new utility-sponsored DSM programs, Consumers Gas adjusted the 1993 GDFC Forecast to remove the effects related to these potential DSM programs.

Forecasts of Daily Requirements

For gas supply planning purposes, the 1993 GDFC forecast was used as input to the daily demand model of Consumers Gas. This model adjusts all requirements from a budget degree day basis to the design weather conditions of Consumers Gas of 4129 Degree Days Celsius ("DDC"), and then distributes the annual demand over 365 days based on a typical weather profile. The adjusted daily and annual forecasts represent the Base Case forecast of demand for gas supply planning purposes that was used as the basis for calculating avoided gas costs. The Base Case annual demand forecast is shown at the top of Table VI.5. Projected peak day demands, at the 39 DDC design condition, were derived directly from the daily demand model.

5. Selection of Decrement Scenarios

Decrement Case Forecasts

Consumers Gas developed load forecasts for three separate "decrement" scenarios: Peak Day, Winter Season, and Summer Season. For each scenario the Company began with the Base Case demand forecast and then reduced the demand in the appropriate period of the year by 4%. Specifically, the Peak Day decrement scenario used the Base Case demand forecast but with the peak day demand reduced by 4% for each year. Similarly, the Winter Season decrement scenario took the Base Case demand forecast and reduced the demand by 4% on each of the 151 days throughout the winter season for each year, including the peak day. Finally, the Summer Season decrement scenario took the Base Case demand forecast and reduced the demand by 4% on each of the 214 days throughout the summer season for each year.

Choice of Decrement Timing

Avoided gas costs vary according to the shape and load factor of a decrement (or increment). It is therefore important to calculate decrement-specific avoided gas costs, but it is both impractical and unnecessary to calculate individual avoided gas costs for each potential DSM measure. Instead, one can calculate avoided gas costs for decrements in key periods during the year and use the results to calculate DSM measure-specific avoided costs.

Consumers Gas calculated avoided gas costs for three separate demand scenarios: one occurring on a peak day, one occurring over the winter season, and one occurring over the summer season. These three periods were chosen because they represent a reasonable variation in costs the Company incurs to provide gas service at different times during the year. As explained at the start of this chapter, these results were used as "building blocks" to calculate DSM-specific avoided costs by using DSM measure-specific load shape and load factor data.

Choice of Decrement Size

Avoided gas costs vary with the size of the decrement (or increment). Therefore it is important to use a decrement that is consistent with the magnitude of the potential DSM resources under consideration. Again, however, it is both impractical and inappropriate to calculate individual avoided gas costs for each potential DSM measure since no single DSM measure is likely to be large enough to have a meaningful load reduction impact. Instead, one can calculate avoided gas costs using a decrement which is representative of the likely aggregate impact of the DSM measures under consideration.

Consumers Gas chose an initial load decrement of 4% for several reasons. It is reasonable to expect that in the long term, the load reduction DSM programs will have

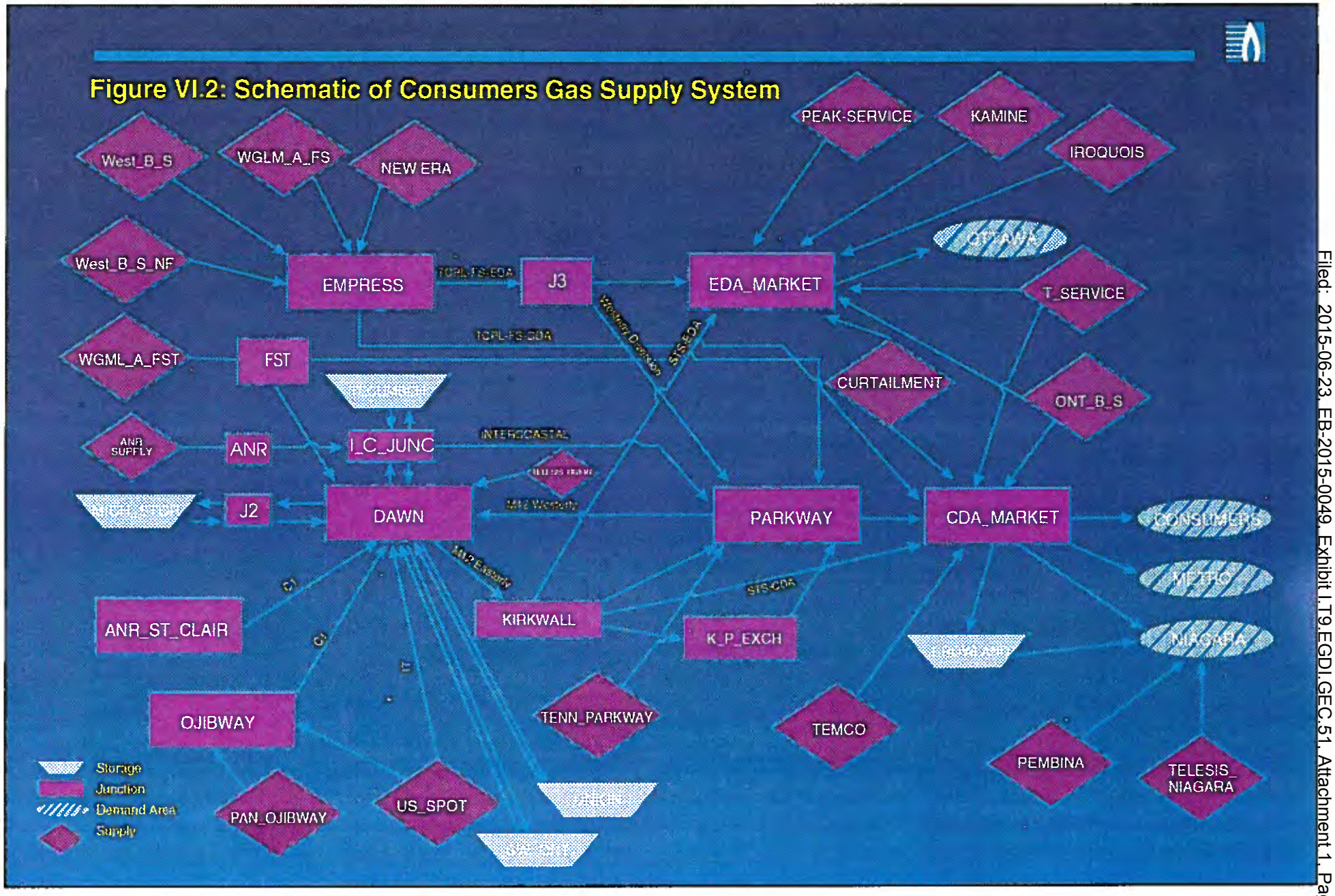
an aggregate impact of this order of magnitude. For example, the 1992 Preliminary Study on IRP done for Consumers Gas by Tellus projected reductions in load resulting from DSM ranging from 2.5% after two years of DSM programs to 5.1% after eight years of DSM programs. While the projected aggregate impact of the programs identified in the 1995 DSM Plan is less than 4%, Consumers Gas believes that a 4% decrement is still reasonable. Consumers Gas does not expect that DSM-specific avoided gas costs would be materially different with a slightly smaller decrement, given that the majority of these avoided gas costs are attributable to avoided commodity costs which are relatively insensitive to decrement size. Directionally, a slightly lower decrement size should, if anything, result in an equal or slightly higher unit avoided gas costs. In the future, Consumers Gas plans to do further analyses of its avoided gas costs for various sizes of decrements (see section B, subsection 9 of this chapter for more information).

6. Identification of Supply Resources

Overview

Consumers Gas acquires the majority of the gas required to serve its market demand from Western Canada via the TransCanada pipeline system, and has the ability to store a portion of this gas in its own storage facilities in Ontario, and in storage leased from Union Gas. Consumers Gas receives this gas in the central delivery area ("CDA"), eastern delivery area ("EDA"), and southwestern delivery area ("SWDA)". In recent years, Consumers Gas has increased its ability to access gas that is produced and/or stored in the United States. The Company's transportation contracts with Union Gas in Ontario are a key component in this complex delivery system. A schematic of this system is presented in Figure VI.2.

Consumers Gas identified the major supply resources it expects to have available to it over the planning horizon used for this DSM Plan. These resources fall into four major categories: commodity, transportation, storage, and peaking service. In preparing this inventory, the Company distinguished between existing resources and potential future resources. Existing resources are those available or committed to as of October 1993. Potential resources are those expected to become available during the planning horizon used in this analysis. These resources, described below, were provided as inputs to Sendout™.



Commodity Supply

The Company's existing commodity supplies can be grouped into four broad categories: firm Western Canadian supply purchased at the Alberta Border, firm U.S. supply, firm local production purchased in Ontario, and spot U.S. supply. (Consumers Gas acquires limited quantities of best efforts spot supplies on occasion. For the 1995 DSM Plan it was assumed that approximately 225 $10^6 m^3$ (8 Bcf) of U.S. spot gas would be available in each year.) In addition to its existing supplies, Consumers Gas considered two sources of incremental supply: new firm supply from Western Canada, and new firm supply from Louisiana and Oklahoma.

Transportation

Consumers Gas has a complex set of existing firm transportation arrangements. Some of these service agreements are primarily related to moving gas to or from storage. The Company also has the ability to use interruptible transportation on Panhandle Eastern and other pipelines.

The Company has numerous firm transportation contracts with TransCanada Pipelines Ltd. ("TransCanada") and three with Union Gas. In addition, it has entered into agreements with InterCoastal Pipe Lines Inc. ("InterCoastal"), ANR Pipeline Company ("ANR"), Great Lakes Gas Transmission Ltd. Partnership ("GLGT"), and Michigan Consolidated Gas Company ("MichCon") for firm transportation service beginning November 1, 1994. These service arrangements will enable Consumers Gas to ship U.S. gas delivered by ANR at St. Clair to Tecumseh Gas Storage ("Tecumseh") in the summer period (April to October), and to ship gas withdrawn from storage, as well as U.S.-sourced gas delivered by ANR at St. Clair to the Company's distribution system at Milton, Ontario in the winter period (November to March).

In addition to its existing arrangements, Consumers Gas considered two sources of incremental firm transportation. The first incremental source was an increase in the Company's firm transportation entitlement on TransCanada from Empress at the Alberta/Saskatchewan border to the Company's markets in the EDA. The second incremental source was firm transportation through the Panhandle Eastern system, from the Louisiana and Oklahoma gas supply basins to Ojibway, Ontario. From Ojibway, the gas would be transported on the Union Gas system to Dawn for injection into storage or for transportation to Kirkwall for subsequent transportation to the Company's EDA and CDA on TransCanada.

Storage

Consumers Gas has two existing storage facilities which it owns, Crowland and Tecumseh, as well as a storage service it purchases from Union Gas under a long-term contract. For this analysis Consumers Gas considered two incremental storage resource options: southwestern Ontario storage and Michigan Storage.

The potential for additional new storage in southwestern Ontario is limited. Consumers Gas assumed that only 283.3 10^6m^3 (10 Bcf) of storage capacity would be available in southwestern Ontario. As a proxy for incremental southwestern Ontario storage, Consumers Gas used the average characteristics of two pools recently developed by Union Gas, Edys Mills and Dow Sarnia. The average peak day deliverability ratio was 1.17% of the remaining inventory. In order to maintain peak day deliverability, it was assumed that 25% of the working capacity would be in place until the end of February.

As a proxy for incremental Michigan storage, the Company used the characteristics of ANR's Blue Lake storage pool which is a recently developed, stand-alone pool. Consumers Gas felt that 850 10^6m^3 (30 Bcf) was a conservative estimate of the available storage in Michigan. A deliverability ratio of 1.43% was used, and, as with southwestern Ontario storage, 25% of the working capacity had to be in place until the end of February. In order to utilize Michigan storage, Consumers Gas would need to contract for additional transportation service on the TransCanada, GLGT, and ANR systems.

Peaking Service

Consumers Gas currently has three long-term peaking service arrangements totalling 2 164 10^3m^3/day (76.4 MMcfd). Of this total 1 371 10^3m^3/day (48.4 MMcfd) is delivered to the CDA and 793 10^3m^3/day (28 MMcfd) to the EDA. Consumers Gas had access to recent proposals for peaking service for delivery to the Company's EDA. It was assumed that 42.5 10^6 m^3/d (150 MMcfd) of incremental peaking service could reasonably be available on a long-term basis. It was further assumed that the peaking service would be available for a total of 10 days per year.

7. Projection of Unit Costs of Supply Resources

Having identified the major resources available to the Company, projections of the unit demand and commodity costs of capacity and energy from each resource over the planning horizon were then developed.

Firm Canadian Supply, Existing and Incremental

To develop price projections for firm Western Canadian supply purchased at the Alberta Border, both existing and incremental, the Company began with the "Dobson Resource Management Ltd. Survey of Canadian Petroleum Consultants' and Canadian Banks' forecast of Product Prices", as of July 1, 1993. The Dobson survey utilizes detailed forecasts actually used by 16 consulting firms employed in the evaluation of Canadian oil and gas properties, as well as nine banks, and covers the period from 1993 to 2012. The survey consolidates the individual well head gas price forecasts to determine a "mean" gas price forecast.

Consumers Gas extended the mean well head gas price forecast by two years to 2014, using the average growth rate over the last five years of the forecast (i.e., 2008 to 2012). It then added a forecast of NOVA Corporation of Alberta ("NOVA") system tolls to arrive at a projection of Alberta Border Prices ("ABP"), i.e., the commodity cost of gas at the inlet to the TransCanada system.

Consumers Gas felt that the resulting ABP forecast was a reasonable projection of the long-term trend in natural gas prices. However, in the short term, Consumers Gas felt that the Dobson-based ABP forecast was not reflective of current market conditions for natural gas. The ABP forecast shows gas prices in the range of $1.75/GJ to $2.14/GJ for the fiscal 1994 to 1997 period. In contrast, actual gas prices at the Alberta border for firm supply ranged from $2.30/GJ to $2.40/GJ through the summer and fall of 1993. As a result, the Company adjusted the ABP forecast upwards for the first four years (i.e., 1994 through 1997) by blending actual short-term gas prices and the long-term gas price forecast for 1998.

Table VI.3 below summarizes the ABP forecast and the adjusted ABP forecast for the period 1994 through 1997.

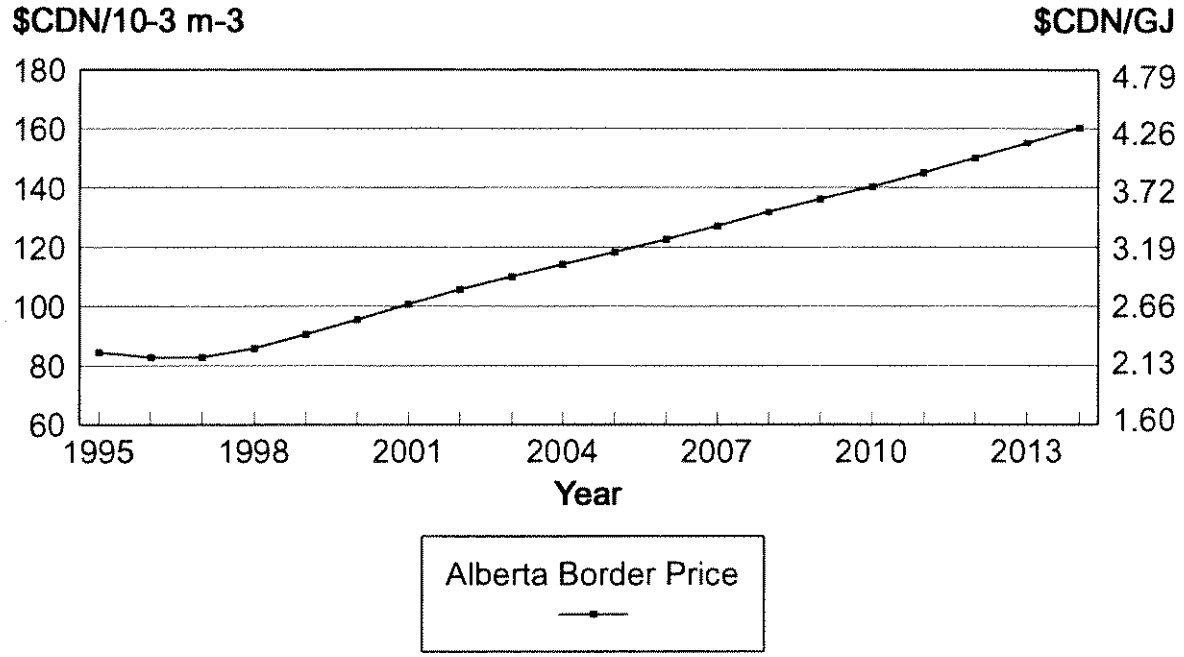
Table VI.3: ABP and Adjusted ABP Forecast, 1994-97

Fiscal Year	ABP Forecast		ABP Adjusted	
	($/GJ)	($/10^{3}m^3)	($/GJ)	($10/^{3}m^3)
1994	1.75	65.80	2.35	88.36
1995	1.88	70.69	2.25	84.60
1996	2.01	75.58	2.20	82.72
1997	2.14	80.46	2.20	82.72

The adjusted ABP of $2.35/GJ represents what the Company's price expectations were for long-term supply for fiscal 1994. The adjusted gas prices for fiscal 1995 through 1997 reflect the Company's view that gas prices in 1994 represent an "overshoot" response to the current tight deliverability situation in Western Canada and therefore prices will decline slightly before resuming the long-term trend reflected in the Dobson based ABP forecast.

Figure VI.3 presents the gas price forecast for Western Canadian supply used in the calculation of avoided gas costs.

Figure VI.3: Commodity Price Forecast
For the period 1995-2014



Firm U.S. Supply Price Forecast

Consumers Gas developed its projection of firm U.S. gas supply prices at the point of delivery into a pipeline by adding a fixed differential of $U.S. 0.33/Mcf to the adjusted ABP gas price forecast. The $U.S. 0.33/Mcf differential is based on the average historical differential between the Alberta Border Spot price and the average Louisiana and Oklahoma spot prices for the last five years. This differential equates to $CDN 0.38/GJ based on an exchange rate of $U.S. 0.823/$CDN for 1995.

Firm Local Production

Consumers Gas purchases gas supply from Telesis and Pembina Exploration in southwestern Ontario and in the Niagara Peninsula, respectively. The Company projected prices for these supplies by taking the adjusted ABP price as measured in dollars per gigajoule and multiplying it by a heating value of 39 megajoules per 10^3m^3. It then added the TransCanada FST toll, and fuel to TransCanada's Eastern Zone.

U.S. Spot Price Forecast

Consumers Gas projected U.S. spot gas prices at the point of delivery into a pipeline by subtracting a fixed differential of $U.S. 0.10/Mcf ($CDN 0.11/GJ in 1995) from the U.S.

was a reasonable estimate of the reduction Consumer Gas might expect to see in prices paid for gas purchased during off-peak periods.

Transportation Tolls

In general, Consumers Gas used the current transportation tolls (effective April, 1993) for its various transportation service agreements and then escalated these tolls at the rate of inflation (i.e., tolls remain constant in real terms). It is the Company's understanding that this is a common approach used by others when forecasting transportation tolls.

There were two exceptions to this approach. First, projections of transportation rates for the InterCoastal pipeline were taken directly from the InterCoastal Project Application (GH-4-93), dated June 29, 1993. Second, Consumers Gas projected the M12 rate for transportation service on Union Gas to escalate more rapidly than inflation, based on analyses of the rate at which this toll has escalated in the past. Over the period 1985 to 1993, the average annual growth in the M12 transportation rate was approximately 5% real. This growth rate is the result of some rather large expansion projects on the Dawn to Trafalgar system and is not expected to continue into the future. On the other hand, Union Gas is expected to exhibit some level of expansion. Taking all these factors into consideration, Consumers Gas assumed that the Union Gas M12 transportation rate would escalate at a rate of 2.5% real over the 1995 to 2014 fiscal period.

Storage

For existing storage resources, Consumers Gas used the same general approach to projecting charges as it used for transportation resources. All storage rates, with the exception of gas inventory carrying costs, were escalated at the rate of inflation.

For incremental storage resources, the Company began with the existing charges for its "proxy" pools and then escalated them at the rate of inflation. Costs for incremental southwestern Ontario storage were based on the average space, deliverability, and injection/withdrawal costs of Union's Edys Mills and Dow Sarnia storage pools. Costs for incremental Michigan storage were based on current rates for ANR's Blue Lake storage pool.

Peaking Service

Current rates were used for existing peaking service while charges based on recent proposals were used for incremental peaking service. These rates were escalated at the rate of inflation.

Table VI.4 summarizes the first year costs for each of the various transportation, storage and peaking services.

Table VI.4: Summary of First Year Transportation, Storage, and Peaking Service Rates

A. Transportation		Demand Charge ($Cdn/10³m³/Mth)	Commodity Charge ($Cdn/10³m³)
TransCanada	- FS	980.26	1.83
	- FST	-	20.8
	- STS (EDA)	80.09	0.09
	- STS (CDA)	30.91	0.01
Union Gas	- M12 Easterly	124.93	1.18
	- M12 Westerly	-	0.53
	- C1 (St. Clair to Dawn)	38.89	0.55
	- C1 (Ojibway to Dawn)	38.89	1.43
Panhandle	- FS	654.99	2.89
	- IT	-	4.1
ANR/MichCon	- FS (winter)	622	3.27
ANR/GLGT	- FS (summer)	605.04	3.63
InterCoastal		158.21	-
NR/GLGT/TCPL (From Michigan Storage)		463.15	0.56
TCPL/GLGT/ANR (To Michigan Storage)		202.77	0.18

B. Storage	Demand Space Charge ($Cnd/10³m³/Mth)	Demand Deliverability ($Cdn/10³m³/Mth)	Injection/ Withdrawl Charge ($Cdn/10³m³)
Union Gas	0.42	56.03	0.53
Southwestern Ontario	1.76	150.73	0.43
Michigan	1.15	80.76	0.89

C. Peaking Service	Demand Charge 1 ($Cdn/Mth)	Demand Charge 2 ($Cdn/Mth)	Commodity Charge ($Cdn/10³m³)
Existing PS 1	1,666.11	275.96	107.32
PS 2	236.96	-	298.23
Incremental PS	716.82	-	189.86

where, IT is Interruptible transportation, and PS is Peaking service.

8. Avoided Gas Costs

As noted earlier, the Company determined the gas supply costs it would avoid as a result of various types of load decrement by comparing its long-term system supply costs before, and after, the decrement. The benchmark for this comparison was its system supply costs under the "business-as-usual" scenario or Base Case. The three separate "decrement" scenarios used were Peak Day, Winter Season, and Summer Season. The unit avoided gas costs resulting from each decrement scenario are equal to the difference in the total system supply costs between the Base Case and the respective scenario, divided by the difference in demand between the Base Case and the scenario. The results of Consumers Gas' analyses, calculated using the Sendout™ model, are presented in Table VI.5.

Table VI.5: Volumes and Total Gas Costs, 1995-2003

	1995	1996	1997	1998	1999	2000	2001	2002	2003	
Base Case										
Demand (10 6 m3)	11,662.70	11,945.20	12,445.60	12,655.70	12,862.90	13,076.70	13,274.60	13,541.30	13,767.50	
Total Cost ($ 000)	1,567,273	1,584,865	1,664,055	1,749,860	1,856,984	1,977,323	2,102,575	2,235,276	2,356,766	
Average Cost ($/ 10 3m3)	134.38	132.68	133.71	138.27	144.37	151.21	158.39	165.07	171.18	
Decrement in Peak Day										
Demand Reduction (10 6 m3)	3.3	3.4	3.4	3.5	3.6	3.7	3.7	3.8	3.8	
Total Cost ($ 000)	1,565,873	1,593,231	1,654,974	1,739,561	1,849,877	1,968,462	2,092,261	2,224,236	2,345,786	
Unit Avoided Gas Cost ($/ 10 3m3)	424.24	(2,460.59)	2,670.88	2,942.57	1,974.17	2,394.86	2,787.57	2,905.26	2,889.47	
Decrement in Winter Season and Peak Day										/C
Demand Reduction (10 6 m3)	298.7	306.1	316.4	321.9	327.2	333.0	338.2	345.7	351.8	/C
Total Cost ($ 000)	1,511,644	1,542,792	1,602,721	1,695,199	1,801,101	1,910,604	2,038,632	2,158,082	2,276,782	/C
Unit Avoided Gas Cost ($/ 10 3m3)	186.24	137.45	193.85	169.81	170.79	200.36	189.07	223.30	227.36	/C
Decrement in Summer Season										
Demand Reduction (10 6 m 3)	167.8	171.8	181.4	184.4	187.2	190.1	192.7	196.0	198.9	
Total Cost ($ 000)	1,557,285	1,561,696	1,650,791	1,727,902	1,837,888	1,956,936	2,080,728	2,211,934	2,331,884	
Unit Avoided Gas Cost ($/ 10 3m3)	59.52	134.86	73.12	119.08	102.01	107.24	113.37	119.09	125.10	

The Winter Season decrement used in these analyses included the Peak Day. In order to avoid double counting, and to determine the unit avoided gas costs for non-peak winter days, Consumers Gas had to adjust the results of the Winter Season decrement scenario. The following formula was used to make this adjustment.

$$\text{WSAGC (W/O PD)} = \frac{\text{WSAGC (W/PD) x 151 days - PDAGC x 1 day}}{\text{150 days}}$$

where:

WSAGC (W/O PD) =Winter Season avoided gas cost **without** decrementing Peak Day.

WSAGC (W/PD) =Winter Season avoided gas cost **with** decrementing Peak Day

PDAGC =Peak Day avoided gas cost.

The current version of the Sendout™ model allows optimization over a period of up to 10 years. Consumers Gas based its projection of avoided gas costs for the further period from 2004 through 2014 on a regression analysis of the trend in these costs during the first nine years. Based on this analysis the Company escalated each avoided gas cost at the following rates:

Peak Day	1.34%
Winter Season	2.97%
Summer Season	3.98%

The Company's projections of unit avoided gas costs for a peak day decrement, an average non-peak winter day decrement and an average summer day decrement are presented in Table VI.6 below:

Table VI.6: Forecast of DSM Unit Avoided Gas Costs

Fiscal Year	Peak Day ($/10³m³)	Winter Season ($/10³m³)	Summer Season ($/10³m³)
1995	424.24	184.65	59.52
1996	(2,460.59)	154.77	134.86
1997	2,670.88	177.34	73.12
1998	2,942.57	151.32	119.08
1999	1,974.17	158.77	102.01
2000	2,394.86	185.72	107.24
2001	2,787.57	171.75	113.37
2002	2,905.26	205.48	119.09
2003	2,889.47	209.70	125.10

9. Future Refinements and Study Requirements

In selecting assumptions and approaches to use in preparing this initial estimate of avoided gas supply costs, the Company relied heavily on the experience and judgment of its Gas Supply department staff and of its consultant, Tellus Institute.

In preparing future DSM plans, the Company will build upon its experience with this initial estimate and will undertake further analyses of key input parameters and calculation methodologies. Outlined below are actions the Company intends to take during calendar year 1994 in this regard.

Avoided Gas Cost Calculation Methodology

The Company will assess the merits of the "Decrement/Increment" approach as compared to a "Differential Revenue Requirement" method for avoided gas cost calculations.

Sensitivity analysis will be undertaken to determine the impact on avoided gas costs resulting from different sizes and shapes of demand decrement used in the calculation. Included in this analysis will be an assessment of the need to use a decrement which increases in size over time to mirror the build-up of DSM demand savings over time. Based on the results of these analyses, the value of adopting an iterative approach to the avoided gas cost calculation for future DSM plans will be determined, as well as the possible need to use distinct avoided gas costs for subsets of future, potentially large, DSM portfolios. Analysis will also be undertaken to determine the value of increasing the number of seasonal decrements beyond the three used in this DSM Plan (i.e., peak day, winter season, and summer season).

An assessment will also be made of the appropriate planning horizon over which the supply portfolio should be optimized for the purposes of determining avoided gas costs. In this DSM Plan, the supply portfolio was optimized over a 10-year period. However, the Company typically uses a five-year planning horizon for gas supply planning purposes and is typically required to make commitments two to three years in advance of the service becoming available. It may therefore be more appropriate to calculate avoided gas costs using a series of optimizations each covering a three to five year period.

Input Parameters

An analysis will be performed to determine the sensitivity of avoided gas costs to changes in key input parameters used in the SENDOUT™ optimization model. The results of this analysis will be used to establish the appropriate level of detail needed for each key input parameter in order to develop a reasonable set of avoided gas costs.

These analyses will include an assessment of the sensitivity of avoided gas cost results to changes in the Base Case demand forecast.

Measurement

A methodology will be developed to measure the actual avoided gas costs resulting from the implemented DSM programs.

Analysis will also be undertaken to compare the forecasted DSM-driven demand reductions to the actual DSM demand reductions in order to establish the reliability and predictability of DSM as a supply source. Depending on the outcome of this analysis, adjustments may have to be made to the criteria currently used in selecting a reliable gas supply portfolio for the Company's market area.

C. AVOIDED DISTRIBUTION SYSTEM COSTS

1. Overview

The avoided distribution system costs used in the preparation of this DSM Plan are based upon an estimate of the reinforcement mains costs Consumers Gas would avoid owing to a reduction in peak demand. This approach provides a reasonable initial estimate and establishes the order of magnitude of avoided distribution facility costs.

In theory, DSM programs could have an impact on one or more of the following categories of distribution main expenditures.

1. Reinforcement Mains,
2. Sales Mains,
3. Relocation Mains, and
4. Replacement Mains.

For the purposes of preparing this DSM Plan, the Company limited its estimate to reinforcement mains costs. This is the primary category of avoided distribution system costs affected by load reduction.

The other categories of distribution main costs were excluded because they would not be materially affected by load reduction DSM programs. Sales mains are primarily smaller diameter mains. Sales mains costs were not included in the Company's estimate since the DSM programs under consideration are not expected to increase or decrease the number of customer additions.

Relocation and replacement mains were excluded because expenditures on these facilities are driven by factors such as routine maintenance and conflicts with other developments, such as road improvement. The need for these facilities is not related to increases or decreases in demand.

2. Estimation Method

To estimate avoided distribution costs, Consumers Gas determined the historical relationship between its annual expenditures on reinforcement mains and annual increases in demand over two 10-year periods. This ratio represents the incremental cost of reinforcement mains required to supply an increase in demand on a system-wide basis. The historical increases in demand and associated reinforcement costs are shown in Table VI.7 below. The average cost for the two periods was calculated as $\$4,422/10^3m^3$/day in 1993 dollars. This cost varies considerably from year to year, depending on which part of the distribution system requires reinforcement.

Natural gas distribution facilities are designed to supply an hourly flow rate. The actual impact of a DSM program on facility expenditures will depend on the specific locations of the load reductions within the distribution system as well as actual impact of the load reductions on system-coincident peak hour demand under design conditions. In this analysis the effect of DSM programs on peak day demand was used as a proxy for the impact of the program on the coincident peak hour design demand.

Table VI.7: Costs of Increase in Demand and Associated Reinforcement Costs

Period	Peak Day Increase* (10^3m^3/day)	Reinforcement Cost (1993 dollars)	Cost (10^3m^3/day)
1982-1992	17,219	$69,267,042	$4,023
1983-1993	14,898	$71,800,780	4,820
Average			**$4,422**

* at 39 degree day Celsius ("DDC")

These avoided expenditures were assumed to occur in the year in which the DSM measure is implemented by the program participant. The avoided expenditure represents an avoided investment in a facility with a depreciable life of 55 years. This avoided investment was then converted to an avoided levelized cost so that it could be incorporated into the avoided costs used for screening the DSM programs.

To determine the levelized cost, the average cost of reinforcement facilities of $4,422 per 10^3m^3 per day in $1993 was converted to nominal dollars in each of the years 1995 through 1999 as shown on Table VI.8. Five years was selected as the appropriate time horizon because the volume reductions occur as a result of customer participation in the DSM programs over the five year horizon covered by this Plan. Each average cost

was then multiplied by a fixed charge factor of 12.98%, which is based upon a weighted after-tax cost of capital of 8.13% and an inflation rate of 2%.

Table VI.8: Levelized Avoided Cost of Distribution Facilities

	1995	1996	1997	1998	1999	Average
Facilities Costs $/10^3/m^3/day	4,601	4,693	4,787	4,882	4,980	4,789
Fixed Charge Factor	12.98%	12.98%	12.98%	12.98%	12.98%	12.98%
Levelized Cost $/10^3/m^3/day	597	609	621	634	646	**622**

3. Future Refinements and Study Requirements

Consumers Gas will assess the need for further refinements to the methodology it used to estimate avoided distribution costs based on the availability of further relevant information and the impact of this avoided cost element on the DSM decision-making process. The Company recognizes the need for accurate estimates of the benefits of a DSM program, but it also recognizes the need to match the amount of effort and resources placed on identifying these benefits with their relative importance.

The benefit-cost analysis of the DSM programs is presented in Chapter VIII. The avoided distribution costs vary from approximately 1% to 5% of the total supply savings for the individual programs depending on the load profile. These results indicate that avoided distribution costs are not large enough to have a significant impact on the determination of DSM program cost-effectiveness and that a reasonable estimate is likely sufficient.

The impact of a DSM program on facility requirements depends on a number of factors including the impact of the DSM program on customers' peak hour design load, the location of the affected market within the distribution system, the yearly forecast of customers who will participate in the program, the forecasted design load growth for the particular area, and the capacity of the distribution system supplying that area.

Much of this information will be supplied by the end-use modelling and the load research that the Company will be undertaking. The EUM will provide the base design load forecast by market area along with the design load forecast, taking into account the impact of the DSM programs.

As further load research is conducted and the EUM is developed, the Company is proposing to use the forecast from the model to determine the impact of DSM programs

on distribution mains operating over 1,200 kPa. These distribution systems are referred to as extra high pressure ("XHP") distribution systems. Over 70% of the reinforcement mains are installed in XHP distribution systems, so analysis of the XHP system will provide a reasonable estimate of the avoided reinforcement costs.

The extent of the modeling required will be determined when the information from the EUM is available and will be based on the importance of this element in the final decision. The EUM is expected to be in place and contain sufficient information to support this effort in approximately two years. In general, the Company will be working towards a procedure to estimate avoided facility costs that consists of the following three components:

1. Avoided facility costs for the XHP distribution system, which will be based on modeling the distribution system and determining the impact of the programs on reinforcement requirements.

2. The avoided reinforcement costs for the remainder of the distribution system, based on test areas and system averages.

3. The avoided sales mains costs, based on test areas and system averages.

As load research and EUM development activities continue, the estimating procedures for avoided reinforcement costs and sales mains costs (referred to in points 2 and 3 above) will be developed. This work will include the selection of representative test areas and sensitivity analysis to refine the process and identify general system averages that will be useful in the estimating process.

The primary goal at this stage is to determine the potential impact of the DSM programs on factors such as: annual and peak day demand, system peak-hour design loads, and customer behaviour. The effect of DSM programs will be included in the design of new distribution facilities when more is known about the impact, reliability, and permanence of DSM programs on the design peak-hour load, as well as their impact on the design load for a given area.

D. AVOIDED WATER COSTS

Certain DSM programs will result in reductions in water consumption as well as reductions in gas consumption. For the purposes of this analysis, reductions in water consumption were valued using water rates for 1993 from the Region of Durham, inflated to 1995 levels. These rates (shown in Table VI.9 below) were used as inputs to the model used to screen the cost-effectiveness of DSM measures.

Table VI. 9: Avoided Water Costs

	1995	1996	1997	1998	1999
Water Rates ($/m^3)	$0.7875	$0.8033	$0.8193	$0.8357	$0.8524

E. AVOIDED SOCIAL EXTERNALITY COSTS

1. Consistency with Board Guidelines

Energy usage imposes a variety of costs on society. Some of these costs, such as the direct costs of facility construction, operation and fuel consumption, or the cost of emission control equipment, are borne directly by the utility and, in turn, by the consumer in the prices that are charged for the delivery and distribution of that energy. However, energy usage also results in costs that are not reflected in the gas prices paid by either the utility or the consumer. Most notable among these "external" costs are those associated with adverse environmental and human health impacts resulting from energy facility construction and the extraction, processing, transportation, and combustion of fuels. Some of these impacts can be reflected (or "internalized") in direct costs, to the extent that regulations and engineering practices respond to scientific research and public concern. Others, however, are not captured in the market transaction of the energy provided to the consumer. These impacts are referred to as "social externalities", and for the purposes of this DSM Plan, include environmental and economic externalities.

The inclusion of social externalities is an important component in the analysis of DSM programs. The difficulty lies in determining which externalities to include, how to quantify them, and how to monetize them. Despite the difficulties associated with the treatment of externalities, there is general agreement that they should be considered in energy supply and use decisions.

In its EBO 169-III Report of the Board, the Board indicated that externalities involving significant social benefits and costs should be included in the analysis of DSM programs. The Board also indicated that consideration and inclusion of societal externalities when initiating DSM programs should not be delayed until the methodology for measuring externalities has been further developed or the results of further studies of relevant externalities are available.

The consideration of externalities, as outlined in this section, has been undertaken in accordance with the externalities guidelines outlined in the EBO 169-III Report of the Board.

These guidelines call for consideration of other jurisdictions' experiences in quantifying and monetizing externalities; assessments of the significance of particular externalities before measuring their effect and impact; use of the Cost-of-Control method to assess

the monetary value of environmental externalities; preparation of sensitivity analyses for each monetized externality value; and treatment of the dollar values of monetized externalities for planning purposes in the same manner as market-determined costs.

Tellus Institute was retained by Consumers Gas to develop environmental externality values for this DSM Plan. What follows is an overview of the study completed by Tellus Institute, including the monetized values recommended by Tellus Institute for the environmental externalities examined. Tellus Institute's full report, which includes a discussion of methodologies and method used, a review of environmental externalities suggested in the literature and adopted in other jurisdictions (including studies completed in Canada to ensure that the externalities proposed reflect the local regulatory climate and Canadian environmental goals), as well as a complete list of references, is included as Appendix VI.A.

The Company also considered economic externalities in this DSM Plan, consistent with those it currently uses in its benefit-cost analysis of system expansion projects. These economic externalities are discussed and presented in this chapter at Section 4.

2. Methodology for Environmental Externalities

All significant environmental externalities associated with energy usage should in principle be included in the societal cost-effectiveness test. There are, however, practical limitations in determining which externalities are significant or relevant, as well as in determining how the significant and relevant ones are to be measured and monetized. Consumers Gas was cognizant of the need to undertake studies to determine which environmental externalities should be included in the program screening for this DSM Plan, while at the same time minimizing resources expended on investigations which might eventually be duplicated by the work of the Externalities Collaborative.

The Collaborative has been mandated by the Board in EBO 169-III to develop agreed upon social externalities, and is comprised of representatives from the major natural gas utilities in Ontario, governments, public interest groups, and other stakeholders so that a diverse spectrum of perspectives is considered. The report of the Collaborative is not expected to be finalized until April 1994. In the interim, Consumers Gas believed it reasonable to include preliminary atmospheric emission externalities values in the assessment and evaluation of prospective DSM programs. Therefore, for its first DSM Plan, the Company has incorporated externalities associated with atmospheric emissions resulting from the combustion of natural gas.

There were several reasons why atmospheric emissions were considered to be appropriate as the environmental externalities incorporated into this first DSM Plan. First, in the majority of cases, the environmental impacts associated with atmospheric emissions are known and have been documented. For example, the environmental significance of NOx as precursors to ground level ozone formation are understood and

accepted. Second, the quantity of emissions for commonly emitted pollutants (i.e., emission factors, expressed in kilograms of pollutant emitted per 10^3m^3 of gas consumed) have also been previously estimated. Third, monetization of these pollutants has already been undertaken in a number of other jurisdictions, and published information is available on the monetized costs of these environmental externalities. As a consequence, the Company felt it could draw on an established baseline of information. Subject to the results of the Collaborative's work, the Company also felt that air emissions would likely be the dominant environmental impact associated with natural gas usage.

The Tellus externalities report (Appendix VI.A), examined the following air pollutants: nitrogen oxides (NOx), sulphur oxides (SOx), total suspended particulates (TSP), carbon monoxide (CO), volatile organic compounds (VOCs), and greenhouse gases (carbon dioxide (CO_2) and methane (CH_4)).

Following the identification of environmental externalities to be included in this preliminary analysis, Tellus Institute obtained emission factors for each of these externalities. Next, a literature survey was undertaken to review monetized values suggested by others for each of these externalities. The environmental externality values discussed in the literature were generally derived using the marginal Cost-of-Control or Prevention method, based on existing or proposed environmental regulations. This approach is based on the premise that environmental regulations reflect the value that society, either implicitly or explicitly, places on environmental impacts. This approach is also referred to as the regulators' "revealed preferences" approach. By examining these regulations, Tellus identified the cost of the highest (or marginal) control strategies that society has chosen to require. Assuming the regulations are rational, these values represent the amounts society is willing to pay to avoid the environmental impacts of a given pollutant. Where regulations for certain of the emissions did not exist (as is the case for carbon dioxide and methane), Canadian federal government commitments to stabilize greenhouse gases at 1990 levels were used as the proxy for regulations.

Externality values derived from using the marginal Cost-of-Control method may change as society's "revealed preferences" change over time, as indicated by the adoption of more stringent regulations. Similarly, environmental externality values for Ontario may differ from those derived for U.S. jurisdictions, if their respective environmental regulations, and physical and demographic characteristics are significantly different. Consumers Gas believes that the environmental externality values developed and recommended by Tellus are reasonable initial estimates.

3. Environmental Externalities Values

As summarized in Table VI.10, the research Tellus employed in this exercise resulted in a high and low range expressed in dollars per tonne for each environmental externality. This range reflects the differences which exist between externality values used in the

various jurisdictions covered by the Tellus report. Certain extreme high and low figures were excluded, where it was felt the monetized value was obtained from a jurisdiction where conditions are significantly different from Ontario's (e.g., the Southern California Air Quality Management District).

Table VI.10: Low and High Externality Values (1995 $/Tonne)

	Low	High
Nitrogen Oxides	3,000	11,000
Sulphur Oxides	600	6,000
Total Suspended Particulates	1,000	13,000
Carbon Monoxide	10	1,400
Volatile Organic Compounds	1,800	11,000
Carbon Dioxide	10	100
Methane	100	1,100

The values for each emission were multiplied by emission factors for each major end-use (i.e., kg of emission per 10^3m^3 of gas consumed) to provide an externality value in dollars per 10^3m^3 of gas consumed (in 1995 dollars) as shown in Table VI.11.

These values were used as inputs in the DSM program screening, in which sensitivity analysis was performed using both the high and low values for environmental externalities.

TABLE VI.11: Emission Factors and Externality Costs (1995 $) for Natural Gas End-Use

	Commercial Heat			Residential Heat			Residential Hot Water		
		Low	High		Low	High		Low	High
	(kg/10 3 m3)	($/10 3 m3)	($/10 3 m3)	(kg/10 3 m3)	($/10 3 m3)	($/10 3 m3)	(kg/10 3 m3)	($/10 3 m3)	($/10 3 m3)
NOx	1.54E+00	$4.61	$16.89	1.05E+00	$3.16	$11.53	1.05E+00	$3.15	$11.53
SOx	1.50E-02	$0.01	$0.09	1.50E-02	$0.01	$0.09	1.50E-02	$0.01	$0.09
TSP	2.25E-01	$0.22	$2.92	2.25E-01	$0.22	$2.92	3.75E-02	$0.04	$0.49
CO	2.62E-01	$0.00	$0.37	2.62E-01	$0.00	$0.37	3.00E-01	$0.00	$0.42
VOCs	1.12E-01	$0.20	$1.24	1.12E-01	$0.20	$1.24	7.49E-02	$0.13	$0.82
CO2	1.91E+03	$19.10	$191.00	1.91E+03	$19.10	$191.00	1.91E+03	$19.10	$191.00
CH4	3.75E-02	$0.00	$0.04	3.75E-02	$0.00	$0.04	3.75E-02	$0.00	$0.04
Total		$24.14	$212.55		$22.69	$207.19		$22.43	$204.39

4. Economic Externalities

Consumers Gas has used an analysis of economic externalities as part of its stage 2 and 3 system expansion feasibility procedures since EBO 134. These externalities were analyzed using a framework suggested by the Company's consultant in this area, Econanalysis and Associates.

In preparing its 1995 DSM Plan for this case, Consumers Gas wished to provide a economic externalities analysis which was consistent with what it currently uses for its expansion projects. Five of the factors normally used on expansion projects were relevant, and of these, four were examined. The fifth factor was not relevant in this analysis, because the starting point for the analysis, the Societal Cost Test ("SCT"), already used the Social Discount Rate ("SDR") for discounting.

When these externalities were analyzed for each of the candidate DSM programs, it was determined that they were not of a sufficient size to affect the acceptance or rejection of the candidate DSM programs. Also, the results of the economic externalities analysis showed a net positive benefit for all DSM programs, which always improved the results of the SCT and OEB screen 3, part 1 (net societal benefit per dollar of subsidy). Given these reasons and the tight time frame the Company was working to in the preparation of this DSM Plan, the economic externalities were not layered onto the SCT and screen 3, part 1. Furthermore, the computer model used to perform the economic benefit-cost analysis, the Tellus ECO™ model, is not currently equipped to handle these factors.

In the following sections, a description of the factors analyzed is provided, and results are presented to show the economic externality values, run at three different SDRs. The economic externalities methodology is documented in Appendix VI.B.

Overview

In this context, externalities refer to economic impacts associated with energy usage that are not reflected in the market price of energy. An example is the extra tax collected and lower unemployment insurance paid by the government as a result of a job being created by a DSM program. Economic externalities can be positive and can add to the attractiveness of the project, or they can be negative, in which case they detract from the project.

Since EBO 134 in 1987, gas utilities in Ontario have generally included economic externalities in their analysis of expansion plans for leave-to-construct hearings. In its feasibility analysis of the Georgian Bay expansion (EBLO 223), Consumers Gas presented a benefit/cost framework for analyzing and quantifying economic externalities. It was developed and presented to the Board with the assistance of the Company's consultant, Econanalysis and Associates. This framework was also used by Consumers Gas in its Horseshoe Valley (EBLO 232), Deep River (EBLO 231), and

Lakefield (EBA 595 and EBC 195) leave-to-construct hearings. It has also been used as part of the screening process on system expansion analysis in rate cases where "stage 2" projects were included.

The Company measures economic externalities as flows to the government sector, which represent society. The net returns to government of an expansion project result from net tax, tariff, and other net government revenue generated by the project. Four categories of net returns have been analyzed:

1. Foreign exchange;
2. Tariff, sales, and/or excise taxes;
3. Utility income taxes; and
4. Labour.

The factors that were initially developed by Econanalysis and Associates in the above four categories for the Company's Georgian Bay leave-to-construct application, are outlined in the following sections. The factors were developed to quantify these externalities on the basis of various Canadian academic studies done in the 1970s and 1980s. These factors were considered appropriate for the purposes of this DSM analysis, but no new academic work was incorporated into the factors. The factors were applied to the utility and participant cost estimates of the five years of the Plan, and the energy supply savings over the lifetime of the DSM measures.

Foreign Exchange

If the sale of a commodity earns foreign exchange, saves foreign exchange, or generates additional tariff and tax revenue, the externalities are positive. This adds to the attractiveness of the project. For example, if DSM programs save gas that can then be exported and earn foreign exchange, this should be reflected as a credit to the project.

The foreign exchange premium has been estimated by Jenkins and Kuo[2] as 6.5% greater than the market exchange rate in Canada. That is, for every dollar of foreign exchange earned or saved by a project there is an additional $0.065 benefit to Canada.

There have been major changes to trading relationships, tariffs, taxes, subsidies, and energy prices since the Jenkins and Kuo study was completed. This factor was reconsidered, but not changed, in February 1990 for Deep River (EBLO 231). Changes such as the National Energy Program, federal and provincial tax rates, GATT, the Free Trade Agreement, and the then proposed GST were considered. Updating this factor would require an analysis that took into account more recent taxes and tariffs. This could be a large undertaking that could last several months. As an interim measure, Econanalysis and Associates indicated that freer trade would likely lower the /c

[2] Jenkins and Kuo, "On Measuring the Social Opportunity Cost of Foreign Exchange", *Canadian Journal of Economics*, Vol. XVIII, No. 2, (May 1985), pages 400-415.

premium and suggested that a premium of 5% could be used for the purpose of estimating social externalities for this DSM Plan.

Tariff, Sales and Excise Taxes

Tariff, sales, and excise tax externalities refer to flows to the government sector as a result of a project. To determine the tariff, sales, and excise tax externalities, all commodity inputs to, or outputs from the project must be classified as tradeable or non-tradeable. With non-tradeable commodities, sales taxes are the main externality; both federal and provincial sales taxes are included in this category. Tradeable commodities can be further subdivided into importable and exportable commodities. A tariff externality arises on any importable commodity that is subject to tariffs or import duties. The tax paid on the transportation of gas, which is an exportable commodity, is also included. Most costs are pre-tax, so the tax externality is usually zero. Where tax is included, the Provincial rate of 8% and the Federal GST rate of 7% were used. Tariff rates on commodities, such as natural gas, furnaces, and higher efficiency water heaters, were taken from the 1992 tariff table.

Utility Income Taxes

Utility income taxes paid by Consumers Gas represent a transfer from the Company to the government, and not a cost to society as a whole. Because the DSM program analysis has been conducted on a before-tax basis, there was no need to include income taxes as a social externality.

Labour

Labour externalities are the net changes in Unemployment Insurance Commission ("UIC") payments, personal income taxes, and rents earned by labour as a result of a particular project. If DSM programs create net jobs they may deserve a credit for reducing UIC payments and generating more personal income tax revenue. However, the amount of credit would depend on a number of factors:

- Unemployment rate,
- Labour productivity,
- Job permanency,
- Job skill level,
- Job locations,
- Alternate employment opportunities, and
- Worker migration in response to job creation.

The production and installation of equipment and materials should produce incremental labour effects for DSM programs. These have been assessed at 5.1% (of the NPV of the wage bill) for construction jobs using contractor labour, 10% for construction jobs using Company labour, and 15.6% for operating jobs created.

Results

The results of this analysis using three different SDRs are summarized in Tables VI.12, VI.13, and VI.14.

The largest economic externality is the foreign exchange externality, which ranges between $5.8 million and $4.0 million (NPV discounted back to 1995), depending on the SDR used. This is mostly as a result of the gas saved by DSM, which can then be exported to generate foreign exchange.

The labour externality varies from $2.8 million (NPV) in the 11.18% SDR case to $2.9 million in the 7.1% SDR case. The labour externality is highest for those programs that have the highest labour content, so the DSM administration costs therefore generated the largest labour externality. Also, because administration jobs are more permanent, less cyclical, higher skilled, and higher paid than construction jobs, they are subject to a larger externality per dollar of wage bill. This is because the jobs will generate more income tax and less UIC payments than construction jobs.

The tariff externality arises mostly from DSM program RP-4, the residential heating program. This is because it involves importing high efficiency furnaces into Canada, which have a tariff rate of 7.1%. In several programs the tariff externality is negative because the tariffs generated as a result of importing goods for the DSM program, are outweighed by the foregone tariffs on imported plastic pipe for gas distribution. The tariff externality amounts to roughly $1.7 million (NPV) in all three SDR scenarios.

The tax externality is small because the corporate taxes were not deducted in the ECO results (which are stated on a before-tax revenue requirement basis), and also for the most part, GST and PST were not built into the costs and benefits. The exception was for the DSM programs that had a water savings component, RP-3, RP-6, and CI-4. In these programs low-flow showerheads had some tax factored into their cost. The calculated tax externality is therefore only $0.3 million (NPV).

Total economic externalities for all programs including the administration costs amount to between $8.8 million and $10.8 million (NPV). The largest contributor to this total is program CI-5 because it is the largest in terms of avoided costs, administration, program, and participant costs.

Table VI.12 - Economic Externalities of the Proposed Portfolio

	Economic Externalities at a 7.1% SDR ($NPV)				
Program	Foreign Exchange	Tariff	Tax	Labour	Total
RP-2	1,418,013	(28,243)	0	222,764	1,612,534
RP-3	112,675	24,766	12,462	68,605	218,508
RP-4	174,336	1,622,984	0	667,978	2,465,298
RP-5	102,907	(5,765)	0	93,926	191,068
RP-6	218,203	31,406	298	128,856	378,763
CI-1	178,581	6,046	0	56,450	241,077
CI-2	39,944	250,129	0	103,094	393,167
CI-4	715,364	82,830	312,763	(8,463)	1,102,494
CI-5	2,814,004	(223,416)	0	747,983	3,338,571
CI-6	56,041	(4,557)	0	23,532	75,016
ADMIN	(1,493)	0	0	827,943	826,450
TOTAL	5,828,575	1,756,180	325,523	2,932,668	10,842,946

Table VI.13 - Economic Externalities of the Proposed Portfolio

	Economic Externalities at a 9.14% SDR ($NPV)				
Program	Foreign Exchange	Tariff	Tax	Labour	Total
RP-2	1,252,668	(24,652)	0	198,577	1,426,593
RP-3	96,754	23,793	11,848	65,337	197,732
RP-4	(15,960)	1,583,812	0	652,468	2,220,320
RP-5	82,240	(4,607)	0	90,649	168,282
RP-6	179,111	31,640	284	123,516	334,551
CI-1	144,695	6,671	0	54,718	206,084
CI-2	12,240	241,543	0	99,618	353,401
CI-4	621,745	80,729	299,188	(7,415)	994,247
CI-5	2,396,881	(195,240)	0	730,266	2,931,907
CI-6	53,401	(4,343)	0	22,691	71,749
ADMIN	(1,225)	0	0	809,629	808,404
TOTAL	4,822,550	1,739,346	311,320	2,840,054	9,713,270

Table VI.14 - Economic Externalities of the Proposed Portfolio

	Economic Externalities at a 11.18% SDR ($NPV)				
Program	Foreign Exchange	Tariff	Tax	Labour	Total
RP-2	1,113,702	(21,659)	0	178,099	1,270,142
RP-3	83,570	22,857	11,280	62,299	180,006
RP-4	(157,656)	1,544,709	0	636,827	2,023,880
RP-5	67,111	(3,759)	0	87,508	150,860
RP-6	148,938	31,496	271	118,416	299,121
CI-1	118,611	7,082	0	53,032	178,725
CI-2	(8,557)	233,311	0	96,273	321,027
CI-4	543,741	78,577	286,620	(6,539)	902,399
CI-5	2,052,767	(171,686)	0	712,695	2,593,776
CI-6	50,970	(4,145)	0	21,909	68,734
ADMIN	(1,037)	0	0	792,613	791,576
TOTAL	4,012,160	1,716,783	298,171	2,753,132	8,780,246

be very small in absolute dollar terms. Because CO_2 represents the highest proportion of the emissions when natural gas is combusted, its value has the most impact on the overall externality cost, making up approximately 90% of it when high externality values are used.

Table IV.2
Emissions Factors and Externality Costs (1995 $) for Natural Gas Residential Space Heating

Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8
		Externality Cost					
	Emission[1]	$Cdn/Tonn[2]		Total, $Cdn/GJ			
Pollutant	kg/GJ	Low	High	Low	%	High	%
NO_x	0.0208	$8,500	$15,000	$0.18	24	$0.31	9
SO_x	0.0004	$2,100	$4,800	$0.00	0	$0.00	0
Part	0.0060	$4,400	$16,400	$0.03	4	$0.10	3
CO	0.0070	$1,400	$1,400	$0.01	1	$0.01	0
VOCs	0.0030	$3,000	$7,500	$0.01	1	$0.02	1
CO_2	51.0000	$10	$60	$0.51	69	$3.06	87
CH_4	0.0010	$110	$660	$0.00	0	$0.00	0
N_2O	0.0014	$2,700	$16,200	$0.00	0	$0.02	1
				$0.74	100	$3.52	100

[1] Emissions from "Development of Environmental Externalities for Consumers Gas," Table 14a, Tellus Institute, December 1993.

[2] Externality Costs from EBRO 490, Exhibit D2, Tab 6, Schedule 1, page IV-21.

Avoided Gas Costs

1. Updated Avoided Gas Costs

In May 1995 Consumers Gas filed an update to its EBRO 490 avoided gas costs to reflect new input parameter information (EBRO 490, Exhibit D2, Tab 6, Schedule 1, Appendix V.E).

The purpose of this evidence is to: (i) highlight changes to the input parameters that have taken place since the May 1995 Update, and (ii) update the unit avoided gas costs for the three DSM measures.

2. Changes to Input Parameter Information

i) Long-term Forecast of Annual Requirements

The avoided gas costs presented in the May 1995 Update were based on a long-term forecast of annual requirements developed in March 1995, and a single peak design criteria. This evidence reflects an updated long-term forecast which utilizes the "multi-peaking" design weather criteria approved by the Board in its EBRO 490 Partial Decision with Reasons dated August 29, 1995.

ii) Base Case Forecast

The long-term forecast used in the May 1995 Update was the Company's 10 year Gas Demand Forecasting Committee ("GDFC") forecast for the period 1995 to 2004. This forecast has updated the March 1995 forecast to reflect the multi-peaking design weather criteria and replaces the fiscal 1996 normalized budget demand and the fiscal 1997 forecast demand with the fiscal 1996 (0+12) demand and fiscal 1997 normalized budget demand, respectively. The GDFC demand forecast from March 1995 for the remaining years (i.e., 1998 to 2004) remains unchanged.

The Base Case forecast was produced by adjusting the above forecast to remove the effects related to any DSM programs, except those which were in effect during fiscal 1995.

The Base Case annual demand forecast is shown at the top of Table IV.3.

3. Changes to Supply Resources

i) Commodity Supply

Consumers Gas has assumed in the past that approximately 225 10^6m^3 (8 Bcf) of discretionary supply would be available each year. This update assumes that a higher level of discretionary supply is available, ranging from 370 10^6m^3 (13 Bcf) to 395 10^6m^3 (14 Bcf). Over the past two years, the spot market has become more liquid, which has resulted in seasonal spot gas being more readily available.

ii) Pricing for Canadian Supply, Existing and Incremental

In previous avoided gas costs analyses, the Company has relied on the "Dobson Resource Management Ltd. Survey of Canadian Petroleum Consultants' Canadian Banks' forecast of Product Prices" to establish price projections for firm Western Canadian supply purchased at the Alberta Border. Since the Dobson Survey is only issued twice a year, January and July, the Company typically had to lower the gas prices for the first three years of this forecast to reflect the current pricing at the Alberta Border.

Table IV.3
Volumes and Total Gas Costs, 1996-2004

Item No.		Col.1 1996	Col. 2 1997	Col. 3 1998	Col. 4 1999	Col. 5 2000	Col. 6 2001	Col. 7 2002	Col. 8 2003	Col. 9 2004
1	Base Case									
2	Demand (10^6m^3)	11,280.00	11,497.50	12,043.10	12,603.50	12,907.70	13,189.70	13,545.70	13,864.90	14,135.00
3	Total Cost ($000)	1,081,224	1,174,804	1,304,121	1,436,665	1,525,196	1,634,804	1,765,599	1,878,960	2,021,153
4	Average Cost ($/ 10^3m^3)	95.85	102.18	108.29	113.99	118.16	123.95	130.34	135.52	142.99
5	Decrement in Water Heating Demand Reduction (10^6m^3)	675.00	686.40	718.70	743.60	763.30	783.10	804.30	825.20	845.40
6	Total Cost ($000)	1,033,991	1,117,904	1,241,699	1,352,797	1,445,776	1,546,601	1,668,400	1,775,501	1,909,492
7	Unit Avoided Gas Cost ($/ 10^3m^3)	69.97	82.90	86.85	112.79	104.05	112.63	120.85	125.37	132.08
8	Decrement in Space Heating Demand Reduction (10^6m^3)	183.40	186.40	195.20	202.00	207.30	212.70	218.50	224.20	229.60
9	Total Cost ($000)	1,066,440	1,150,384	1,281,381	1,394,380	1,506,572	1,606,481	1,729,666	1,842,305	1,981,415
10	Unit Avoided Gas Cost ($/ 10^3m^3)	80.61	131.01	116.50	209.33	89.84	133.16	164.45	163.49	173.07
11	Decrement in Industrial Process Demand Reduction (10^6m^3)	641.10	652.00	682.60	706.30	725.10	743.90	764.00	783.80	803.00
12	Total Cost ($000)	1,036,120	1,119,950	1,244,038	1,355,048	1,447,439	1,551,342	1,671,211	1,778,454	1,913,044
13	Unit Avoided Gas Cost ($/ 10^3m^3)	70.35	84.13	88.02	115.56	107.24	112.20	123.54	128.23	134.63

The Company has now chosen to rely on the "BT Bank of Canada's" price forecast which reports gas prices for deliveries at the Alberta Border for the period November 1995 through to October 2000. The gas prices were established by taking the average of the "Bid" and "Offer" prices, as quoted by the BT Bank of Canada, for the last three trading days for the November 1995 contract.

Gas prices for the period 2001 to 2004 were determined by extrapolating the first five years of gas prices.

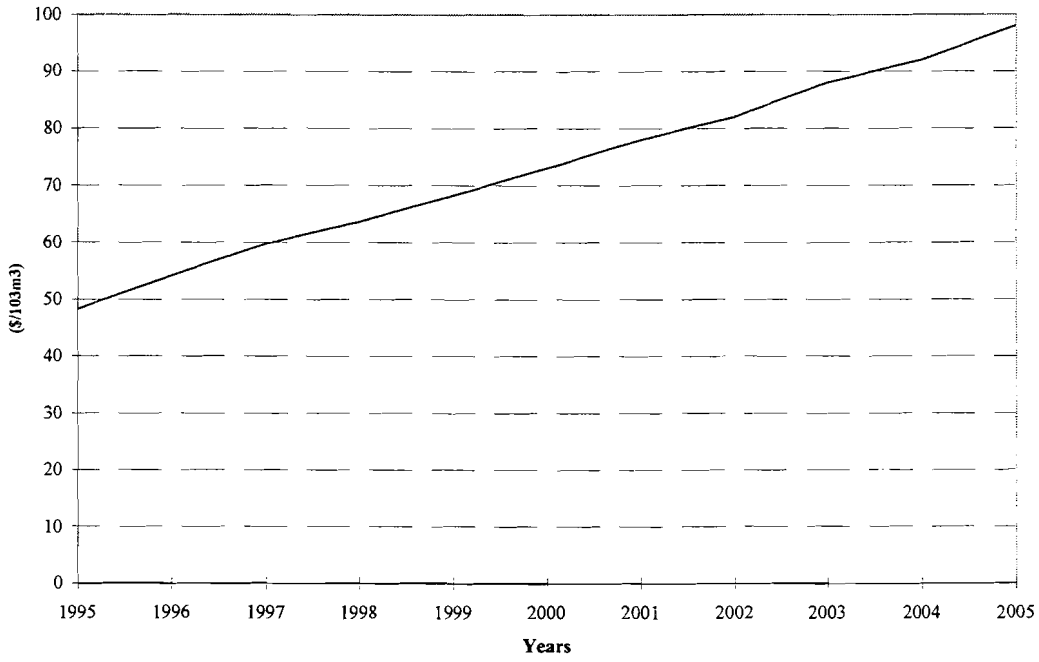
Figure IV.2 shows the Company's gas price forecast used in its avoided gas costs analysis.

iii) Transportation Rates and Tolls

Consumers Gas has updated the transportation rates and tolls for its various transportation services.

The 1995 tolls for the various TransCanada transportation services are based on those approved by the National Energy Board in its RH-3-94 Reasons for Decision. For the period 1996 through 2004, the transportation tolls are the same as those used in the May 1995 Update.

Figure IV.2:
Alberta Border Price Forecast



Consumers Gas continues to use the same method of determining Union Gas transportation rates as presented in previous evidence on avoided gas costs. The M12 and C1 transportation rates have been updated to reflect Union's approved EBRO 486 rates. In general, Consumers Gas assumed that Union M12 transportation rates would escalate at the rate of 2.5% (real) over the 1996 to 2005 period. The C1 transportation rates were assumed to escalate at the rate of inflation.

iv) Storage

For its incremental storage resources, Consumers Gas has updated both the unit costs and several of the in-service dates.

Table IV.4 summarizes the updated first year costs for each of the various supply, transportation, and storage resources.

4. Avoided Gas Costs

The avoided gas costs have been determined using the same methodology as was followed in the EBRO 490 filing which was recommended by Hampton Strategies which was commissioned to review the methodology used in EBRO 487 to calculate avoided gas costs.

The Company determined the gas supply costs it would avoid as a result of various load shape decrements in demand by comparing its long-term system supply costs before and after the decrement. The benchmark for this comparison was its system supply costs under the "business-as-usual" scenario or Base Case. The three load shapes scenarios used were Water Heating, Space Heating, and Industrial Process. The unit avoided gas costs resulting from each load shape scenario are equal to the difference in the total system supply costs between the Base Case and the respective scenario, divided by the difference in annual demand between the Base Case and the scenario. The results of the Company's analyses, calculated using the Sendout™ model, are presented in Table IV.5.

i) Comparison of Avoided Gas Costs

Table IV.5 compares the unit avoided gas costs, for each DSM measure, between the May 1995 Update and those presented in this evidence.

Table IV. 4
Summary of First Year Transportation, Storage, and Peaking Service Rates

	Col. 1	Col. 2	Col. 3
A. Transportation		Demand Charge ($CDN/10^{3}m^3/Month)	Commodity Charge ($CDN/10^{3}m^3)
TransCanada	- FS	1021.88	1.020
	- FST	-	29.568
	- STS (EDA)	84.03	0.053
	- STS (CDA)	31.63	0.001
Union Gas	- M12 Easterly	117.24	-
	- M12 Westerly	-	-
	- C1 (St. Clair to Dawn)	39.81	0.258
	- C1 (Ojibway to Dawn)	39.81	0.996
Panhandle	- FS	387.35	3.202
	- IT	-	4.100

B. Storage	Demand Space Charge ($CDN/10^{3}m^3/Month)	Demand Deliverability Charge ($CDN/10^{3}m^3/Month)	Injection/ Withdrawal Charge ($CDN/10^{3}m^3)
Union Gas - Existing	0.32	58.02	0.180
Avoca	-	362.50	1.792
Tecumseh - Incremental	0.22-1.22	11.1-50.4	0.05-.55

C. Peaking Service		Demand Charge ($CDN/Month)	Commodity Charge ($CDN/10^{3}m^3)
Existing	PS 1	872.22	88.703
	PS 2	215.51	118.474
	PS 3	215.57	133.093
Incremental	PS 1	150.43	275.290
	PS 2	802.32	212.500

where, IT is Interruptible transportation, and PS is Peaking service

Table IV.5
Comparison of Unit Avoided Gas Cost
($/10³M³)

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6
	Water Heating		Space Heating		Industrial Process	
	May 1995 Update	Nov 1995 Update	May 1995 Update	Nov 1995 Update	May 1995 Update	Nov 1995 Update
1996	105.99	69.97	139.95	80.61	113.69	70.35
1997	94.87	82.90	112.85	131.01	103.28	84.13
1998	141.61	86.85	204.95	116.50	156.75	88.02
1999	133.10	112.79	144.94	209.33	125.55	115.56
2000	132.96	104.05	174.59	89.84	146.26	107.24
2001	140.88	112.63	135.85	133.16	135.66	112.20

In general, the unit avoided gas costs presented in this evidence are lower than the corresponding unit avoided gas costs provided in the May 1995 Update, with Water Heating and Industrial Process being most affected. Since the water heating and industrial process demands are more "baseload" demands compared to the space heating demand, the costs being avoided tend to be more related to commodity supply. As a result, the differences in unit avoided gas costs for the water heating and industrial process measures are almost entirely related to lower commodity prices for western Canadian supply.

The unit avoided gas costs for the space heating DSM measure have also declined relative to the May 1995 Update, but to a lesser degree. This is explained by these avoided costs being primarily related to costs of peaking service, storage space and deliverability, and to a lesser degree to the commodity cost for western Canadian supply.

Overall, these new avoided gas costs reduce societal benefits by 26%, based on low externalities.

5. Avoided Distribution System Costs

The estimate of the avoided distribution system facilities cost used as an avoided cost in screening DSM programs has been re-analyzed during the past year. Updated estimates of DSM participation and load impacts were used in the analysis. This updated estimate of avoided distribution facilities costs is based on an analysis of the extra high pressure distribution systems operated by the Company, and the resulting avoided distribution cost has been revised to $\$527.47/10^3m^3/day$. This compares to the avoided distribution system cost filed in EBRO 490 of $\$4,422/10^3m^3/day$.

For the past two years, the methodology used to determine the avoided distribution system cost assumed that the Company would avoid the need for some reinforcement due to the DSM load savings. A more detailed analysis of the extra high pressure systems, assuming system-wide growth in demand and DSM savings, indicated that the average reinforcement would be postponed, but not avoided. Assuming that a substantial proportion of total savings produced by DSM programs over the long term were achieved as of today, the average reinforcement could be postponed by a maximum of two years. The avoided distribution system costs represent the carrying cost savings resulting from deferring the investment in reinforcement for two years.

The ten year forecast of gas demand produced by the Company's GDFC was used to develop preliminary long range forecasts for the extra high pressure distribution systems. The avoided distribution system costs were estimated

using an average annual estimate of reinforcement costs for the entire distribution system. Although the analysis was completed only on the extra high pressure distribution system, for the purpose of this estimate it was assumed that all reinforcement would be delayed. An average annual cost for reinforcement main was calculated using a 14 year history of actual expenditures from 1982 through to 1995. The historical average annual reinforcement main expenditure expressed in 1996 dollars was calculated to be $9,158,820. Similar expenditures were assumed for the forecast period.

In order for DSM programs to produce sufficient savings to delay the requirement for a reinforcement project at all, they would have to produce load reductions in the order of about five years worth of annual DSM load savings. The load savings from the DSM programs must be accumulated over a ten year period in order to achieve a two year delay on a large number of projects. This methodology for estimating avoided distribution costs overstates the benefit, as the DSM program at Consumers Gas has only been in place for just over one year.

The avoided distribution cost resulting from the implementation of DSM measures has been calculated as being equal to the Company's carrying cost savings associated with delaying the historical average annual reinforcement expenditures by two years. The NPV of the carrying costs over a ten year period was calculated as $14.95 million, using a cost of capital equal to 7.47%, the Company's forecast weighted average cost of capital. This value was divided by the forecast DSM peak day savings in the tenth year, resulting in an avoided distribution cost of $527.47/$10^3 m^3$/day.

Table V.2
Emissions Factors and Externality Costs (1995 $)
for Natural Gas Residential Space Heating

Line No.	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8
			Externality Cost					
		Emission[1]	$Cdn/Tonne[2]		Total, $Cdn/GJ			
	Pollutant	kg/GJ	Low	High	Low	%	High	%
1.	NO_x	0.0208	$8,500	$15,000	$0.18	24	$0.31	9
2.	SO_x	0.0004	$2,100	$4,800	$0.00	0	$0.00	0
3.	Part	0.0060	$4,400	$16,400	$0.03	4	$0.10	3
4.	CO	0.0070	$1,400	$1,400	$0.01	1	$0.01	0
5.	VOCs	0.0030	$3,000	$7,500	$0.01	1	$0.02	1
6.	CO_2	51.0000	$10	$60	$0.51	69	$3.06	87
7.	CH_4	0.0010	$110	$660	$0.00	0	$0.00	0
8.	N_2O	0.0014	$2,700	$16,200	$0.00	0.0	$0.02	1.00
9.					$0.74	100	$3.52	100

[1] Emissions from "Development of Environmental Externalities for Consumers Gas," Table 14a, Tellus Institute, December 1993.

[2] Externality Costs from EBRO 490, Exhibit D2, Tab 6, Schedule 1, page IV-21.

Avoided Gas Costs

1. Updated Avoided Gas Costs

The purpose of this section is to (i) highlight changes to the input parameters that have taken place since the evidence filed in EBRO 495, (ii) update the unit avoided gas costs for the three existing DSM measures and (iii) provide unit avoided gas costs for a new measure, the space and water heating combination unit.

Filed: 1998-02-09
EBRO 497
EBO 179-14
Exhibit D2
Tab 6
Schedule 1
Page V-7 of 22

2. Changes to Input Parameter Information

i) Base Case Forecast

The long-term forecast used in this update was the Company's 10 year Gas Demand Forecasting Committee ("GDFC") forecast for the period 1997 to 2007. This forecast reflects the multi-peaking design weather criteria approved by the Board in EBRO 490.

The Base Case forecast was produced by adjusting the above forecast to remove the effects related to any DSM programs with the exception of any DSM prior to and including 1997. The Base Case annual demand forecast is shown at the top of Table V.3.

Filed: 1998-02-09
EBRO 497
EBO 179-14
Exhibit D2
Tab 6
Schedule 1
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Table V.3

Volumes and Total Gas Costs, 1998-2006

Item No.		Col. 1 1998	Col. 2 1999	Col. 3 2000	Col. 4 2001	Col. 5 2002	Col. 6 2003	Col. 7 2004	Col. 8 2005	Col. 9 2006
1	Base Case									
2	Demand (10 6 m3)	11,886.30	12,176.00	12,500.20	12,808.70	13,070.30	13,398.80	13,638.60	13,868.10	14,102.70
3	Total Cost ($ 000)	1,325,262	1,479,309	1,577,932	1,703,559	1,802,406	1,909,330	2,032,044	2,119,495	2,221,490
4	Average Cost ($/ 10 3m3)	111.49	121.49	126.23	133.00	137.90	142.50	148.99	152.83	157.52
5	Decrement in Water Heating Demand Reduction (10 6 m3)	280.20	285.20	290.60	295.50	299.80	304.60	308.20	311.40	314.70
6	Total Cost ($ 000)	1,293,027	1,444,873	1,540,800	1,662,215	1,760,327	1,866,311	1,984,393	2,074,320	2,170,827
7	Unit Avoided Gas Cost ($/ 10 3m3)	115.04	120.74	127.78	139.91	140.36	141.23	154.61	145.07	160.99
8	Decrement in Space Heating Demand Reduction (10 6 m3)	76.1	77.5	79.0	80.3	81.5	82.8	83.8	84.6	85.5
9	Total Cost ($ 000)	1,315,428	1,468,754	1,566,436	1,683,701	1,788,203	1,899,913	2,010,631	2,108,991	2,204,594
10	Unit Avoided Gas Cost ($/ 10 3m3)	129.22	136.19	145.52	247.30	174.27	113.73	255.53	124.16	197.61
11	Decrement in Industrial Process Demand Reduction (10 6 m 3)	266.20	271.00	276.00	280.70	284.70	289.30	292.80	295.8	298.90
12	Total Cost ($ 000)	1,295,621	1,445,330	1,542,479	1,660,685	1,761,577	1,869,118	1,984,325	2,077,820	2,172,398
13	Unit Avoided Gas Cost ($/ 10 3m3)	111.35	125.38	128.45	152.74	143.41	139.00	162.97	140.89	164.24
14	Decrement in Space and Water Demand Reduction (10 6 m 3)	82.80	84.30	85.90	87.30	88.60	90.00	91.10	92.00	93.00
15	Total Cost ($ 000)	1,314,716	1,468,003	1,565,634	1,682,755	1,787,225	1,901,406	2,006,867	2,115,398	2,202,902
16	Unit Avoided Gas Cost ($/ 10 3m3)	127.37	134.12	143.17	238.30	171.34	88.04	276.37	44.53	199.87

Filed: 1998-02-09
EBRO 497
EBO 179-14
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3. Changes to Supply Resources

i) Pricing for Canadian Supply, Existing and Incremental

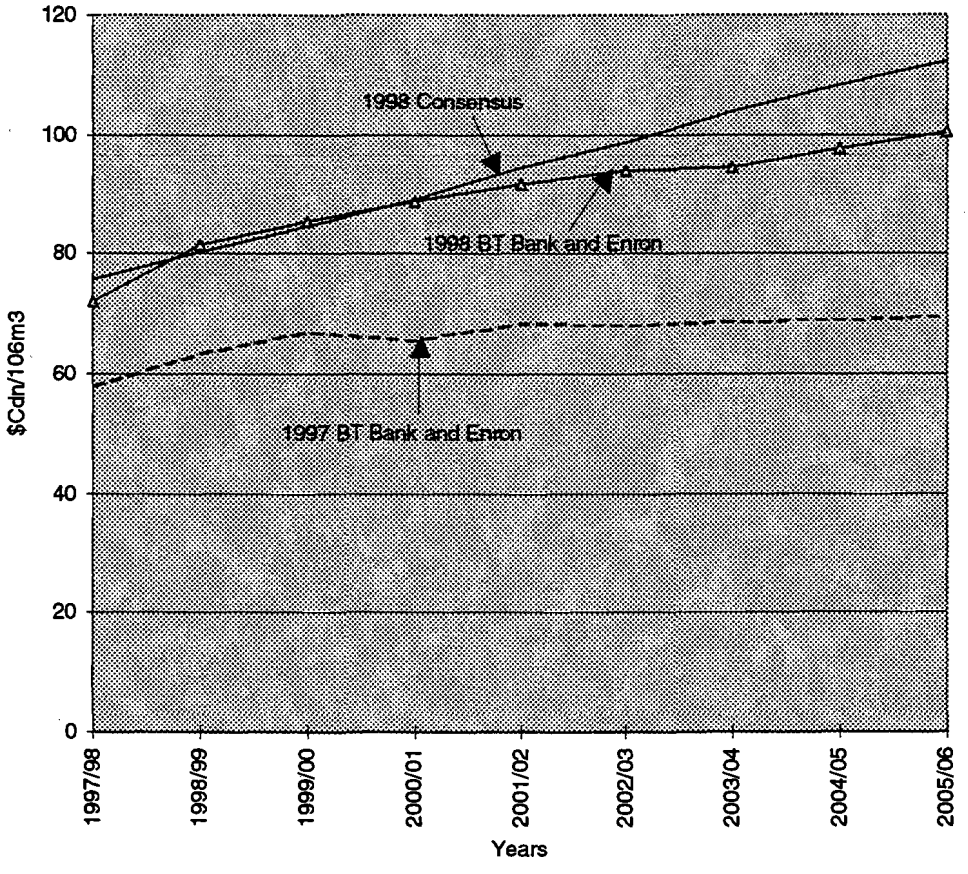
In last year's avoided gas costs analyses, the Company established its gas price projections for Western Canadian supply at the Alberta Border by taking two independent sources, the BT Bank of Canada and Enron Gas Marketing ("Enron"). Of these two sources, only Enron had a forecast for 10 years. The BT Bank's forecast covered only four years (1997 to 2000).

This year the Company has chosen to rely on a consensus gas price forecast from nine independent sources for the Western Canadian supply. This is a broader based forecast covering the 10 year period 1998 to 2007. Basing the gas price forecast on more sources which predict long term prices, relative to last year, should improve the forecast accuracy.

Figure V.1 shows the Company's Alberta Border ("Empress") gas price forecast used in its avoided gas costs analysis. The 1998 BT Bank and Enron price forecast is provided for comparison purposes only.

Filed: 1998-02-09
EBRO 497
EBO 179-14
Exhibit D2
Tab 6
Schedule 1

Figure V.1
1997 and 1998 DSM Empress Gas Price Forecasts



ii) Transportation Rates and Tolls

Consumers Gas has updated the transportation rates and tolls for its various transportation services.

Consumers Gas has introduced one change in this evidence which relates to transportation services that are being "sized" by the SENDOUT™ model.

In previous years, Consumers Gas has reflected in its calculations of avoided gas costs, the constraint of existing transportation agreements in the first two years of the analyses. These constraints stem from the two year lead time necessary to bring on new transportation capacity.

The consequence of imposing the constraints is higher avoided gas costs in these years. The constraints prevented the model from "sizing down" any of the transportation capacity as a result of introducing DSM measures, thus not allowing any Western Canadian supply and TransCanada transportation costs to be avoided. The avoided supplies instead were U.S. Spot purchases, priced higher than the combination of Western Canadian supply and TransCanada transportation costs. Thus the avoided gas costs were relatively high in these years.

In this analysis, the constraints of existing transportation agreements were not imposed, thus allowing transportation to be sized down in the scenario case. This resulted in lower avoided gas costs in the first two years of the analysis relative to the third year, resulting in a more realistic trend of increasing avoided costs, rather than a drop in avoided costs in the initial years followed by increasing costs in later years.

The 1998 tolls for the various TransCanada transportation services are based on the tolls filed with the National Energy Board in its RH-1-97, and subsequently embedded in the Company's distribution rates for fiscal 1998. For the period 1999 through 2007, the TransCanada PipeLine tolls forecast was developed from the 1997/98 Facilities Application adjusted for the conversion of Firm Service Tendered ("FST") to Firm Transportation ("FT") beginning in fiscal 1999.

Consumers Gas continues to use the same method of determining Union Gas transportation rates as presented in previous filings of avoided gas costs evidence. The 1997 M12 and C1 transportation rates are those approved in EBRO 494. In general, Consumers Gas assumed that Union M12 transportation rates would escalate at the rate of 2.5% (real) over the 1998 to 2007 period. The C1 transportation rates were assumed to escalate at the rate of inflation.

iii) Storage

For incremental storage resources, Consumers Gas has updated the unit costs. Table V.4 summarizes the updated first year costs for each of the various supply, transportation and storage resources.

Filed: 1998-02-06
EBRO 497
EBO 179-14
Exhibit D2
Tab 6
Schedule 1
Page V-13 of 22

Table V.4

Summary of First Year Transportation, Storage and Peaking Service Rates

	Col. 1		Col. 2	Col. 3	Col. 4
A.	Transportation			Demand Charge ($CDN/10 3m3/Month)	Commodity Charge ($CDN/10 3m3)
	TransCanada	- FT		937.28	1.106
		- FST		-	22.229
		- STS (EDA)		79.59	0.062
		- STS (CDA)		29.82	0.000
	Union Gas	- M12 Easterly		110.88	-
		- M12 Westerly		-	-
		- C1 (St. Clair to Dawn)		35.93	0.279
		- C1 (Ojibway to Dawn)		35.93	1.046
	Panhandle	- FT		475.91	2.933
		- IT		-	4.100
B.	Storage		Demand Space Charge ($CDN/10 3m3/Month)	Demand Deliverability Charge ($CDN/10 3m3/Month)	Injection/ Withdrawal Charge ($CDN/10 3m3)
	Union Gas - Existing		0.32	42.58	0.217
	Tecumseh - Incremental		0.18 - 2.88	16.09 - 36.45	0.13 - .75
C.	Peaking Service		Demand Charge ($CDN/Month)	Commodity Charge ($CDN/10 3m3)	
	Existing	PS 1	846.66	101.796	
		PS 2	185.00	176.218	
		PS 3	185.00	176.218	
	Incremental	PS 1	362.01	139.554	
		PS 2	543.01	209.331	

where, IT is Interruptible Transportation, and PS is Peaking service

4. Avoided Gas Costs

The avoided gas costs have been determined using the same methodology as was followed in the EBRO 495 filing (Exhibit D2, Tab 6, Schedule 1, Pages IV-7 to IV-16).

The Company determined the gas supply costs it would avoid, as a result of various load shape decrements in demand, by comparing its long-term system supply costs before and after the decrement. The benchmark for this comparison was its system supply costs under the "business-as-usual" scenario or Base Case. The four load shape scenarios used were water heating, space heating, industrial process, and space and water heating combination. The unit avoided gas costs resulting from each load shape scenario are equal to the difference in the total system supply costs between the Base Case and the respective scenario, divided by the difference in annual demand between the Base Case and the scenario. The results of the Company's analyses, calculated using the SENDOUT™ model, are presented in Table V.5.

Table V.5

Comparison of Unit Avoided Gas Costs

($/103m3)

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8
	Water Heating		Space Heating		Industrial Process		Space and Water Heating Combination	
	Nov. 97	Oct. 96	Nov. 97	Oct. 96	Nov. 97	Oct. 96	Nov. 97	Oct. 96
1998	115.04	127.04	129.22	187.82	111.35	129.46	127.37	n/a
1999	120.74	103.14	136.19	166.10	125.38	111.22	134.12	n/a
2000	127.78	110.66	145.52	127.88	128.45	105.62	143.17	n/a
2001	139.91	108.70	247.30	156.89	152.74	116.08	238.30	n/a
2002	140.36	112.45	174.27	140.41	143.41	112.84	171.34	n/a
2003	141.23	111.61	113.73	154.98	139.00	112.74	88.04	n/a
2004	154.61	107.55	255.53	101.14	162.97	111.36	276.37	n/a
2005	145.07	115.30	124.16	184.45	140.89	115.50	44.53	n/a
2006	160.99		197.61		164.24		199.87	n/a

i) Comparison of Avoided Gas Costs

Table V.5 compares the unit avoided gas costs presented in EBRO 495 on Table IV.5 at Exhibit D2, Tab 6, Schedule 1, Page IV-15 for each DSM measure with those presented in this evidence. In general, the avoided gas costs presented in this 1999 DSM Plan are higher over the forecast period than the corresponding unit avoided gas costs provided in EBRO 495. The increase in avoided gas costs is primarily the result of the impact of forecasted increases in Alberta Border gas prices.

Figure V.1 in this evidence shows a higher Alberta Border gas price forecast than that shown in EBRO 495.

The avoided gas costs for space heating, and the space and water heating combination exhibit volatility across the forecast years, as seen in Table V.5.

This volatility is a result of the differences in the storage requirements and the timing of new storage developments between the Base Case and Scenario cases.

5. Avoided Distribution System Costs

The estimate of the avoided distribution system facilities cost used as an avoided cost in screening DSM programs was re-analyzed in EBRO 492 (Exhibit D2, Tab 6, Schedule 1, Page IV-16 to IV-17). Because the calculation reflects long run incremental avoided costs, a further update was not warranted at this time. The estimate of avoided distribution facilities costs is based on an analysis of the extra high pressure distribution systems operated by the Company, and the resulting avoided distribution cost is \$597.56 10^3m^3 per day (1997 \$'s).

The methodology used to determine the avoided distribution system cost assumes that the average reinforcement would be postponed, but not avoided. Assuming that a substantial proportion of total savings produced by DSM programs over the long term were achieved as of today, the average reinforcement could be postponed by a maximum of two years. The avoided distribution system costs represent the carrying cost savings resulting from deferring the investment in reinforcement for two years.

The ten year forecast of gas demand produced by the Company's Gas Demand Forecasting Committee ("GDFC") was used to develop preliminary long range forecasts for the extra high pressure distribution systems. The avoided distribution system costs were estimated using an average annual estimate of reinforcement costs for the entire distribution system. Although the analysis was completed only on the extra high pressure distribution system, for the purpose of this estimate it was assumed that all reinforcement would be delayed. An average annual cost for reinforcement main was

calculated using a 14 year history of actual expenditures from 1982 through to 1995. The historical average annual reinforcement main expenditure expressed in 1996 dollars was calculated to be $9,158,820. Similar expenditures were assumed for the forecast period.

In order for DSM programs to produce sufficient savings to delay the requirement for a reinforcement project at all, they would have to produce load reductions in the order of about five years worth of annual DSM load savings. The load savings from the DSM programs must be accumulated over a ten year period in order to achieve a two year delay on a large number of projects. This methodology for estimating avoided distribution costs overstates the benefit, as the DSM program at Consumers Gas has only been in place for just over two years.

The avoided distribution cost resulting from the implementation of DSM measures has been calculated as being equal to the Company's carrying cost savings associated with delaying the historical average annual reinforcement expenditures by two years. The Net Present Value ("NPV") of the carrying costs over a ten year period was calculated as $16.94 million (1997 $'s), using a cost of capital equal to 7.16%, the Company's forecast weighted average cost of capital. This value was divided by the forecast DSM peak day savings in the tenth year, resulting in an avoided distribution cost of $597.56 10^3m^3 per day.

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C. Results

Table V.6 summarizes the cost-effectiveness results for each of the Company's ten DSM programs. For this Summary, only the quantitative portion of the screening was updated and shown. None of the qualitative criteria used in the 1995 DSM Plan screening were considered to have changed and, therefore, they have not been included in the screening. Cost-effectiveness analysis includes actual fiscal 1997 results, as well as planned net program impacts and costs for 1998 and 1999. The results exclude the portfolio adminstration costs. The SCT was run using high and low environmental externality values at a 9.14% SDR. The results are:

Screen 1: SCT. All of the programs pass the SCT using both high and low externality values, using a societal discount rate of 9.14.% Overall, the programs demonstrate a significant net societal benefit of $143.8 million using low externalities, and a net societal benefit of $244.5 million using high externalities.

Screen 2: RIM. As would be expected from conservation-type programs, all of the ten programs continue to fail the RIM test. The overall RIM results are less negative than last year because the analysis includes three years of program participation as compared with five used in the previous year's analysis.

Screen 3: Undue Burden:

1. Net Societal Benefit per Dollar of Rate Impact. Using high externality values, all of the ten programs had positive ratios. Using low externalities, two of the ten programs (R-4 and R-5) had ratios of less than 1.0.

2. Second Evaluation: TRC Test. Following the recommendation of the Board at paragraph 9.5.23 of the EBRO 487 Decision with Reasons (p. 204), the Total Resource Cost ("TRC") results were added to the screening protocol in EBRO 490. Following revisions to the DSS model, this test is now replaced by the SCT with zero externalities. Overall, there is a net SCT with zero externalities benefit of $114.5 million.

Table V.6:
Screening and Selection of DSM Programs

		Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10	Col. 11
							Program					
Screening/Selection Criteria		R-2	R-3	R-4	R-5	R-6	A/C-1	A-2	A/C-4	C/I-5	A-6	Total
OEB screen #1: SCT												
@ 9.14% Discount Rate												
High Externality Values	NPV Millions, $	$104.6	$36.8	$6.6	$1.6	$2.8	$6.4	$4.5	$19.4	$61.8	n/a	$244.5
Low Externality Values	NPV Millions, $	$60.0	$26.6	$2.0	$0.9	$2.0	$3.4	$1.9	$15.4	$31.5	n/a	$143.8
Pass (P) or Fail (F)		P	P	P	P	P	P	P	P	P	P	
OEB screen #2: RIM Test												
	NPV Millions, $	($47.9)	($11.9)	($4.3)	($1.1)	($1.1)	($0.3)	($1.9)	($1.5)	($3.6)	n/a	($73.5)
Pass (P) or Fail (F)		F	F	F	F	F	F	F	F	F	F	
OEB screen #3: Undue Burden												
Net Societal Benefit per $ of Rate Impact												
@ 9.14% Discount Rate												
High Externality Values	B-C Ratio	2.18	3.12	1.55	1.49	2.57	25.15	2.32	13.27	17.17	n/a	3.33
Low Externality Values	B-C Ratio	1.25	2.25	0.48	0.87	1.80	13.43	1.00	10.58	8.75	n/a	1.96
Avg. Rate Impact, $/10^{3}m^3		$0.90	$0.29	$0.06	$0.01	$0.01	$0.00	$0.01	$0.01	$0.24	n/a	$0.30
Pass (P) or Fail (F)		P	P	F	F	P	P	P	P	P	P	
Societal Cost Test - Zero Externalities												
	NPV Millions, $	$47.5	$25.0	$0.7	$0.7	$1.7	$1.8	$1.1	$14.2	$21.8	n/a	$114.5

Economic Impacts of Proposed Portfolio

Table V.7 shows the results of all the various cost-effectiveness tests. Note that these results include the portfolio administration charges not associated with any given program and not shown in Table V.6. Overall, the ten DSM programs have significant positive impacts on the utility, its customers, and society as a whole. Using a 9.14% SDR, the total net societal benefit arising from the DSM portfolio amounts to $239.5 million using high externalities, and $138.9 million using low externalities.

Resource Impacts

Table V.8 shows the volumetric gas savings. Overall, the cumulative savings from all ten DSM programs over the life of the programs is 1 346 $10^6 m^3$. In addition, over the life of the programs there are water savings associated with four programs totalling 74.6 million litres and electricity savings from five programs of 138 GW.h.

Bill and Rate Impacts

The average rate impacts are shown on Table V.6 under Screen 3 Undue Burden. The results indicate that the average rate impact of the DSM programs over the life of the measures ranges from a high of $\$0.90/10^3m^3$ for program R-2 to a low of $\$0.00/10^3m^3$ for program A/C-1. This upward pressure on rates is inherent in conservation-type DSM programs, which reduce system sales volumes over which the Company collects its distribution margin. As indicated above, this upward pressure is relatively small and is not considered undue. The overall benefits in terms of avoided costs, participant bill reductions and positive environmental impacts are large enough to justify the small upward pressure on rates.

Across all programs, the average rate impact of DSM has decreased from 0.27% reported in EBRO 495 (Exhibit D2, Tab 6, Schedule 1, Page IV-22 of 24) to 0.14%. This decrease is a result of lower volume savings resulting from three years of participants as compared with five years.

Table V.7

Cost-Effectiveness Results of the DSM Programs

(All costs and benefits are in thousands of 1997 NPV Dollars)

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6
	Low	High	Zero	Impact	Utility	Participant
Residential Programs						
R-2	59,997	104,648	47,531	(47,946)	57,502	112,441
R-3	26,604	36,770	23,673	(11,777)	19,610	69,681
R-4	2,047	6,642	719	(4,281)	6,756	11,019
R-5	941	1,598	690	(1,076)	(35)	2,615
R-6	1,975	2,821	1,739	(1,099)	766	4,769
All Residential Programs	91,559	152,473	74,346	(66,184)	84,593	200,525
Apartment/Commercial Industrial Programs						
A/C-1	3,388	6,352	1,839	(263)	208	4,221
A/C-2	1,928	4,476	1,137	(1,927)	2,719	3,811
A-4	15,440	19,364	14,222	(1,459)	4,785	44,572
C/I-5	31,546	61,752	21,550	(3,665)	33,424	39,371
A-6	n/a	n/a	n/a	n/a	n/a	n/a
All Apt/Comm/Ind Programs	52,302	91,945	38,749	(7,315)	41,135	91,976
All Programs	143,861	244,481	113,095	(73,499)	125,728	292,502
Portfolio Administration	(4,913)	(4,913)	(4,913)	(4,903)	(4,902)	(4,902)
Total Portfolio	138,948	239,505	108,182	(78,402)	120,825	287,600

GEC INTERROGATORY #52

INTERROGATORY

Topic 9 – Avoided Costs

Ref: Exh. C/T1/S4, p. 10 of 35

a. Section 2.1.1 describes the development of Avoided Transmission Costs, but this document does not report any avoided transmission costs. Please provide EGDI's load-related transmission expenditures for each year 2010–2014 and forecast to 2019.

b. Please list EGDI's load-related transmission projects for each year 2010–2014 and forecast to 2019.

c. Please explain whether the GTA reinforcement would be considered a transmission project or a distribution project.

RESPONSE

a. Please see response to part a) of GEC Interrogatory #33 found at Exhibit I.T9.EGDI.GEC.33. Avoided Transmission Costs have been captured in the current avoided gas cost methodology.

b. Please see the response to (c) below. The GTA Project's Segment A is the only Enbridge project that will have a transmission component from 2010 to 2019. The project is currently under construction and is planned to be energized in 2015.

c. Per EB-2012-0451, Exhibit E, Tab 1, Schedule 2, the GTA Project's Segment A, the NPS 42, will be used for two purposes: (1) 60% of the capacity will be used for merchant transmission and (2) 40% of the capacity will be a distribution asset. The GTA Project's Segment B, the NPS 36, will be a distribution asset.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford

GEC INTERROGATORY #53

INTERROGATORY

Topic 9 – Avoided Costs

Ref: Exh. C/T1/S4, p. 19 of 35

a. Please provide the sales mains expenditures from 2010 to 2014 and forecast sales mains expenditures from 2014 to 2019.

b. For each year from 2010 to 2014, please provide the meters of sales main added, broken down by diameter of main.

c. Please provide the average cost per meter for each diameter of main typically installed on the EGDI system.

RESPONSE

For the purpose of the Avoided Distribution Cost study, a Distribution Avoided Cost adder was developed for inclusion in the current Avoided Cost methodology in keeping with the franchise wide basis approach. Sales, relocation and replacement mains capital costs were not captured in the context of the Avoided Distribution Study. Only costs that could be directly attributed to reinforcement mains franchise wide were examined in an effort to capture the load additions that could be avoided (or deferred) through DSM efforts.

This is consistent with the approach used in the original Avoided Distribution Cost analysis found in EBRO 487 Fiscal 1995 Demand Side Management Plan Exhibit D2, Tab 6, Schedule 1, page I-13,

> The cost analysis considered only the cost of reinforcement mains because this is the primary category of distribution system costs that would be affected by reductions in load.

A review of relevant capital expenditures will be included in the Integrated Resource Planning study.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford
H. Thompson

GEC INTERROGATORY #54

INTERROGATORY

Topic 9 – Avoided Costs

Ref: Exh. C/T1/S4, p. 19 of 35

a. Please provide the relocation and replacement mains expenditures from 2010 to 2014 and forecast relocation and replacement mains expenditures from 2014 to 2019.

b. For each year from 2010 to 2014, please provide the meters of relocation and replacement mains added, broken down by diameter of main.

RESPONSE

Please refer to GEC Interrogatory # 53 found at Exhibit I.T9.EGDI.GEC.53. Relocations and replacement projects are often short segments of main. The need and timing are often driven by third party work or other requirements. These projects often cannot be avoided.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford
H. Thompson

GEC INTERROGATORY #55

INTERROGATORY

Topic 9 – Avoided Costs

Ref: Exh. C/T1/S4, pp. 19–20

a. Please provide each Capital Budget developed by EGDI since 2005, in at least the level of detail provide in EB-2012-0459 Exhibit B2 Tab 1 Schedule 1 Table 2.

RESPONSE

a. The Capital Budgets were not used to develop the Avoided Distribution Costs as filed at Exhibit C, Tab 1, Schedule 4.

Capital Budgets are submitted as required to the Ontario Energy Board, a summary of which can be found in the table below.

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Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford
H. Thompson

Utility Capital Expenditures
Board Approved Budgets 2005-2016
($millions)

Item No.		Col. 1 Board Approved Budget 2005	Col. 2 Board Approved Budget 2006	Col. 3 Board Approved Budget 2007	Col. 4 Board Approved Budget 2013	Col. 5 Forecast 2014	Col. 6 Forecast 2015	Col. 7 Forecast 2016
A.	Customer Related							
1.1.1	Sales Mains	43.5	44.2	76.5	44.6	39.6	42.1	49.1
1.1.2	Services	48.0	42.2	46.2	68.1	69.0	73.7	76.3
1.1.3	Meters and Regulation	21.9	16.5	11.5	10.3	10.3	11.0	11.7
1.1.4	Customer Related Distribution Plant	113.4	102.9	134.2	123.1	118.9	126.9	137.1
1.1.5	NGV Rental Equipment	0.3	0.2	0.2	0.3	3.5	3.6	3.7
1.1	TOTAL CUSTOMER RELATED CAPITAL	113.7	103.1	134.4	123.3	122.4	130.4	140.8
B.	System Improvements and Upgrades							
1.2.1	Mains - Relocations	9.8	7.9	7.6	27.5	28.5	24.9	26.0
1.2.2	- Replacement	26.3	66.3	58.1	71.0	105.6	94.3	82.5
1.2.3	- Reinforcement	17.1	13.6	26.6	27.0	21.3	31.6	18.1
1.2.4	Total Improvement Mains	53.2	87.8	92.4	125.6	155.5	150.7	126.6
1.2.5	Services - Relays	35.2	25.0	17.3	17.3	29.8	34.5	52.2
1.2.6	Regulators - Refits	1.5	4.3	3.5	9.7	9.8	10.0	10.2
1.2.7	Measurement and Regulation	8.5	14.8	15.7	24.3	31.5	34.1	32.6
1.2.8	Meters	4.2	16.4	20.2	16.0	16.6	18.5	20.8
1.2	TOTAL SYSTEM IMPROVEMENTS AND UPGRADES	102.6	148.3	149.1	192.9	243.2	247.9	242.3
C.	General and Other Plant							
1.3.1	Land, Structures and Improvements	2.6	3.1	3.1	7.8	12.9	11.2	6.8
1.3.2	Office Furniture and Equipment	0.2	0.5	0.7	1.6	4.6	4.7	4.4
1.3.3	Transp/Heavy Work/NGV Compressor Equipment	2.6	9.2	7.7	4.8	4.6	4.7	4.7
1.3.4	Tools and Work Equipment	1.4	2.2	1.2	1.4	1.5	1.5	1.5
1.3.5	Computers and Communication Equipment	25.0	26.8	17.3	32.0	32.7	30.6	31.0
1.3	TOTAL GENERAL AND OTHER PLANT	31.8	41.8	30.0	47.5	56.3	52.6	48.3
D.	Underground Storage Plant	9.0	6.8	4.5	22.4	21.9	15.7	10.5
	RP-2003-0203 Settlement Proposal Adjustment	(10.0)						
E.	SUBTOTAL "CORE" CAPITAL EXPENDITURES	247.1	300.0	318.0	386.1	443.8	446.6	441.9
F.	Work and Asset Management System (WAMS)				0.5	36.3	25.7	8.1
			-	-				
G.	SUBTOTAL CAPITAL EXPENDITURES	247.1	300.0	318.0	386.6	480.1	472.3	449.9
H.	Leave to Construct							
1.7.1	Ottawa Reinforcement				44.0	5.1		-
1.7.2	GTA Reinforcement				19.3	226.3	438.9	-
1.7	TOTAL LEAVE TO CONSTRUCT				63.3	231.4	438.9	-
I.	TOTAL CAPITAL EXPENDITURES	247.1	300.0	318.0	449.9	711.5	911.2	449.9

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford
H. Thompson

GEC INTERROGATORY #56

INTERROGATORY

Topic 9 – Avoided Costs

Ref: Exh. C/T1/S4, Figure 3

a. Please provide the EGDI planning documents from which the forecast reinforcement expenditures from 2014 to 2019 were taken.

b. Please explain whether costs in Figure 3 are listed in the year the plant entered service or the date of the investment, for multi-year projects.

c. Please identify the projects included in each year of this figure.

d. Please explain whether the reinforcement costs include the Ottawa Reinforcement and the GTA Reinforcement, and if not, why.

e. Please provide EGDI's actual annual expenditures for the Ottawa Reinforcement and the GTA Reinforcement.

RESPONSE

a. EGDI is filing pertinent tables at Attachment 1. Line item #41 on page 11 has been redacted since it is an affiliate project and not an EGDI project.

   Please also see the response to (c) below.

b. The costs in Figure 3 were listed in the year that the plant was expected to be in service.

c. The reinforcement project list has been assembled from projects completed to date, projects in progress, and other known, planned projects. Please see Attachment 2 for a complete list of reinforcement projects.

   However, it should be noted that during the Interrogatory review of the Avoided Distribution Cost Study Enbridge identified an error with the reinforcement

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford
H. Thompson

expenditure forecast provided to Navigant. It is expected that this oversight will result in a minimal impact to the Avoided Distribution costs; therefore Enbridge plans to re-file the Updated Avoided Distribution Costs Study, with the updated Avoided Gas Costs during the Input Assumption update in Q4 2015. The major projects will be listed as an Appendix to this document.

d. The reinforcement costs as shown in Figure 3 include the Ottawa Reinforcement and the GTA Reinforcement costs. Since these projects had multiple drivers, only the costs associated with load growth were included.

e. Please see response to part (d) and note that below costs (listed and referenced) are total project expenditures and do not reflect the costs related to load growth.

The actual annual expenditures (to the nearest hundred thousand) for the Ottawa Reinforcement project are:

2011 - $0.1M
2012 - $1.0M
2013 - $60.9M
2014 - $7.8M

The total project expenditure, including the 2015 forecast, is reflected in the EB-2012-0099 Post Hearing Filing named “EGDI Ottawa Financial Report” dated May 6, 2015.

The actual annual expenditures (to the nearest hundred thousand) for the GTA Project are:

2010 - $0.1M
2011 - $1.6M
2012 - $8.2M
2013 - $15.6M
2014 - $172.4M

The forecast of costs remaining to complete the project is filed at EB-2015-0122, Exhibit D, Tab 1, Schedule 2.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford
H. Thompson

Table 13: Area 10, 20, 30 Reinforcement Details

#	Area	Year	Cost	Reinforcement Details
1	20	2013	$ 1,900,000	Hwy 10/24 Reinforcement Phase 1 - Install 3.2 km NPS 8 ST XHP on Hwy 10/24 from Hockley Rd north to node 21030371 - Install XHP-HXP station at proposed dead end to tie into existing system
2	20	2015	$ 1,900,000	Hwy 10/24 Reinforcement Phase 2 - Install 1.4 km of NPS 4 ST XHP on King St from Hurontario St to McLaughlin Rd - Install 1.9 km of NPS 8 ST XHP on McLaughlin Rd from Brampton Gate Station northerly to Wanless Dr - Relocate the XHP-XHP station from Hwy 10/24 Reinforcement Phase 1 to the end of the new main
3	20	2016	$ 2,380,000	Hwy 10/24 Reinforcement Phase 3 - Install 5 km of NPS 8 ST XHP on Hwy 10/24 from the end of the Hwy 10/24 Reinforcement Phase 1 north - Relocate the XHP-XHP station from Hwy 10/24 Reinforcement Phase 1 to the end of the new main
5	20	2018	$ 2,150,000	Queen St E & Claireville Conservation Rd Reinforcement - Install 2.2 km of NPS 6 XHP on Claireville Conservation Rd from node 1820500 to Queen St E - Install 1.3 km of NPS 6 HP on Queen St from Claireville Conservation Rd to Goreway Dr - Install XHP-HP Station at Queen St E and Claireville Conservation Rd
6	20	2018	$ 3,335,800	'Hwy 10/24 Reinforcement Phase 3 - Replace 475 m of NPS 2 ST XHP with NPS 4 ST XHP on Luxton Way from Sideroad 30 to north - Replace 52 m of NPS 2 ST XHP with NPS 4 ST XHP on Dixie Rd from Mayfield Rd to Station 21093A - Install 4.1 km of NPS 8 ST XHP on Hwy 10/24 from end of the Hwy 10/24 Reinforcement Phase 2 north to node 21030064 - Relocate the XHP-XHP station from Hwy 10/24 Reinforcement Phase 2 to the end of the new main
10	30	2015	$ 10,500,000	YRR Phase 1 - Bathurst Street - Install 6.5km of NPS16 ST XHP on Bathurst St from Bathurst Gate Station to Bloomington Rd - Rebuild Bathurst Gate Station with a new NPS16 outlet and connect to the elevated Bathurst Gate NPS12 outlet
15	30	2018	$ 12,600,000	YRR Phase 2 - Bathurst Street - Install 8.4 km of NPS12 ST XHP on Bathurst St from Bloomington Rd to Mulock Dr

Table 15: Area 40 Reinforcement Details

#	Area	Year	Cost	Reinforcement Details
24	40	2017	$ 3,500,000	Oshawa NPS16 Reinforcement - Replace 1.8 km of NPS 12 XHP with 1.8 km of NPS 16 XHP from Oshawa Gate Station to the intersection of Conlin Rd and Wilson Rd
25	40	2017	$ 2,450,000	Lindsay Reinforcement - Install ~3km NPS 8 ST XHP on Hwy 7/35 from Angeline St to Roundtree Rd in Lindsay. - Install a XHP-IP district station at Hwy 7/35 & Roundtree Rd in Lindsay, with NPS 8 PE outlet tie-in to the existing NPS 8 ST IP main near Moose Rd (4321:267:268).
26	40	2018	$ 3,500,000	Lindsay Reinforcement - Install ~7km of NPS 8 ST XHP on Hwy 35 from 2km North of Golf Course Rd to existing NPS 8 ST XHP at 2788 Hwy 35. Note: this will replace ~7km existing 4in ST XHP gas main

Table 17: Area 50 Reinforcement Details

#	Area	Year	Cost	Reinforcement Details
30	50	2014	$ 6,000,000	Collingwood Replacement Phase 1 - Install a new XHP-XHP station (500 psig drop to 400 psig)at Barrie Gate Station between node 53010176 and 53010612 connecting to the existing NPS 8 ST XHP - Install a new XHP-XHP station (500 psig drop to 400 psig) at Phelpston Rd/Flos Rd 4 W between node 53010015 and valve 3028852 connecting to the existing NPS 8 ST XHP - Replace 11 km of NPS 8 ST XHP on Flos 4 Rd W from node 53010015 to node 53010095, new pipe MOP: 500 psig - Install a new XHP-XHP station (500 psig drop to 400 psig) on Flos 4 Rd W/Atkinson Rd past node 53010095 - Remove the Kicker Station 3648317 at Phelpston
32	50	2016	$ 2,100,000	Alliston Reinforcement Phase 3 - Install 2.8 km of NPS 8 ST XHP on 14th Line from Sideroad 10 / Industrial Pkwy to node 53030410 at Industrial Pkwy / Addison Rd, new pipe MOP: 500 psig; - Install a new XHP-XHP Station (500 psig drop to 400 psig) at Industrial Pkwy / Addison Rd between node 53030410 and node 53030411
33	50	2016	$ 9,000,000	Collingwood Replacement Phase 2 - Remove the XHP-XHP station (500 psig drop to 400 psig) at Barrie Gate Station - Remove the XHP-XHP station (500 psig drop to 400 psig) at Phelpston Rd / Flos Rd 4 W - Replace 17 km of NPS 8 XHP ST on Phelpston Rd. from node 53010176 at Barrie Gate Station to node 53010015 at Phelpston Rd / Flos Rd 4 W, new pipe MOP: 500 psig
34	50	2017	$ 3,500,000	Innisfil Reinforcement - Install 5 km of NPS 6 ST XHP on County Rd 89 from node 53030357 to node 53810138 (County Rd 89 / Yonge St), new pipe MOP: 400 psig; - Install a new XHP-XHP (500 psig drop to 400 psig) on County Rd 89 / Yonge St before connecting the node 53810138
35	50	2018	$ 7,000,000	Collingwood Replacement Phase 3 - Move the XHP-XHP station (500 psig drop to 400 psig) on Flos 4 Rd W/Atkinson Rd to Sideroad 27 & 28 / Hwy 26 (between the node 53010104 and Valve 3033573) - Replace 13 Km of NPS 8 XHP ST on Flos 4 Rd. W. and Sideroad 27 & 28 from node 53010095 to node 53010104, new pipe MOP: 500 psig
36	50	2019	$ 1,800,000	Alliston Reinforcement Phase 4 - Install 3 Km of NPS 6 ST XHP on Industrial Pkwy from node 53030371 at Industrial Pkwy / Tottenham Rd to node 53030221 at Adjala Tecumseth Townline / Ellis St, new pipe MOP: 400 psig

37	50	2019	$ 8,000,000	Collingwood Replacement Phase 4 - Remove the XHP-XHP station (500 psig drop to 400 psig) at Sideroad 27 & 28 / Hwy 26 (between the node 53010104 and Valve 3033573); - Replace 15 Km of NPS 8 XHP ST on Hwy 26 – Poplar Side Rd – Hurontario St – Campbell St from node 53010104 to node 53010857 (including node 53010855 to 53010856 as the NPS 8 XHP ST receiver near Station 51175A), new pipe MOP: 500psig

Table 19: Area 60 & 90 Reinforcement Details

#	Area	Year	Cost	Reinforcement Details
44	60	2017	$ 20,000,000	Ottawa Reinforcement Phase 2 - 6.7 km of NPS 20 XHP on Hunt Club Rd from Greenbank Rd to Prince of Wales Dr
47	60	2019	$ 3,500,000	Manotick Reinforcement - Install ~5.2 km of NPS 8 ST XHP on Prince of Whales Dr from Woodroffe Ave to Bankfield Rd
48	60	2021	$ 4,000,000	Rockland Reinforcement - Install 9.5 km of NPS 6 ST XHP on Innes Rd from the intersection of Innes Rd and Frank Kennedy Dr to the intersection of Baseline Rd and Canaan Rd
49	60	2022	$ 5,000,000	Pakenham Gate Station - Install a new Gate Station in Pakenham to introduce additional gas in the West Valley and Perth areas

Table 21: Area 80 Reinforcement Details

#	Area	Year	Cost	Reinforcement Details
	N/A	N/A	N/A	N/A

Appendix B: Additional Reinforcement Details

Table 24: Area 10, 20, 30 Additional Reinforcement Details

#	Area	Year	Cost	Reinforcement Details
4	20	2018	$ 1,200,000	Queen St E & Torbram Rd Reinforcement - Install 1.6 km NPS 8 HP on Queen St E from Torbram Rd to Airport Rd. (Required for projected customer growth.)
7	20	2019	$ 600,000	Torbram Rd & Park Dr Reinforcement - Install 800 m of NPS 8 XHP on Torbram Rd from Park Dr to Williams Pky - Replace inlet to station 20168A with NPS 8 ST XHP. (Required for projected customer growth.)
8	20	2019	$ 1,125,000	Torbram Rd Reinforcement - Install 1.5 km of NPS 8 ST XHP on Torbram Rd from the Sandalwood Gate Station to Mayfield Rd - Install an additional run (400 psig) at the Sandalwood Gate Station to supply new pipe. (Required for projected customer growth.)
9	30	2014	$ 100,000	Bathurst Gate Station Elevation - Elevate Bathurst Gate Station outlet to 420 psig - includes NPS 12 ST XHP on Bathurst St and Gamble Rd. (Project is required to maintain system minimum pressures and projected growth demand.)
11	30	2015	$ 200,000	Bathurst St & Bloomington Rd - Install new XHP to HP Station at Bathurst St and Bloomington Rd. (Project is required to maintain system minimum pressures.)
12	30	2016	$ 1,600,000	Woobine Ave & Queensville Sdrd - Install 2km of NPS 4 XHP on Queensville Sdrd from Woodbine Ave to Leslie St. (Project is required to maintain system minimum pressures.)
13	30	2016	N/A	Doane Rd & Woodbine Ave Station Increase - Increase station outlet pressure from 275 psig to 300 psig at Station 2937273 (Doane Rd and Woodbine Ave XHP-XHP) (Project is required to maintain system minimum pressures.)
14	30	2016	N/A	Baseline & McCowan Station Decrease - Decrease station outlet pressure from 275 psig to 250 psig at Station 2937912 (Baseline Rd and McCowan Rd XHP-XHP) ((Project is required to maintain system minimum pressures.))
16	30	2018	$ 200,000	Mulock Dr - Pressure Elevation (IP to HP) - Disconnect 3 main legs from existing network: 1) Bathurst St and Mulock Dr (37780765) 2) Bathurst St and Keith Ave (37780764) 3) Yonge St and Mulock Dr (37780669) - to be completed prior to pressure elevation - Install 3 Stations - 1) XHP-HP at Bathurst St and Mulock Dr 2) HP-

				IP station at Bathurst St and Mulock Dr 3) HP-IP at Yonge St and Mulock Dr - Elevate ~7km of main from IP to HP on Mulock Rd. between Bathurst St and Yonge St. (This project is dependent on the York Region Reinforcement. Pressure elevation is needed to move gas from Victoria Square to Bathurst Gate and to supply future growth in York Region.)
17	30	2018	N/A	St John's Sdrd & Bayview Ave District Station - Decrease the pressure at station outlet from 55 psig to 50 psig. (This project will allow flow to transfer from Victoria Square Gate Station to Bathurst Gate Station.)
18	30	2020	$ 840,000	8th Line & Reagens Industrial Pkwy - Install 1.4 km of NPS 6 ST HP on 8th Line from Reagens Industrial Blvd to Professor Day Dr. (This project will loop the existing NPS 4.)

Table 25: Area 40 Additional Reinforcement Details

#	Area	Year	Cost	Reinforcement Details
19	40	2014	$ 1,250,000	Hwy 7/35 Reinforcement - Install 1.5km of NPS 8 ST XHP on HWY 7/35 from Lindsay St (near node 43010008) to west of Angeline St - Install a XHP-IP district station at NW corner of HWY 7/35 and Angeline St, tie-in to the existing NPS 4 PE IP on Angeline St. (Project is required to maintain system minimum pressures.) (This project will also support future expansion to Fenelon Falls and/or Bobcaygeon.)
20	40	2014	$ 1,800,000	Hwy 7 Reinforcement - Install ~4.5km NPS 8 ST XHP on Hwy 7 from existing NPS 8 ST XHP dead end north of Lansdowne St (47810031) to Lily Lake Rd, in Peterborough. (Project is required to maintain system minimum pressures.)
21	40	2014	$ 1,490,000	Kingston Road Reinforcement - Install 2.4 km of NPS 6 ST XHP on Kingston Rd from Lakeridge Rd to Salem Rd - Install new station (XHP to XHP) at Kingston Rd and Lakeridge Rd. (Project is required to maintain system minimum pressures.)
22	40	2015	$ 1,750,000	Hwy 35 Reinforcement - Install ~4.2 km NPS 8 ST XHP on Hwy 35, from 2.2 km south of Bethany Hills Rd to 2km north of Bethany Hills Rd Note: this project will replace ~2 km of existing NPS 4 ST XHP. (Required for projected customer growth.)
23	40	2016	$ 1,750,000	Lindsay Reinforcement - Install ~4.3km of NPS 8 ST XHP on Hwy 35 from 2.3km South of Golf Course Rd to 2km North of Golf Course Rd. Note: this will replace ~4.3km existing NPS 4 ST XHP main. (Required for projected customer growth.)
27	40	2019	$ 500,000	Pickering Gate South Pressure Elevation - Elevate the outlet pressure from Pickering Gate Station South from 400 psig to 500 psig - Install XHP-XHP (500 psig - 400 psig) station at Taunton Rd and Westney Rd. (Project is required to maintain system minimum pressures.)

Table 26: Area 50 Additional Reinforcement Details

#	Area	Year	Cost	Reinforcement Details
28	50	2014	$ 750,000	Thornton Gate Pressure Elevation – Baxter/Borden Line & Innisfil Line - Rebuild Thornton Gate Station - Elevate Thornton Gate outlet pressure from 400 psig to 500 psig (Westerly & Easterly) - Elevate the following pipeline MOP to from 275 psig to 500 psig: 7.8 Km of NPS 6 ST XHP from node 53020068 at Baxter (near Murphy Rd / Denney Dr) to node 53020059 at Borden (near Louisbourg Rd / 4 Line) - Move the XHP-XHP Station 3589787 currently in Baxter (500 psig drop to 275 psig) to Borden (Louisbourg Rd / 4 Line between node 53020059 and 53020060) - Elevate the following pipeline MOP to 500 psig from 400 psig: 5.5 km of NPS 8 ST XHP from node 53810001 at Thornton Gate outlet to node 53810281 at Innisfil Beach Rd / 10th Sideroad; 4.2 km of NPS 6 ST XHP from node 53810109 at Innisfil Beach Rd / County Rd 53 to node 53810140 at County Rd 53 / Salem Rd (Station 51508A inlet); - Install a new XHP-XHP Station (500 psig drop to 400 psig) at Innisfil Beach Rd / 10th Sideroad between node 53810279 and node 53810281

Table 27: Area 60 & 90 Additional Reinforcement Details

#	Area	Year	Cost	Reinforcement Details
38	60	2014	$ 600,000	Richmond Pressure Elevation - Remove station 6B546A at Fallowfield Rd and Shea Rd - Elevate pressure from HP to XHP for network 6597 (downstream of removed station) - 1 km of NPS 4 PE IP from existing NPS 4 ST HP on Shea Rd to a new subdivision in Richmond. (Required for projected customer growth.)
39	60	2015	$ 1,000,000	Arnprior - 2.7 km of NPS 4 PE IP connected to the existing NPS 4 IP on Bev Shaw Pkwy from Baskin Dr to White Lake Rd / and White Lake Rd from Bev Shaw to White Lake Rd - Elevate the pressure in Arnprior North (networks 6585 and 6448) from 207 kPa to 310.3 kPa. (Required for projected customer growth.)
40	60	2015	$ 1,800,000	Chapel Hill South Reinforcement - Install ~ 2 km of NPS 8 ST XHP on Chemin Du Chantier from Kemp Rd and Renaud Rd to to Percifor Way (Required for projected customer growth.)
41	90	[redacted]		
42	60	2016	$ 100,000	Stagecoach & Parkway District Station Rebuild - Rebuild District Station 61137A at Stagecoach & Parkway for additional capacity
43	60	2017	$ 300,000	Beckwith Station Rebuild and Inlet Relay - Rebuild District Station 6A181A at 10th Line and Hwy 15 for additional capacity - Replace the existing 1" station inlet at station 6A181A
45	60	2018	$ 1,200,000	Greely - Install ~ 2 km of NPS 4 ST XHP to replace the existing NPS 2 that runs on Parkway Rd from Old Prescott Rd to Stagecoach Rd between stations 61135A and 61137A (Required for projected customer growth.)
46	60	2018	$ 100,000	Rideau Narrows District Station Rebuild - Rebuild District Station 61397A at Rideau Valley Dr N and Rideau Narrows Dr

Table 28: Area 80 Additional Reinforcement Details

#	Area	Year	Cost	Reinforcement Details
50	80	2021	$ 820,000	Cauthard Rd Reinforcement - Install ~1.5 km of NPS 6 ST XHP on Cauthard Rd and Nigh Rd from the intersection of Cauthard Rd and Garrison Rd to regulator station #3176456 at the intersection of Gorham Rd and Nigh Rd. (This Project increases system minimum pressures due to projected growth - Pressure at nodes 265 and 274 fall to 146 psigg, system minimum pressure is 150 psig

Year	Area	Project
2010	20	Mavis & 403 Reinforcement
2010	60	North Valley Reinforcement
2010	80	Victoria Ave Reinforcement
2011	40	Preston Rd Cavan Reinforcement
2011	50	Alliston Reinforcement
2011	50	Wasaga Beach Reinforcement
2011	50	Angus Reinforcement
2012	30	Dufferin St Reinforcement
2012	30	Bathurst Pressure Elevation
2012	30	Ninth Line (407 to Steeles) Reinforcement
2012	40	Preston Rd Cavan Reinforcement
2012	50	Alliston Reinforcement
2012	50	Angus Reinforcement
2013	20	Mayfield Reinforcement
2013	30	Bathurst and Rutherford Reinforcement
2013	30	Dufferin St Reinforcement
2013	30	South Town Centre Reinforcement
2013	30	Kingscross Reinforcement
2013	30	Ninth Line (407 to Steeles) Reinforcement
2013	40	Queen St Reinforcement
2013	50	Alliston Reinforcement
2013	50	Angus Reinforcement
2013	50	Stayner Reinforcement
2013	50	Innisfil Beach Reinforcement
2013	60	Percy St Reinforcement
2013	60	Ottawa Reinforcement
2014	20	Hwy 10 (Dundalk Reinforcement)
2014	20	Mayfield Reinforcement
2014	30	Bathurst Pressure Elevation (Yonge and Gamble Station)
2014	30	Bathurst Pressure Elevation
2014	60	NPS 8 XHP River Road / Strandherd Reinforcement
2015	10	GTA Project
2015	20	King and McLaughlin (Brampton) Reinforcement (formerly Hwy 10/24 Reinforcement Phase 2)
2015	20	Mississauga Road (Brampton) Reinforcement
2015	40	Peterborough Reinforcement Phase 2
2015	60	Woodroffe Reinforcement
2015	60	Landsdowne Reinforcement
2016	20	Hwy 10/24 Reinforcement Phase 3
2016	20	Queen Street (Brampton) Reinforcement
2016	30	York Region Reinforcement Phase 1
2016	30	Woobine Ave & Queensville Sdrd Reinforcement
2016	30	Bathurst and Bloomington Reinforcement
2016	30	9th Line and 14th Ave Station Rebuilds
2016	40	Kingston Road Reinforcement
2016	50	Alliston Reinforcement Phase 3
2016	50	Thornton Pressure Elevation
2016	60	Richmond Pressure Elevation
2017	40	Oshawa NPS 16 Reinforcement
2017	40	Lindsay Reinforcement
2017	50	Innisfil Reinforcement
2017	60	Ottawa Reinforcement Phase 2
2018	20	Queen St E & Claireville Conservation Rd Reinforcement
2018	20	Hwy 10/24 Reinforcement Phase 3
2018	30	York Region Reinforcement Phase 2
2018	30	Mulock Pressure Elevation
2018	40	Lindsay Reinforcement
2019	40	Pickering Gate South Pressure Elevation
2019	50	Alliston Reinforcement Phase 4
2019	60	Manotick Reinforcement

GEC INTERROGATORY #57

INTERROGATORY

Topic 9 – Avoided Costs

Ref: Exh. C/T1/S4, Figure 3

a. Please explain whether the following projects listed in EB-2012-0451/EB-2012-0433/EB-2013-0074 Exhibit I.A1.EGD.GEC.42 are included in Figure 3, and if not, why:

i. 2017 installation of approximately 3.5 km of NPS 16 HP from Bayview Avenue station to the existing NPS 24 near the intersection of Avenue Road & MacPherson Ave. This reinforcement will enhance system flexibility during planned and emergency activities. The estimated cost associated with this reinforcement is $21M.

ii. 2018 installation of approximately 4.2 km of NPS 12 HP on Bathurst St. from Steeles Avenue to Sheppard Avenue and 3.5 km of NPS 12 HP on Sheppard Avenue to Bayview Avenue and a new Station. This reinforcement will improve pressures in the local area and provide sufficient capacity for future customer growth in this area. The estimated cost associated with this reinforcement is approximately $10M.

iii. 2018 installation of approximately 4.0 km of NPS 12 HP from Roselawn Avenue and Oriole Parkway to Avenue Road & Roxborough Street. This reinforcement will improve pressures in the local area and provide sufficient capacity for future customer growth in this area. The estimated cost associated with this reinforcement is $6.4M.

iv. 2019 installation of approximately 4.5 km of NPS 12 HP on Spadina Road from MacPherson Avenue to Lakeshore Boulevard. This reinforcement will improve pressures in the local area and provide sufficient capacity for future customer growth in this area and will enhance system flexibility during planned and emergency activities. The estimated cost associated with this reinforcement is approximately $8M.

v. 2019 installation of approximately 2.5 km of NPS 16 HP from Victoria Park on Dawes to Woodbine & Strathmore. This reinforcement will provide a Single

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford
H. Thompson

Source HP System with a back feed. This will increase security of supply in the south Scarborough area and provides an alternate supply path for customers to the east of the Don River. The estimated cost of this reinforcement is $5M.

vi. 2020 installation of approximately 250m on NPS 6 XHP pipeline on Mississauga road in Brampton. This reinforcement will improve pressures in the local area and provide sufficient capacity for future customer growth in this area. The estimated cost associated with this reinforcement is approximately $0.3M.

RESPONSE

During the Interrogatory review of the Avoided Distribution Cost Study Enbridge identified an error with the reinforcement expenditure forecast provided to Navigant.

It is expected that this oversight will result in a minimal impact to the Avoided Distribution costs; therefore Enbridge plans to re-file the Updated Avoided Distribution Costs Study, with the updated Avoided Gas Costs during the Input Assumption update in Q4 2015. Projects (i) to (v) fall within the study's forecast horizon (2010 to 2019) and will be included.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford
H. Thompson

GEC INTERROGATORY #58

INTERROGATORY

Topic 9 – Avoided Costs

Ref: Exh. C/T1/S4, p. 26 of 35

a. Figure 9 shows the demand-day savings occurring in 2013–2030, while the text says that the load reductions are assumed to occur in 2015–2032. Please reconcile this discrepancy.

RESPONSE

Figure 9 will be corrected to show the demand-day savings starting in 2015.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford
H. Thompson

GEC INTERROGATORY #59

INTERROGATORY

Topic 9 – Avoided Costs

Ref: Exh. C/T1/S4, p. 27 of 35

a. Please provide all workpapers supporting the derivation of the peak day demand distribution avoided cost in $/10^{3}m^3 annual peak day demand.

b. Please explain how the computation accounts for the O&M costs related to the deferred projects.

RESPONSE

(a) Please see the response to GEC Interrogatory #49 found at Exhibit I.T9.EGDI.GEC.49 for the relevant inputs.

The derivation of the avoided distribution costs is based on a proprietary model that is owned by Navigant. Please detail the specific areas of interest and, if relevant, Navigant may be able to provide a further response.

(b) The incremental pipe installed per year is not considered in the development of the annual O&M budget. As a result, it was estimated that there will be no impact to the O&M budget as a result of the reinforcements installed or deferred.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford
H. Thompson

GEC INTERROGATORY #60

INTERROGATORY

Topic 9 – Avoided Costs

Is the company in possession of any studies or information concerning the scale of Demand Reduction Induced Price Effects (DRIPE) in Ontario? If so please provide.

RESPONSE

Enbridge is not aware of any studies or information concerning the scale of Demand Reduction Induced Price Effects ("DRIPE") in the natural gas sector in Ontario.

Witnesses: S. Mills
S. Moffat
F. Oliver-Glasford
B. Ott

BOARD STAFF INTERROGATORY #28

INTERROGATORY

Topic 10 – Accounting Treatment: Recovery and Disposition of DSM Amounts

Ref: Exhibit B / Tab 1 / Schedule 6 / pp. 3-7

Preamble:
Enbridge proposed the establishment of the DSM Participant Incentive Deferral Account (DSMPIDA).

Questions:

a) Please explain why Enbridge requires a separate DSMPIDA for each year of the plan.

b) Please confirm that the future liability recorded in the DSMPIDA at the end of a given year is funded by that same year's budget.

RESPONSE

a) Enbridge is not opposed to the DSMPIDA operating as a singular account rather than multiple accounts so long as it is understood that the account would be in operation throughout the term of the DSM Multi-Year plan. While the Company requested in evidence the creation of an account for each year, it acknowledges in hindsight that the request could have been for the establishment of an account for the term of the Multi-year plan with the closing balance in each year being the opening balance in the subsequent year. The Company therefore proposes that the Board approve this account in a manner similar to the LRAM, DSMVA and DSMIDA in that the amounts recorded in the DSMPIDA be annually reviewed and dealt with by Board order at the same time as these other accounts are addressed by the Board. This will insure the transparency of this mechanism and the amounts recorded during each year of the term of the plan.

b) Enbridge forecasts in each of the 2015 to 2020 years of the DSM Multi-Year Plan the incentives that will be paid out to participants in each year. As participants may build and become entitled to incentives at a rate different from the Company's forecasts, the

Witnesses: S. Bertuzzi
M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

amounts actually paid will vary from the forecasts. This difference is the amount that will be recorded in the DSMPIDA with any credit or debit being carried over into the subsequent year. The Company is currently in the process of filing updated evidence in respect of the DSMPIDA which adds further clarity.

Please see the response to SEC Interrogatories #11 and #12, filed at I.T5.EGDI.SEC. 11 and12, for more about the DSMPIDA.

Witnesses: S. Bertuzzi
M. Lister
F. Oliver-Glasford
B. Ott
R. Sigurdson

BOARD STAFF INTERROGATORY #29

INTERROGATORY

Topic 10 – Accounting Treatment: Recovery and Disposition of DSM Amounts

Ref: Exhibit B / Tab 1 / Schedule 4 / pp. 3-5
Exhibit B / Tab 1 / Schedule 6 / pp. 8-9
Exhibit B / Tab 4 / Schedule 5 / pp. 5-6

Preamble:
Enbridge included a $1 million annual DSM IT chargeback for each year during the 2016-2020 period. Enbridge also requested the establishment of the DSM Information Technology Capital Spending Variance Account (DSMITCSVA) to record the revenue requirement implications of the capital spending on the replacement of the DSM IT systems.

Questions:

a) Please provide the Operations and Maintenance (O&M) costs related to the DSM IT replacement project.

b) Please discuss how Enbridge proposes to recover these O&M costs.

c) Please provide further rationale for including costs associated with the DSM IT replacement project into rates during the term of Enbridge's Custom IR plan.

RESPONSE

a) At present Enbridge does not anticipate a significant increase in DSM O&M expenditures beyond those incurred today as a result of implementing a new system.

b) The estimated annual O&M Cost associated with the DSM replacement system will be charged to the Company's DSM Program and recorded in the DSM Deferral Account for subsequent clearing to rates.

Witnesses: S. McGill
B. Ott
E. Reimer
P. Tharmalingam

c) The treatment of DSM related costs, whether O&M or capital, have always been passed on to customers through the clearing of the Company's DSM deferral accounts. The following excerpts from the Board's Decision with Reasons in the EB-2012-0459 Customized Incentive Regulation filing illustrate the Company's position and subsequent direction by the Board:

> The first three rows of the table relate to expenses for Customer Care and Customer Information System (CIS) service charges, Demand Side Management (DSM) expenses and Pension and Other Post-Employment Benefits ("OPEB") expenses. Each of these have been, or will be, set outside of the current case:
>
> • Customer Care/CIS service charges are subject to an approved settlement agreement (EB-2011-0226) which provides a mechanism to determine the costs for each year 2013 to 2018.
>
> • DSM costs are subject to a separate regulatory process. The 2014 DSM budget included in this proceeding was recently approved by the Board in EB-2012-0394. The Board has recently launched a policy consultation related to future DSM expenditures (EB-2014-0134).
> …
>
> Additionally, Enbridge proposed that any further variances in DSM spending and results, beyond those included within the 2014-2018 forecasts, which occur as a result of Board decisions in any other proceeding be included within each of the 2014-2018 DSM variance accounts. Enbridge explained that it has included the approved or projected level of DSM spending in each of its 2014-2018 forecasts of costs. No party objected to this proposal.
> …
>
> ***Board Findings***
>
> The proposed changes to DSMVA and GDARIVA were unopposed and will be accepted by the Board. The Board notes that further direction regarding DSM accounts may arise from the current DSM consultation.[1]

The Board's current DSM Framework imposes new and additional requirements on the Company that were not known, and could not reasonably have been known, by Enbridge at the time the Incentive Regulation application was heard by the Board.

In the Company's view, the Board was clear that DSM related costs would be treated separately in a future application (i.e., this current application). There has never been any indication by the Board or any other party that DSM related capital expenditures were precluded. Further, page 37 of the DSM Filing Guidelines states that:

[1] Ontario Energy Board EB-2012-0459 Enbridge Gas Distribution Inc. Decision with Reasons, July 17, 2014, excerpts from p.p. 41-42 & 67-68.

> The natural gas utilities should use a fully allocated costing methodology for all their DSM activities. Capital assets (property, plant and equipment) associated with the multi-year DSM Plan will be included in rate base…

In the Company's view, all costs related to DSM, whether they are capital or O&M, were, and are, expected to be treated as pass-through costs outside of the other cost parameters governing the Company's Incentive Regulation plan. It has always been the Company's intention to apply for DSM related costs in a separate proceeding from the Customized IR application.

Witnesses: S. McGill
B. Ott
E. Reimer
P. Tharmalingam

ENERGY PROBE INTERROGATORY #12

INTERROGATORY

Topic 10 – Accounting Treatment: Recovery and Disposition of DSM Amounts

Reference.: Exhibit B, Tab 1, Schedule 6, Page 8

Preamble: The evidence in this Application confirms that the current DSM IT system upon which the tracking, monitoring, evaluation, and verification of DSM program offers and results is dependent, is at the end of its useful life and needs to be replaced. The forecast capital cost for this work is approximately $5 million, most of which will be incurred in 2015 and 2016.

a) Why is the IT upgrade not an urgent priority that should properly be funded as part of the Incremental Budget in 2015 and other projects reduced/deferred? Please explain in detail.

b) How much of the urgency/cost requirement is due to the Ministry Green Button initiative?

c) Is the DSM IT module integrated with the Enterprise IT System, in particular the new Customer Information System (CIS) Module?

d) Please provide the Business Plan for the DSM IT Upgrade and discuss the relationship to and cost implications for the CIS. In particular, discuss in detail the On-bill financing IT implications.

RESPONSE

a) The DSM IT System will be designed to support the Company's DSM programs over the coming five years covered by the DSM Framework. It would not be appropriate to reduce the scale or scope of the Company's DSM programs in 2015 and 2016 or defer them to a later time to accommodate the cost of putting this system in place in these years given that the new DSM IT System will be used and useful over the balance of the life of the DSM framework.

Witnesses: S. McGill
F. Oliver-Glasford
B. Ott
E. Reimer
P. Tharmalingam

b) The Green Button initiative is still in the early planning stages and the ramifications are still largely unknown. A high level estimated cost is captured in the Incremental Spending Budget for 2015.

c) Yes, the new DSM IT System will utilize customer information gathered in the Company's CIS and other databases. The new DSM System will access this information through interfaces between these systems that will need to be built as part of the new DSM IT System.

d) Please see the Company's response to BOMA's Interrogatory #20, Exhibit I.T3.EGDI.BOMA.20 for a discussion of the "Project Plan – DSM IT Solution for the Multi-Year Plan". The Company does not anticipate any cost implications for its CIS as a result of the implementation of the new DSM IT System. With respect to On-bill financing the Company's CIS includes this functionality today. The cost of developing an On-bill financing model integrated with the new DSM IT System has not been included in the estimate cost of the new DSM IT System as the specific requirements of such a program are currently not known. The cost of this particular functionality will be dependent on the extent to which the Company's existing CIS third- party billing capability can be utilized to facilitate DSM related On-bill financing programs.

Witnesses: S. McGill
F. Oliver-Glasford
B. Ott
E. Reimer
P. Tharmalingam

ENERGY PROBE INTERROGATORY #27

INTERROGATORY

Topic 10 – Accounting Treatment: Recovery and Disposition of DSM Amounts

Reference.: Exhibit B, Tab 1, Schedule 6 - Deferral and Variance Accounts - DSMCEIDA.

Preamble: The Company will then seek Board approval for the amount recorded in the account as part of the annual clearance of DSM accounts application. This approved amount would then be available to the Company to use towards achieving the following year's annual target with the benefit of the additional incremental funds.

a) Please discuss timing of Board Approval of application relative to clearance of accounts and audit.

b) Please explain why the DSMCEIA should apply to the 2015 rollover year, since budgets are formula based.

c) Please provide a hypothetical example of the application in 2016 of the DSMCEIA for each of RA Residential and for Low Income Programs. Please be clear regarding assumptions.

d) In the above hypothetical examples please provide the Impacts on the shareholder incentive in each year.

RESPONSE

a) Based on recent years' experience Enbridge expects to receive approval from the Board in its DSM Clearance of Accounts proceedings in Q4 of the year following the program year in question, or Q1 of the year after that.

b) Page 24 of the DSM Framework outlines the Cost-Efficiency Incentive that the Board will make available to the gas utilities for the 2015 to 2020 period. Within this section the Board highlights the benefits of this mechanism, namely the increased incentive for the gas utilities to achieve their targets using as few ratepayer dollars as possible. This section of the Framework does not indicate that this important new mechanism will not be made available in 2015.

c & d) Application of the DSMCEIA effectively increases the maximum amount that the Company may spend on DSM in a given year. Below is an illustrative scorecard example, inclusive of impacts on shareholder incentives, wherein the DSMCEIA provided Enbridge with enough additional funds to increase Large Volume Customer CCM results by 20 million CCM. The same principles would hold true for any of Enbridge's DSM scorecards.

Illustrative Resource Acquisition Scorecard: Without DSMCEIA

Component	Offers Counted	Metric	Weight	Lower	Middle	Upper	Illustrative Actual	% Achievement
Large Volume Customers	Custom, Prescriptive, Direct Install, RiR, CEM	CCM (millions)	40%	453.1	604.2	906.3	604.2	100%
Small Volume Customers	Custom, Prescriptive, Direct Install; Small Comm. New Construction; HEC; Adaptive Thermostats	CCM (millions)	40%	217.6	290.2	435.2	290.2	100%
Residential Deep Savings	HEC	Number of participants	20%	5631	7508	11262	7508	100%
							Weighted Scorecard Achievement	100%
							Shareholder Incentive Claimed	$2,411,282
							Maximum Shareholder Incentive	$6,028,149

Illustrative Resource Acquisition Scorecard: With DSMCEIA

Component	Offers Counted	Metric	Weight	Lower	Middle	Upper	Illustrative Actual	% Achievement
Large Volume Customers	Custom, Prescriptive, Direct Install, RiR, CEM	CCM (millions)	40%	453.1	604.2	906.3	624.2	103%
Small Volume Customers	Custom, Prescriptive, Direct Install; Small Comm. New Construction; HEC; Adaptive Thermostats	CCM (millions)	40%	217.6	290.2	435.2	290.2	100%
Residential Deep Savings	HEC	Number of participants	20%	5631.0	7508.0	11262.0	7508.0	100%
							Weighted Scorecard Achievement	101%
							Shareholder Incentive Claimed	$2,507,063
							Maximum Shareholder Incentive	$6,028,149

ENERGY PROBE INTERROGATORY #28

INTERROGATORY

Topic 10 – Accounting Treatment: Recovery and Disposition of DSM Amounts

Reference: Exhibit B, Tab 1, Schedule 6, Page 8 DSMITCSVA
Exhibit B, Tab 4, Schedule 5

a) Please explain why the DSM IT capital should not be considered as a Z factor under the 5 year IRM Plan.

b) Assuming a Z factor please provide what criteria would apply (threshold etc.).

c) Please provide a copy of the Business Case for the DSM IT upgrade(s).

d) Indicate clearly how much of the capital and annual operating costs relate to the Ministry Green Button initiative.

e) In particular, please provide the linkages and capital and operating cost implications related to the new CIS and other Enterprise IT Operations.

f) Please provide the annual operating costs related to the DSM Program and for other IT solutions such as CIS, billing etc.

RESPONSE

a) The costs related to the Company's new DSM IT System should not be considered as Z-Factor under the Company's five year EB-2012-0459 Incentive Rate Plan. In its decision on the Company's EB-2012-0459 incentive rate application, the Board found that the Company's DSM program costs have been, or will be, set outside of the incentive rate making case:

> DSM costs are subject to a separate regulatory process. The 2014 DSM budget included in this proceeding was recently approved by the Board in EB-2012-0394. (EB-2012-0459 Decision with Reasons July 17, 2014, pages 41 and 42.)

Witnesses: S. McGill
E. Reimer
P. Tharmalingam

b) In the Board's EB-2012-0459 Decision dealing with the Company's 2014 through 2018 incentive rate application the Board defined the criteria for the determination of an Enbridge Z-Factor as follows:

> (i) Causation: The cost increase or decrease, or a significant portion of it, must be demonstrably linked to an unexpected, non-routine event.
>
> (ii) Materiality: The cost at issue must be an increase or decrease from amounts included within the Allowed Revenue amounts upon which rates were derived. The cost increase or decrease must meet a materiality threshold, in that its effect on the gas utility's revenue requirement in a fiscal year must be equal to or greater than $1.5 million.
>
> (iii) Management Control: The cause of the cost increase or decrease must be: (a) not reasonably within the control of utility management; and (b) a cause that utility management could not reasonably control or prevent through the exercise of due diligence.
>
> (iv) Prudence: The cost subject to an increase or decrease must have been prudently incurred.
>
> (EB-2012-0459 Decision with Reasons July 17, 2014, pages 19 and 20.)

c) Please see the Company's response to BOMA's Interrogatory #20 Exhibit I.T3.EGDI.BOMA.20 in order to reference the "Project Plan - DSM IT Solution for the Multi-Year Plan".

d) Enbridge has recently joined a Provincial Green Button working group. The project should be characterized as "early in development". The project scope and costs associated with this initiative are not defined at this time.

e) Please see the Company's response to Energy Probe Interrogatory #12c) and d) at Exhibit I.T.10.EGDI.12.

f) At this time the Company does not anticipate incremental operating costs for its other IT solutions such as its CIS. This situation could change over the course of the term of the OEB's DSM Framework and if such were to occur, the incremental cost incurred in the modification and operation of these systems will be allocated and charged to the Company's DSM Program.

Witnesses: S. McGill
E. Reimer
P. Tharmalingam

SEC INTERROGATORY #11

INTERROGATORY

Topic 10 - Accounting Treatment

Reference: Ex. B/1/6, p. 6

Please provide a draft accounting order for the proposed 2015 and 2016 DSMPIDA accounts. Please confirm that amounts to go into the DSMPIDA account in any year would be charged to the DSM budget for that year, as if paid to customers, and would be eligible for recovery under the DSMVA if the conditions of that account were met.

RESPONSE

Please find attached to this interrogatory response a draft accounting order for the proposed 2015 DSMPIDA. As per the response to Board Staff Interrogatory #28, filed at I.T10.EGDI.STAFF.28, the Company intends to use the same account for each year of the plan updated annually as approved by the Board during the annual clearance of DSM accounts. The DSMPIDA will record the difference between the budgeted forecast amount of incentives payable in each year of the DSM Multi-Year plan and the incentives actually paid. For more on the budgeting of incentive amounts, please see the response to SEC Interrogatory #12, filed at I.T5.EGDI.SEC.12.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

ACCOUNTING TREATMENT FOR A DEMAND SIDE MANAGEMENT PARTICIPANT INCENTIVE DEFERRAL ACCOUNT ("2015 DSMPIDA")

For the 2015 Fiscal Year
(January 1, 2015 to December 31, 2015)

The purpose of the 2015 DSMPIDA is to record and track the variance between the actual incentive amounts paid during 2015 and the forecast amounts that were expected to be paid to participants in Board-approved DSM offers, which were included within the Company's 2015 DSM budget. As a result of variances which can occur in the number of participants enrolling in the program, and due to the timing of the incentive payment amounts, which could occur over several years following a participant's participation, the DSMPIDA will ensure that the Company only recovers, and ratepayers only pay, the incentives that become earned and payable.

Simple interest is to be calculated on the opening monthly balance of this account using the Board approved EB-2006-0117 interest rate methodology. The balance of this account, together with carrying charges, will be disposed of in a manner to be designated by the Board in a future rate hearing.

Accounting Entries

1. To record the variance in incentive amounts paid:

Debit/Credit:	Operating & Maintenance	(Various accounts)
Credit/Debit:	2015 DSMPIDA	(Account 179. ---)

To record the variance in actual incentive amounts paid to program participants, and the forecast payments included within the 2015 DSM budget.

2. Interest accrual:

Debit/Credit:	Interest expense	(Account 323. 000)
Credit/Debit:	Interest on 2015 DSMPIDA	(Account 179. ---)

To record simple interest on the opening monthly balance of the 2015 DSMPIDA using the Board approved EB-2006-0117 interest rate methodology.

SEC INTERROGATORY #13

INTERROGATORY

Topic 10 - Accounting Treatment

Reference: Ex. B/1/6, p. 7

Please confirm that Enbridge is proposing that it be allowed to carry forward committed but unspent amounts in any year and, if those amounts are not spent on the commitments to which they relate, they would be available to Enbridge as additional budget in the subsequent years. Please confirm that for these amounts Enbridge would not be required to meet the criteria for the cost efficiency incentive proposed by the Board in the Framework.

RESPONSE

Please see response to SEC Interrogatory #11 found at Exhibit I.T10.EGDI.SEC.11.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

BOARD STAFF INTERROGATORY #30

INTERROGATORY

Topic 11 – Integration and Coordination of Natural Gas DSM and Electricity CDM Programs

Ref: EB-2014-0134 / Report of the Board / Section 6.2
Exhibit B / Tab 4 / Schedule 1
Exhibit B / Tab 4 / Schedule 2

Preamble:
A key priority included in the DSM Framework is that utilities should "increase collaboration and integration of natural gas DSM programs and electricity CDM programs."

Enbridge outlined the key areas of focus for collaboration during the 2015-2020 period and provided a list of collaborative efforts undertaken by Enbridge in the 18 months prior to filing its application.

Questions:

a) Please provide the number of electricity distributors that operate in Enbridge's service area.

b) Please provide the total number of electricity distributors with which Enbridge discussed coordination and integration of CDM and DSM.

c) Please provide the number of pilot programs that Enbridge has initiated in cooperation with the electricity distributors.

d) Please discuss any progress made on Enbridge's collaborative efforts to date.

RESPONSE

a) Enbridge understands there to be 26 electricity distributors that operate either entirely or partially within the Enbridge franchise territory at this time.

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
E. Reimer
P. Goldman
M. Lister
F. Oliver-Glasford
R. Sigurdson

b) Enbridge has been in direct communication with at least 15 electricity distributors that operate either entirely or partially within the Enbridge franchise territory, as well as with the Independent Electricity System Operator ("IESO") in order to discuss coordination and integration of CDM and DSM. These interactions continue to occur with electric distributors and the IESO either individually, within regional meetings, and as part of the many working groups established across the various sectors/themes in the market.

c) In the six months since the release of the DSM Framework and Filing Guidelines, there have been no pilot programs developed jointly by Enbridge and electric LDCs actually deployed to the market as yet. Most of the early collaboration progress has materialized in areas of joint interest, joint sales team meetings, and joint program development.

d) The following are some examples of early collaborative progress with initiatives likely to launch in Q3 of 2015:

1. Small Commercial/Industrial Collaboration with LDC A
    - Jointly initiated and planned
    - Legal agreement in place
    - Program ready for launch - summer 2015
    - Joint energy audits planned for small commercial and small industrial customers

2. Small Commercial/Industrial Collaboration with LDC B
    - Jointly initiated and planned
    - Legal agreement under construction
    - Program launch planned - summer 2015
    - Joint energy audits planned for small commercial and small industrial customers

3. Low Income Collaboration with LDC C
    - Jointly initiated and planned
    - Legal agreements in the process of finalization pending funding support from the IESO
    - Program launch planned – Summer 2015

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
E. Reimer
P. Goldman
M. Lister
F. Oliver-Glasford
R. Sigurdson

4. Residential Home Energy Management Pilot with LDC D
    - Initiated by LDC D including data support from Enbridge
    - Agreement on the format of the customer consent form in order to access data to release their gas consumption

Enbridge continues to explore additional new and interesting collaborative ideas. Some of the criteria that are believed to translate into excellent collaboration opportunities include:

- Programs sectors that are traditionally expensive for both electric and gas utilities to address on their own like Low Income, Small Commercial and Industrial, and holistic programs with large customers and in Residential markets
- Programs and initiatives that could potentially move towards larger scale roll outs beyond the pilot phase either through multiple regions or across the Province
- Programs and/or technologies that are likely to yield both electric and gas savings results
- New innovative ways to approach the market
- Programs that will operate within areas where both electric and gas utilities share significant market share in the sectors the program is targeting
- Programs that are sustainable over time
- Areas that show effective use of program dollars
- Areas that could extend programming reach

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
E. Reimer
P. Goldman
M. Lister
F. Oliver-Glasford
R. Sigurdson

BOMA INTERROGATORY #12

INTERROGATORY

Topic 11 – Integration and Coordination of Natural Gas DSM and Electricity CDM Programs

Ref: Exhibit B, Tab 1, Schedule 3, page 17 of 19.

> "*Enbridge is in discussions with a number of Local Distribution Companies ("LDCs") regarding the coordination and integration of electricity CDM with DSM."*

How many LDCs is Enbridge in discussion with? How many LDCs approached Enbridge? How many LDCs did Enbridge approach? What criteria did Enbridge use to determine to accept the approaches of the LDCs and what criteria did Enbridge use to approach LDCs?

RESPONSE

Please see the response to Board Staff Interrogatory #30 found at Exhibit I.T11.EGDI.STAFF.30.

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
E. Reimer
P. Goldman
M. Lister
F. Oliver-Glasford
R. Sigurdson

BOMA INTERROGATORY #35

INTERROGATORY

Topic 11 – Integration and Coordination of Natural Gas DSM and Electricity CDM Programs

Ref: Exhibit B, Tab 2, Schedule 1, page 19 of 100.

> *"Higher fixed incentives are necessary in order for the offer to be competitive and relevant to customers, especially in light of low natural gas prices, and the greater incentive levels for electricity conservation offered by LDCs."*

Please provide a comparison of Enbridge incentives to incentives for electricity conservation on a $ per joules or per BTU basis.

RESPONSE

It is a difficult, time consuming and complex task to compare the complete breadth of CDM and DSM incentive portfolios side by side because of the variety of incentive tracks and options available. Enbridge has therefore not undertaken a holistic comparison given the size of the task.

Given feedback from our LDC partners, customers, business partners and our own project experiences, Enbridge is confident that the reference statement highlighted above is not only accurate, it is a material factor influencing conservation decision making today.

As an example, consider a custom non-lighting retrofit project in the industrial sector. It is our understanding that CDM incentives for a custom track non-lightning project incents the greater of $800/kw or $0.10/kWh for the first year of annual savings. Given that 1 [kWh] generates about 3,412 [BTU] that could be translated to equal an incentive per unit of energy (BTU) of $0.0000293/BTU or better.

The Enbridge custom industrial program pays a blended incentive of $0.085/$m^3$ for the first year of annual savings. Given that 1 [m^3] generates about 35,734 [BTU] that could be translated to equal an incentive per unit of energy of $0.00000238/BTU.
In this example, an industrial customer would receive roughly 12 times the incentive from the CDM program than they do from the DSM program when measuring the incentive payment per unit of energy.

Witnesses: S. Bertuzzi
R. Kennedy
E. Lontoc
B. Ott
P. Goldman
M. Lister
F. Oliver-Glasford
E. Reimer

BOMA INTERROGATORY #51

INTERROGATORY

Topic 11 – Integration and Coordination of Natural Gas DSM and Electricity CDM Programs

Reference Exhibit B, Tab 3, Schedule 5, page 1 of 3. Does the difference in carbon credit ownership between the IESO and Enbridge create issues with respect to working with the LDCs? How important would it be to have harmonized roles on ownership of carbon credits between Enbridge and the IESO?

RESPONSE

Commenting on the degree to which varying models for carbon credit ownership may impact the coordination and integration of electricity CDM with natural gas DSM is premature at this point. The difference in credit ownership between the IESO and Enbridge will be a topic of discussion in advance of more widespread collaboration, along with a variety of other issues. Given this uncertainty, Enbridge is unable to comment as to whether it would be important to have a harmonized approach to the ownership of carbon credits.

Witnesses: F. Oliver-Glasford
B. Ott

BOMA INTERROGATORY #54

INTERROGATORY

Topic 11 – Integration and Coordination of Natural Gas DSM and Electricity CDM Programs

Reference Exhibit B, Tab 4, Schedule 1, page 10 of 11. Does Enbridge have sufficient staff to work with LDCs in large scale collaboration? How many LDCs are in Enbridge's service territory?

RESPONSE

Collaboration activities with the 26 electric utilities understood to be in Enbridge's franchise area requires focus and resourcing. Enbridge participates on a number of working groups with the electricity distributors and has undertaken utility to utility discussions with key LDCs. Enbridge believes that the efforts to collaborate while time consuming in the short term, should take decreasing resources over longer term, as offers move past the design phase and into implementation.

More discussion on Enbridge's collaboration efforts may be found in the response to Board Staff Interrogatory #30.found at Exhibit I.T11.EGDI.STAFF.30

Witnesses: M. Lister
F. Oliver-Glasford
E. Reimer

CME INTERROGATORY #4

INTERROGATORY

Topic 11 – Integration and Coordination of Natural Gas DSM and Electricity CDM Programs

Ref: Exhibit B. Tab 1, Schedule 2. page 7 of 26

EGD states that, pursuant to "Guiding Principle #3", it will coordinate and integrate DSM and electricity CDM efforts to achieve efficiencies. In this regard, EGD confirms that it will look to coordinate and integrate efforts between DSM and electricity CDM. Please advise how the savings achieved through such joint activities will be allocated between the various partners. In providing this explanation, please advise whether the allocation of savings will be based on budgetary contribution, and if not, on what other basis.

RESPONSE

Enbridge will follow the guidance provided in the Board's DSM Filing Guidelines - Section 7.2.2, page 22, with respect to attribution of savings in coordination and integration efforts between gas and electric utilities..

> Attribution of Benefits Between Rate-Regulated Natural Gas Utilities and Rate-Regulated Electricity Distributors
>
> For electricity CDM and natural gas DSM programs jointly delivered with rate-regulated electricity distributors, all the natural gas savings should be attributed to rate-regulated natural gas utilities and vice versa for electricity savings. This represents a continuation of the simplified approach adopted in the 2006 Generic Proceeding and continued in the 2012 DSM Guidelines.

Witnesses: F. Oliver-Glasford
B. Ott
R. Sigurdson

VECC INTERROGATORY #27

INTERROGATORY

Topic 11 – Integration and Coordination of Natural Gas DSM and Electricity CDM Programs

Ref: B-4-1 CDM Collaboration

a) How many LDCs currently operate within Enbridge's franchise area?

b) How many of these LDCs align with the geographical reach of Enbridge's 2016-2020 DSM Plan?

c) How many of these LDCs has Enbridge collaborated with in the development of its DSM plan?

RESPONSE

Please see the response to Board Staff Interrogatory #30 found at Exhibit I.T11.EGDI.STAFF.30

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott
E. Reimer

VECC INTERROGATORY #28

INTERROGATORY

Topic 11 – Integration and Coordination of Natural Gas DSM and Electricity CDM Programs

Ref: B-4-1 Page 10 CDM Collaboration

Preamble: Enbridge indicates additional barriers to large scale collaboration include collaboration funding that currently does not include electric and gas collaborative efforts.

a) Please explain the source and purpose of the collaboration funding.

RESPONSE

Collaboration funding has been allocated within Enbridge's proposed budget in the amount of $1 million annually.

The purpose of the collaboration funding is to be able to participate in collaborative pilot programs, or research initiatives in order to drive forward the Board's Priority #3 around gas and electric collaboration.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

BOMA INTERROGATORY #8

INTERROGATORY

Topic 12 – Future Infrastructure Planning Activities

Ref: Exhibit B, Tab 1, Schedule 2, page 11 of 26.

Please detail and describe how and when Enbridge has been active on the matter of considering DSM in gas utility infrastructure planning prior to and leading up to the filing of this application, and file any and all documentation related to this activity.

RESPONSE

Please see response to GEC Interrogatory #4 found at Exhibit I.T12.EGDI.GEC.4.

Witnesses: S. Mills
F. Oliver-Glasford

CCC INTERROGATORY #19

INTERROGATORY

Topic 12 - Future Infrastructure Planning Activities

Reference: (Ex. B/T1/S3/p. 14)

EGD has budgeted $300,000 in 2015 for the IRP Planning Study. What is being proposed for 2015? What is the total proposed cost of this study which is expected to be completed in time to inform the mid-term review? Please provide a detailed total budget and the proposed annual increments. Will EGD be collaborating with Union Gas on this initiative? If not, why not?

RESPONSE

An initial budget of $300,000 has been outlined for the Integrated Resource Planning ("IRP") Study according to the proposed timeline in Exhibit C, Tab 1, Schedule 3, page 8. If a Board decision is received by early Q4, Enbridge anticipates it would commence the IRP study in late 2015. A total proposed cost of the study, with associated detailed milestones, has yet to be determined as a Request for Proposal has not been issued.

Enbridge is agreeable to collaborating with Union Gas Limited on the IRP Study where appropriate. To that end Enbridge held a collaborative session with Union Gas to discuss IRP and related study methodology on January 12, 2015.

Witnesses: S. Mills
F. Oliver-Glasford
H. Thompson

ENERGY PROBE INTERROGATORY #32

INTERROGATORY

Topic 12 – Future Infrastructure Planning Activities

Reference.: Exhibit B, Tab 3, Schedule 3, Page 3, Exhibit C, Tab 1, Schedule 3-IRP

a) Please indicate when the IRP study will begin.

b) Will there be Stakeholder Engagement? Please specify.

c) The draft scope does not appear to reference to the E.B.O. 188 Guidelines. Please discuss if this is an omission.

RESPONSE

a) The IRP Study timeline as outlined on page 8 of Exhibit C, Tab 1, Schedule 3 is dependent on the Board decision for this application being received in the fall of 2015. It is anticipated that the IRP study will not begin until the Company is in receipt of the Board decision on the DSM Multi-year plan which includes the IRP Study scope and methodology.

b) Enbridge anticipates that an IRP study would benefit from intervenor involvement with respect to reviewing and commenting on draft reports and other documents at key stages of the study. This approach will ensure that intervenors representing Ontario ratepayers and other interest groups will have the opportunity to bring their perspectives to the study team. Enbridge will also invite Board staff to comment on draft reports at key stages of the study.

   In addition, Enbridge will convene a Technical Working Group drawn from a wider cross section of North American gas utilities, the IESO, and the DSM community. In this way, Enbridge will be able to access the experience of staff in other organizations such as gas utilities which have contemplated system-wide Integrated Resource Planning, electric utilities and organizations which have or are undertaking targeted DSM/CDM for the purpose of infrastructure deferral, and in other agencies which provide support to the North American DSM community. The external review will bring a broad and objective perspective to the study and help to ensure the quality of the study across the several specialized fields involved.

Witnesses: S. Mills
F. Oliver-Glasford
H. Thompson

This is not dissimilar to the approach currently being used in the Natural Gas Conservation Potential Study EB-2015-0117 Consultation Process initiated by the Board.

c) The E.B.O 188 Guidelines were not specifically referenced in the IRP Draft Scope of Work. This was not an omission as there would be no change in applying the guidelines in feasibility analyses. Any recommendation resulting from the IRP Study would form part of the input into the Profitability Index calculation as outlined in E.B.O 188.

Witnesses: S. Mills
F. Oliver-Glasford
H. Thompson

GEC INTERROGATORY #4

INTERROGATORY

Reference: Exh. B/T1/S2 p. 11:

With regard to ensuring that gas DSM is considered as an alternative to capital investments in utility infrastructure planning, Enbridge states that it "had been active on this issue" even before the Board's decision in the GTA pipeline case. It further states that more recently it "has formally explored the integration of demand and supply planning processes…"

a. Please summarize what Enbridge did on this issue before the Board's decision in the GTA pipeline case? Please provide copies of all reports, memos and other material that documents what it did.
b. What does the Company mean when it says it has more recently "formally explored the integration of demand and supply planning processes…"?
    i. What specifically did it explore?
    ii. What was the formal process it pursued for this exploration?
    iii. What was the result of its exploration?
    iv. Please provide copies of all documents that illustrate exactly what Enbridge has done, what its process was and what the results of the process were.

RESPONSE

a) Subsequent to the Oral Hearings held in September 2013 with respect to EB-2012-0451 (the GTA Project) and prior to the Board's final decision on the Project received on January 30th 2014, Enbridge established an internal Demand / Supply Steering committee. This internal working group was tasked with reviewing the issue of demand and supply planning and creating closer linkages between departments involved in planning activities. The Steering Committee met once per quarter throughout 2014.

Please find as an attachment all memos, minutes and agendas which Enbridge staff were able to locate in response to GEC's request.

b) In an effort to respond to the Minister of Energy's Long Term Energy Plan issued in December 2013, the Minister's Directive to the Board on March 31, 2014, and the Board's Draft DSM Framework issued on September 15th, 2014 the Enbridge Demand / Supply Steering Committee identified the need to establish an Integrated Resource Planning ("IRP") working group, inclusive of representatives from the Distribution Planning and DSM areas, to further investigate the integration of demand

Witnesses: S. Mills
F. Oliver-Glasford
H. Thompson

and supply planning and develop the evidence relevant to this matter that would be required for Enbridge's DSM Multi-Year Plan application.

i. The IRP working group first held an internal discovery session between demand planning and demand side management teams to create an understanding around work processes and possible linkages in activities moving forward. Then the group conducted preliminary research into IRP processes, best practices and cost effective analyses in other jurisdictions. The group further investigated options for a potential IRP study. The Enbridge IRP working group also met with a team from Union Gas on January 12, 2015 to share the methodological approach and a draft outline of the IRP Scope of Work developed by Enbridge.

ii. Please see response to section (i) above.

iii. This exploration has informed the Integrated Resource Planning Study Scope of Work document, filed as Exhibit C, Tab 1, Schedule 3.

iv. The results of the work conducted by the internal IRP Working Group informed the IRP Study Scope, filed as Exhibit C, Tab 1, Schedule 3.

Witnesses: S. Mills
F. Oliver-Glasford
H. Thompson

Supply/Demand Planning Working Group Meeting Agenda summary

Meeting #1 – Jan 20, 2014

Purpose of Today's Meeting:

To establish whether or not this concept of a supply/demand planning working group is useful in practice and if so, articulate the terms of reference for the group.

Objectives:

1) Share background on reason for this group being called together.
2) Determine whether the group is at the appropriate level and whether there is value to having a "Steering Committee" in place.
3) Identify current planning areas where touch points should exist.
4) Identify other appropriate areas for communication/information sharing.
5) Identify if all appropriate people have been included.
6) Agree upon administrative logistics for the group (i.e. when should we meet? Is quarterly sufficient? Level of formality?)

Meeting #2 - Monday, April 07, 2014

Agenda:

1. Fortis BC IRP Update - Fiona
2. Upcoming LTC – York Region - Hilary
3. Building Transmission and Distribution into the DSM Avoided Costs – Fiona (see attached scoping document prepared by Suzette)

Scoping Document for T D Values Sub Committee.pdf

Meeting #3 – Thursday August 7th, 2014

Agenda:

1. Preparation required for the Natural Gas review
2. Progress in DSM Planning as it may intersect with Supply/Planning
3. Please feel free to add other topics you'd like to discuss.

Meeting#4 - Monday October 20, 2014

Agenda:

1. Review of items on IRP from the draft DSM Framework and our associated responses - Judith
2. Update on the Demand/Supply Learning session scheduled between demand and supply teams scheduled for Oct. 21. – Hilary, Kent and Judith
3. Meetings in 2015 - Fiona

T&D Avoided Cost Sub Committee - Scoping Document

What? Determining what a Transmission and Distribution value should/could be in the TRC avoided cost calculations.

Why? This is required for our next multi-year DSM Planning (planning to take place this spring and summer), and to add into our DSM Potential Study as appropriate.

Who? Sub-committee may include: Hilary, Erik, Hilmi, Suzette, John DeVenz (To be finalized)

When? Group will meet on a project basis with a start and end date. To be discussed at April 7 Demand/Supply Working Group

Background:

EBO 169 III indicated that once the NG utilities had implemented DSM Programs for few years the Board would reconvene and look at an Integrated Resource Plan (IRP) which would incorporate both demand and supply side management. This ultimately did not transpire.

Previously (1995-1997 timing) EGD included the avoided T&D costs into our TRC equation. The impact found at that time was 1 – 5%, however, the time and effort to come up with that estimation was fairly intensive. In 1999 EGD applied for a shared savings incentive mechanism (SSM), it was thought that the T&D value in conjunction with the fact that customers were already paying for those costs was "double dipping". The T&D avoided costs would have resulted in lift (all be it small) to the TRC test and a subsequent increase to the shareholder incentive payout.

During the GTA Project, certain intervenor groups felt that increased DSM spending and targets could have offset the need for these type capital projects. Specifically "Environmental Defence urged the Board to send a signal to the companies that new supply-side investments will not be approved unless all lower cost DSM and/or interruptible service options have been explored and documented. Other parties agreed and argued that both Enbridge and Union should be required to do a better job at properly incorporating DSM into system planning, with some parties suggesting that both companies should be required to conduct integrated resource planning.

Enbridge responded that if the Board decides to consider integrated resource planning within the DSM framework, or more broadly in a generic hearing, Enbridge would be willing to take a leadership role. Enbridge was supportive of a generic hearing regarding the role of geographically targeted DSM programs under an integrated resource planning framework, including addressing some of the suggestions from Environmental Defence, GEC and BOMA.

In light of the evidence presented, the Board concludes that further examination of integrated resource planning for gas utilities is warranted. The evidence in this proceeding demonstrates that the following issues should be examined:

- The potential for targeted DSM and alternative rate designs to reduce peak demand
- The role of interruptible loads in system planning
- Risk assessment in system planning, including project prioritization and option comparison
- Shareholder incentives

It was also noted that "Further information on how the Board will examine gas integrated resource planning will be released in due course. Pending that review, the Board expects applicants to provide a more rigorous examination of demand side alternatives, including rate options, in all gas leave to construct applications"

It was during this GTA leave to construct application process that the past decision to remove the T&D costs from the DSM Avoided gas cost calculation was questioned.

Issues to Discuss/Resolve:

- Is the methodology to determine the T&D costs that was developed and used in 1995 – 1997 still valid and accurate?
- Are the definitions of "replacement", "reinforcement", "relocation" and "sales" mains still the same today?
- Can the company determine the impact of DSM Programs on a peak hour and peak day basis?
- Does the company have the internal capacity to develop this methodology in house? What are the potential implications?
    - Determine the internal effort and resources required to calculate these additional avoided costs
    - Will this potential change in Avoided cost methodology affect other Avoided cost methodologies – not only for DSM but other areas of the company
- How material are these avoided costs to the DSM Portfolio, IRP, and future potential leave to construct applications. What are the implications?
    - Could the determination of these costs lead to a more "targeted" DSM effort

Supply	**Demand**
Definition of mains? i.e. reinforcement, sales, relocation, replacement?	Which measures and offerings impact peak day and peak hour?
Difficulty and timing to do this assessment each year, at 3 year intervals, or over the long term?	Order of magnitude – materiality of costs v.s resources required
How will these T&D costs tie into the current Avoided cost methodology	

BOMA INTERROGATORY #4

INTERROGATORY

Topic 13 - Other

Ref: No reference

For all Enbridge rate classes, please indicate the sector, the consumption ranges and any other differentiating elements. Please provide a listing of typical members of each rate class, the total consumption per class and the average consumption per class.

RESPONSE

Please see Exhibit B, Tab 2, Schedule 4, Tables 2, 4, 6, 8, 10 and 12 for total throughput and typical annual consumption for Enbridge's rate classes as forecast for the years 2015 to 2020.

Enbridge's two general service rates are Rate 1 and Rate 6. Rate 1 is specific to Enbridge's residential customers, while Rate 6 is a mixture of commercial and industrial customers. Enbridge's Rate 9 is specifically for customers authorized to resell natural gas by filling pressurized containers.

Enbridge's contract rates typically contain a mixture of commercial and industrial customers, as these rate classes are defined through consumption patterns and thresholds as opposed to customer type.

Please see table on the following page providing descriptions of Enbridge's contract rate classes.

Witnesses: M. Lister
K. Mark
B. Ott

Rate 110	For customers who use Enbridge's network to transport gas that is delivered at a specified maximum daily volume of not less than 10,000 m^3 and not more than 150,000 m^3.
Rate 115	For customers who use Enbridge's network to transport an annual supply of natural gas not less than 292 times the specified maximum daily volume, which is not less than 1,165 m^3.
Rate 125	For customers, namely power producers, who use Enbridge's network to transport a specified maximum daily volume of natural gas that is not less than 600,000 m^3.
Rate 135	For customers who use Enbridge's network to transport an annual supply of natural gas that is not less than 340,000 m^3.
Rate 145	For customers who use Enbridge's network to transport a specified maximum daily volume of natural gas (minimum annual volume 340,000 m^3), which can accommodate the total interruption of gas service when required.
Rate 170	For customers who use Enbridge's network to transport a specified maximum daily volume of natural gas that is not less than 30,000 m^3 and a minimum annual volume of 5,000,000 m^3, which can accommodate the total interruption of gas service when required.
Rate 200	Currently utilized by a single significant customer located outside of Enbridge's franchise area.
Rate 300	For customers who use Enbridge's network to transport a specified maximum daily volume, usually with a maximum contract demand under 600,000 m^3.

BOMA INTERROGATORY #6

INTERROGATORY

Topic 13 - Other

Ref: Exhibit B, Tab 1, Schedule 2, page 7 of 26.

When Enbridge talks about pay for performance, does that mean paying the customer for performance, paying the utility for performance or both? From what jurisdictions is the company seeking examples of such programs. Is Enbridge coordinating its jurisdictional review with Union?

RESPONSE

Enbridge is aware of pay for performance models in New Jersey, New Hampshire, and Washington which focus on pay for performance in relation to the customer. Further, as noted on page 2 of Exhibit B, Tab 4, Schedule 1, "Enbridge has also been an active participant in electric conservation through its membership in the Coalition of Large Distributors, Advisory Council on Conservation, Conservation First Advisory Working Group ("CFAWG") and the recently established Conservation First Implementation Committee ("CFIC")." Enbridge has had the opportunity to closely observe the dialogue and analysis of this topic taking place in Ontario's electricity CDM sector as it has considered pay for performance over the past year.

As a relatively new concept for regulated distributors in Ontario providing conservation and energy efficiency programs, Enbridge has not yet expressed an interpretation regarding whether pay for performance should apply to the customer, the utility, or both. Based on developments in the electricity sector, Enbridge has not yet seen an approach which is satisfactorily consistent or simplified to warrant active pursuit of this model. However, Enbridge is well positioned to observe the ongoing development and eventual deployment of pay for performance in the electricity sector and will likely use these experiences to inform the mid-term review.

Witnesses: F. Oliver-Glasford
B. Ott

BOMA INTERROGATORY #10

INTERROGATORY

Topic 13 - Other

Ref: Exhibit B, Tab 1, Schedule 2, page 25/6 of 26.

Please confirm if Enbridge is using the term stakeholders to include intervenors but is not limited to intervenors. Does Enbridge compensate non-intervenors for their participation in its stakeholder processes? With respect to intervenor stakeholders, what was the annual cost for their participation in the DSM Consultative, the Audit Committee and the Technical Evaluation Committee from 2010 to 2014.

RESPONSE

Generally, throughout the multi-year plan, Enbridge has used the term stakeholders to include intervenors, however the reference is not intended to be limited to intervenors.

Enbridge has not as a general rule provided compensation to non-intervenors for their participation in stakeholder processes. However, the Company could see merit in doing so moving forward in the event that non-intervenor input is increasingly sought in formal settings, such as program design roundtables.

The table below outlines intervenor stakeholder costs for participation in the DSM Consultative, Audit Committee and the Technical Evaluation Committee from 2010 to 2014.

Year	Total
2010	$ 111,389
2011	$ 328,288
2012	$ 418,293
2013	$ 174,867
2014	$ 202,057

Witnesses: F. Oliver-Glasford
B. Ott
R. Sigurdson

BOMA INTERROGATORY #21

INTERROGATORY

Topic 13 – Other

Ref: Exhibit B, Tab 2, Schedule 1, page 1 of 106.

Please confirm that Enbridge is asking for flexibility for its budgets metrics and targets rather than being required to rigidly adhere to the submission.

RESPONSE

Enbridge has put forth a transition year plus 5-year plan inclusive of budgets, metrics, and targets for the Board's approval. It is the Company's view, however, that some flexibility is required for the benefit of ratepayers, Enbridge, and DSM participants. There are three types of flexibility the Company believes are important to protect all stakeholders' interests:

1. As the Company has stated, Enbridge views the budgets, metrics, and targets for the year's 2019-2020 to be preliminary and subject to a reasonability test at the mid-term review in 2017. This is a reasonable request since DSM markets are fluid and may be impacted by a variety of market factors, including, but not limited to, energy policy direction, environmental policy direction (including laws, targets, cap and trade mechanisms), technology advancements, customer needs, or energy prices.

2. The Company believes that some flexibility is required in the design and deployment of programs to allow the Company to introduce, change, or discontinue activities or initiatives as necessary to respond to market conditions and the needs of its customers, within the constraints of the approved DSM budgets and scorecards (Exhibit B, Tab 1, Schedule 1, p. 2). The Company does not envision that changes to program design should necessarily affect budgets or targets, but they may impact metrics.

3. The Company has proposed the Target Adjustment Factor, whereby, if there are changes to input assumptions or adjustment factors over time as a result of evaluation and audit processes, Enbridge would adjust targets based on the variance attributed solely to changes in input assumptions or adjustment factors (Exhibit B, Tab 1, Schedule 4, p. 40).

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

BOMA INTERROGATORY #33

INTERROGATORY

Topic 13 – Other

Ref: Exhibit B, Tab 2, Schedule 1, page 18 of 100.

Please provide the number of projects and savings volumes associated with prescriptive incentives in the commercial and industrial sectors since 1995 by product incented.

RESPONSE

Please see the chart below which highlights the total prescriptive results from 2008 to 2014. Data from 1995 to 2008 did not include total cumulative cubic meter results.

C & I Prescriptive Results 2008-2014	Units	Cumulative Cubic Metres (CCM)
2008	**24,522**	**24,299,630**
Total	**24,522**	**24,299,630**
Air Curtain	10	95,048
Front Load Washer	1,170	1,232,010
Furnace Replacements	109	814,433
Programmable thermostats	111	412,920
Restaurants - CKV	1	91,219
Restaurants - CKV2	11	2,400,574
Restaurants - CKV3	3	1,078,668
Restaurants - PRSV	627	2,638,730
Roof Top Unit	157	760,665
Showerheads - Condo	7,586	4,378,002
Showerheads - Rental	14,726	10,364,159
Small Commercial Boilers	0	0
Small Commercial General	0	0
Small Commercial Restaurants	0	0
Tankless Water Heaters	11	33,202

Witnesses: K. Mark
S. Moffat
R. Kennedy

2009	**44,046**	**60,832,308**
Total	**44,046**	**60,832,308**
Air Curtains (Double)	16	348,612
Air Curtains (Single)	24	228,114
Boiler - Hydronic Condensing		476,520
Boiler - Hydronic High Efficiency		30,246,062
Condo Bathroom Aerator 1.0	736	49,548
Condo Bathroom Aerator 1.5	791	19,364
Condo Kitchen Aerator 1.0	54	12,889
Condo Kitchen Aerator 1.5	1,150	112,608
Condo Showerhead 1.5 -- 2.0 - 2.5	0	0
Condo Showerhead 1.5 -- 2.6 - 3.0	532	179,071
Condo Showerhead 1.5 -- 3.1 - 3.5	0	0
Condo Showerhead 1.5 -- 3.6+	751	418,247
Condo Showerhead 2.0 -- 2.6 - 3.0	0	0
Condo Showerhead 2.0 -- 3.1 - 3.5	274	46,953
Condo Showerhead 2.0 -- 3.6+	0	0
Demand Control Kitchen Ventilation (0 - 4999 CFM)	9	615,728
Demand Control Kitchen Ventilation (10000-15000 CFM)	2	539,334
Demand Control Kitchen Ventilation (5000 - 9999 CFM)	18	2,946,159
Energy Recovery Ventilators (ERV)	37	4,196,606
Front Load Washer	453	524,710
Furnace Replacements	117	747,653
Heat Recovery Ventilator (HRV)	5	70,870
Infrared Heaters	144	4,139,796
Pre-Rinse Spray Nozzle (0.64 GPM) (Full Service)	28	176,439
Pre-Rinse Spray Nozzle (0.64 GPM) (Limited)	4	6,644
Pre-Rinse Spray Nozzle (0.64 GPM) (Other)	0	0
Pre-Rinse Spray Nozzle (1.24 GPM) (Full Service)	1,204	4,578,892
Pre-Rinse Spray Nozzle (1.24 GPM) (Limited)	297	242,220
Pre-Rinse Spray Nozzle (1.24 GPM) (Other)	428	367,429
Programmable thermostats (Multi-family, Food Service)	12	32,112
Programmable thermostats (Office, Information and Cultural, Educational Services)	129	326,628
Programmable thermostats (Retail, Hotels/Motels)	183	180,072
Programmable thermostats (Warehouse, Industrial, Recreation, Agriculture)	10	64,560
Rental Bathroom Aerator 1.0	10,024	337,408
Rental Bathroom Aerator 1.5	1,014	12,411

Rental Kitchen Aerator 1.0	10,154	2,209,713
Rental Kitchen Aerator 1.5	1,262	112,671
Rental Showerhead 1.5 -- 2.0 - 2.5	4,940	1,008,353
Rental Showerhead 1.5 -- 2.6 - 3.0	2,631	1,054,899
Rental Showerhead 1.5 -- 3.1 - 3.5	364	209,631
Rental Showerhead 1.5 -- 3.6+	1,736	1,151,645
Rental Showerhead 2.0 -- 2.6 - 3.0	1,532	44,673
Rental Showerhead 2.0 -- 3.1 - 3.5	342	69,809
Rental Showerhead 2.0 -- 3.6+	2,045	596,322
Roof Top Unit	564	2,049,435
Small Commercial Boilers	0	0
Small Commercial General	0	0
Small Commercial Restaurants	0	0
Tankless Water Heaters	30	81,497

Witnesses: K. Mark
S. Moffat
R. Kennedy

2010	**39,395**	**116,702,898**
Total	**39,395**	**116,702,898**
Air Curtains (Double)	32	697,224
Air Curtains (Single)	7	66,533
Boiler - Hydronic High Efficiency		51,504,081
Condensing Boiler	72	2,887,739
Condensing Unit Heater	11	191,970
Condo Bathroom Aerator 1.5	860	21,053
Condo Kitchen Aerator 1.5	601	58,850
Demand Control Kitchen Ventilation (0 - 4999 CFM)	22	1,505,114
Demand Control Kitchen Ventilation (10000-15000 CFM)	13	3,505,671
Demand Control Kitchen Ventilation (5000 - 9999 CFM)	33	5,401,292
Energy Efficient Washers	610	706,563
Energy Recovery Ventilators (ERV)	41	3,654,495
Heat Recovery Ventilator (HRV)	67	2,973,764
Infrared Heaters	723	17,548,908
Kitchen Ventilation		3,807,187
Multi-Res Showerheads	18,528	9,780,005
Multi-Res Showerheads Condo	976	412,145
N/A		0
Pre-Rinse Spray Nozzle (0.64 GPM)	356	573,756
Pre-Rinse Spray Nozzle (0.64 GPM)	383	2,413,436
Pre-Rinse Spray Nozzle (1.24 GPM)	895	2,546,329
Pre-Rinse Spray Nozzle (1.24 GPM)	402	345,109
Programmable thermostats	1,990	1,289,520
Programmable thermostats	1,745	804,799
Rental Bathroom Aerator 1.0	5,568	119,267
Rental Kitchen Aerator 1.0	4,722	632,370
Rental Kitchen Aerator 1.5	253	22,588
Roof Top Unit	369	1,348,121
Small Commercial General	0	0
Small Commercial Restaurants	0	0
Tankless Water Heaters	116	315,121
Thermostat - Programmable		1,501,476
VFD		68,414

Witnesses: K. Mark
S. Moffat
R. Kennedy

2011	**30,696**	**237,688,795**
Total	**30,696**	**237,688,795**
Air Curtains (Double)	44	958,683
Air Curtains 10x10	2	587,243
Air Curtains 8x10	1	134,762
Air Curtains 8x8	4	431,205
Boiler - Hydronic High Efficiency		117,414,765
Condensing Boiler	59	4,239,446
Controls		487,016
Demand Control Kitchen Ventilation (0 - 4999 CFM)	40	2,736,570
Demand Control Kitchen Ventilation (10000-15000 CFM)	13	3,505,671
Demand Control Kitchen Ventilation (5000 - 9999 CFM)	44	7,201,722
Energy Recovery Ventilators (ERV)	31	3,465,634
Energy Star Dishwashers Under High temp	50	240,300
Energy Star Fryer	156	1,621,901
Energy Star Stationary Rack - HT	49	363,972
Energy Star Stationary Rack - LT	172	1,735,824
ES Rack Conveyor - Multi	23	1,245,146
ES Rack conveyor - Single	13	418,129
Front Load Washer	398	461,003
Heat Recovery Ventilator (HRV)	46	9,899,882
High Efficiency Under-Fired Broilers	1	16,099
Infrared Heaters	1,028	26,923,106
Multi-Res Showerheads Condo	494	208,606
Multi-Res Showerheads Rental	25,233	13,240,891
Operational Improvements		3,568,547
Ozone Laundry	65	12,103,207
Pre-Rinse Spray Nozzle (0.64 GPM) (Full Service)	1,781	3,813,459
Pre-Rinse Spray Nozzle (0.64 GPM) (Limited)	564	318,341
Pre-Rinse Spray Nozzle (0.64 GPM) (Other)	184	97,422
SC High Efficiency Boiler over 300 MBH (Space)	87	18,237,285
SC High Efficiency Boiler over 300 MBH (Water)	10	1,047,308
SC High Efficiency Boiler under 300 MBH (Space)	21	608,926
SC High Efficiency Boiler under 300 MBH (Water)	2	136,681
Small Commercial General	0	0
Tankless Water Heaters	81	220,041

Witnesses: K. Mark
S. Moffat
R. Kennedy

2012	**22,213**	**105,321,509**
Total	**22,213**	**105,321,509**
Air Curtains (Double)	38	827,954
Air Curtains (Single)	8	76,038
Air Curtains 10x10	12	3,523,455
Air Curtains 8x10	0	0
Air Curtains 8x8	1	107,801
Boiler - Hydronic High Efficiency	86	46,598,375
Condensing Boiler	46	3,332,885
Demand Control Kitchen Ventilation (0 - 4999 CFM)	7	478,900
Demand Control Kitchen Ventilation (10000-15000 CFM)	5	1,348,335
Demand Control Kitchen Ventilation (5000 - 9999 CFM)	14	2,291,457
Energy Efficient Washers	28	32,432
Energy Recovery Ventilators (ERV)	24	2,216,073
Energy Star Dishwashers Under High temp	23	110,538
Energy Star Fryer	156	1,621,901
Energy Star Stationary Rack - HT	82	609,096
Energy Star Stationary Rack - LT	116	1,170,672
ES Rack conveyor - Single	59	1,897,664
Food Services		0
Heat Recovery Ventilator (HRV)	8	416,636
High Efficiency Under-Fired Broilers	1	16,099
Infrared Heaters	739	18,900,432
Ozone Laundry	72	8,277,171
SC High Efficiency Boiler under 300 MBH (Space)	3	142,548
Showerheads	20,682	11,316,898
Tankless Water Heaters	3	8,150

Witnesses: K. Mark
S. Moffat
R. Kennedy

2013	**18,551**	**115,886,983**
Total	**18,551**	**115,886,983**
Air Curtain	53	2,710,421
Boiler - Hydronic Condensing	60	3,656,121
Boiler - Hydronic High Efficiency	68	28,110,786
Commercial Multi-Residential Showerheads	15,777	8,278,902
Condensing Tank Water Heater	18	215,977
Demand Control Kitchen Vent	61	8,439,876
Energy Recovery Ventilators (ERV)	55	12,763,079
Energy Star Convection Ovens	2	20,328
Energy Star Dishwasher	290	2,994,770
Energy Star Fryer	149	1,549,123
Energy Star Steam Cooker	1	25,792
Energy Star Under Fired Broilers	2	32,198
Heat Recovery Ventilator (HRV)	10	994,800
Infrared	401	13,312,954
Low Income Showerheads	1,349	738,287
Operational Improvements	9	1,307,420
Ozone Laundry	54	19,603,549
Run It Right	192	11,132,600

Witnesses: K. Mark
S. Moffat
R. Kennedy

2014*	**14,904**	**86,522,389**
Total	**14,904**	**86,522,389**
Air Curtain	56	6,908,477
Boiler - Hydronic Condensing	30	1,557,480
Boiler - Hydronic High Efficiency	78	20,064,159
Commercial Multi-Residential Showerheads	13,259	6,960,975
Condensing Make-up Air	4	941,242
Demand Control Kitchen Vent	98	15,417,602
Demand Control Ventilation	21	2,846,235
Energy Recovery Ventilators (ERV)	22	3,830,608
Energy Star Convection Ovens	3	24,394
Energy Star Dishwasher	442	4,494,382
Energy Star Fryer	186	1,933,805
Energy Star Steam Cooker	1	25,792
Energy Star Under Fired Broilers	-	-
Heat Recovery Ventilator (HRV)	5	161,899
Infrared	682	16,033,966
Ozone Laundry	17	5,321,374
Grand Total	**194,327**	**747,254,513**

* 2014 values are post verification, but are still subject to audit and clearance finalization.

Witnesses: K. Mark
S. Moffat
R. Kennedy

BOMA INTERROGATORY #34

INTERROGATORY

Topic 13 – Other

Ref: Exhibit B, Tab 2, Schedule 1, page 19 of 100.

> "*In addition, Enbridge offers quasi-prescriptive incentives for a range of measures where the incentive is determined by a simple calculation based on the equipment installed. Measures include demand control ventilation, infrared heaters, make-up air units, and high efficiency boilers. Quasi-prescriptive incentives are offered and subject to the same process as fixed incentives, retaining all of the advantages that the offer presents to the customer.*"

Please provide the simple calculations for each of the measures listed.

RESPONSE

Please see below for a list of the Quasi-Prescriptive measures and the calculation used to determine the incentive as well as the Rebate provided for High Efficient boilers and Infrared Heaters.

Witnesses: K. Mark
S. Moffat
R. Kennedy

Quasi-Prescriptive Measures	**Incentive Calculation**
Demand Control Ventilation - Single Zone Retail	$0.04/ft2
Demand Control Ventilation - Single Zone Offices	$0.04/ft2
Energy Recovery Ventilators - Offices, Warehouses & Schools	$0.25/CFM
Energy Recovery Ventilators - Hotels, Restaurants & Retail	$0.4/CFM
Energy Recovery Ventilators - Multi-family, Healthcare & Long-Term Care	$0.75/CFM
Heat Recovery Ventilators - Offices, Warehouses & Schools	$0.2/CFM
Heat Recovery Ventilators - Hotels, Restaurants & Retail	$0.3/CFM
Heat Recovery Ventilators - Multi-family, Healthcare & Long-Term Care	$0.55/CFM
Condensing Make-Up Air Units - Single speed up to 14,000 CFM, Multi-family & Long Term Care	$0.15/CFM
Condensing Make-Up Air Units - Two speed up to 14,000 CFM, Multi-family & Long Term Care	$0.3/CFM
Condensing Make-Up Air Units - Single speed up to 14,000 CFM, Other Sectors	$0.075/CFM
Condensing Make-Up Air Units - Two speed up to 14,000 CFM, Other Sectors	$0.15/CFM
Ozone Laundry System - minimum 100,000 lbs/yr	$0.006 x total annual lbs
Prescriptive Measures	**Incentive Calculation**
High Efficient Boilers up to 300 to 599 MBH 85% to 88% Thermal Efficiency	$ 600.00
High Efficient Boilers up to 600 to 999 MBH 85% to 88% Thermal Efficiency	$ 850.00
High Efficient Boilers up to 1,000 to 1,500 MBH 85% to 88% Thermal Efficiency	$ 1,400.00
High Efficient Boilers up to 1,501 to 2000 MBH 85% to 88% Thermal Efficiency	$ 2,200.00
Infrared Heaters - Single Stage up to 300,000 BTU*	$ 200.00
Infrared Heaters - Two Stage up to 300,000 BTU*	$ 300.00

Witnesses: K. Mark
S. Moffat
R. Kennedy

BOMA INTERROGATORY #40

INTERROGATORY

Topic 13 - Other

Reference Exhibit B, Tab 2, Schedule 1, page 38 of 100. Enbridge has clearly done a thorough job of engaging a wide range of partners in delivering its low income programs. Descriptions of the other programs contain much less information about market allies, delivery partners, etc. Please provide a description of non-customer engagement efforts and results in the commercial (including institutional) and industrial sectors.

RESPONSE

Please see below for a summary of the initiatives aimed at engaging industry partners within the Commercial and Industrial sectors:

Conservation Initiatives – The Commercial and Industrial sales and marketing group support a number of Industry initiatives such as Greening HealthCare, Race to Reduce, Toronto's 2030 District and other industry wide initiatives aimed at increasing energy literacy and reducing Energy Usage

Associations – Enbridge partners in and supports numerous associates within the Commercial and Industrial sectors to explain and promote conservation programs.

Workshops and Training – Enbridge designs and hosts workshops for Business Partners and customers aimed at training industry service providers, building manager and operators on how to optimize building performance and maintain system efficiencies.

eCommerce - A web portal has been launched, aimed at Commercial and Industrial customers and business partners; it includes DSM Program information as well as engineering calculators to estimate energy savings potential of various technologies.

Contractors – Enbridge has a network of relationships and contacts with a wide variety of contractors, engineering firms, consultants, and technology providers.

Equipment Manufacturers – Enbridge works directly with manufacturers to understand their product offerings as they pertain to Enbridge's dealings with its customers.

Witnesses: P. Goldman
R. Kennedy
M. Lister

Program Design Roundtable Sessions – Enbridge reaches out from time to time to Commercial and Industrial customers, and industry partners to gain valuable insight to shape offers moving forward. Several such sessions were held in September 2014 and are documented in the filed evidence in as Exhibit B, Tab 3, Schedule 2.

Witnesses: P. Goldman
R. Kennedy
M. Lister

BOMA INTERROGATORY #49

INTERROGATORY

Topic 13 – Other

Reference Exhibit B, Tab 3, Schedule 2, page 5 of 18. Regarding the Enbridge Consumer Forum Panel: what types of customers are on the panel; how often is it used by the DSM Function, what are the costs and how are the results collected and used?

RESPONSE

Please see the response to CCC Interrogatory #3 found at I.T5.EGDI.CCC.3.

Witnesses: S. Bertuzzi
M. Lister
F. Oliver-Glasford
B. Ott
E. Reimer
R. Sigurdson

BOMA INTERROGATORY #50

INTERROGATORY

Topic 13 - Other

Reference: Exhibit B, Tab 3, Schedule 4, page 1 of 2.

Please provide the total cost for Navigant to perform the DSM Potential Study.

RESPONSE

The cost for Navigant to complete the Enbridge Natural Gas Energy Efficiency Potential Study, Exhibit C, Tab 1, Schedule 1 was $317,746. There was an additional cost of $22,325.00 to respond to intervenor comments, Exhibit C, Tab 1, Schedule 2, for a total project cost of $340,071. All amounts indicated are before HST.

Witnesses: J. DeVenz
S. Mills
F. Oliver-Glasford

BOMA INTERROGATORY #56

INTERROGATORY

Topic 13 – Other

Reference Exhibit B, Tab 1, Schedule 3, page 17 of 19.

> "*By way of example, based on meetings with Ministry of Energy staff, Enbridge believes that the Provincial government has a strong interest in the gas utilities implementing the Green Button initiative. This initiative and its details are relatively new to Enbridge, and the Company does not feel it could confidently forecast a firm estimate of costs, timing or scope at this time. Despite this, Enbridge is confident that undertaking the project is in line with government expectations, and the Company is prepared to take the necessary steps to proceed in 2015.*"

Reference Exhibit B, Tab 4, Schedule 4, page 1 - 3 of 3.

How is Green Button available to close to 3 million gas and electric residential and small commercial customers in Ontario as a common data standard? Was Enbridge invited to join the working group in 2012? Did Enbridge initiate the discussions with the Ministry of Energy? Is the Green Button data consumption data only or does it include billing data, i.e. bills? What is the time frame for the completion of Connect my Data Solution?

RESPONSE

Enbridge has only just begun participating in the Green Button working group. Further details as to how the current solution has been launched can be found at greenbuttondata.ca.

Enbridge was invited to participate in the working group in January of 2015. This invitation was initiated by the Ministry of Energy.

As far as Enbridge is aware, the Green Button solution is for presentation of consumption data only and does not include bill presentation or delivery.

The Green Button solution has only been launched by some LDC's to date. Enbridge is unaware at this time of the timeline for the launch of the Connect my Data solution.

Witnesses: M. Lister
F. Oliver-Glasford
J. Paris

BOMA INTERROGATORY #60

INTERROGATORY

Topic 13 - Other

Reference Exhibit B, Tab 1, Schedule 2, page 12. What research to date has Enbridge done on the use of on-bill financing programs to assist with the uptake of DSM offers?

RESPONSE

Enbridge has not invested directly into any research around on-bill financing programs; however, it continues to be involved in discussions with stakeholders to better understand how it may address financing as an issue for both residential and C/I customers. Enbridge will seek out research and insights from external sources where possible.

Enbridge will be participating as a member of the steering committee for a MaRS led initiative that seeks to explore how the U.S. 'Investor Confidence Project' ("ICP") standards could be adapted to de-risk and catalyze energy efficiency retrofits for Canadian commercial buildings. This high-profile energy efficiency financing and training related initiative will include a variety of participants including energy efficiency stakeholders including utilities, financial institutions, energy service firms, insurance companies and equipment manufacturers.

Enbridge has met on a number of occasions with the Ministry of Energy, City of Toronto, members of the Collaboration on Home Energy Efficiency Retrofits in Ontario ("CHEERIO") and other business partners to discuss and debate the merits of an on-bill financing and/or LIC program. Enbridge continues to gather details from those same sources in order to ensure that any potential program that goes to market will assist in the uptake of DSM offers and/or be beneficial to customers.

Witnesses: M. Lister
E. Lontoc

BOMA INTERROGATORY #66

INTERROGATORY

Topic 13 – Other

To what extent is Enbridge involved in the policy discussion relating to the 2017 OBC amendments?

RESPONSE

Through our contracted Savings by Design delivery agent, Sustainable Buildings Canada ("SBC"), Enbridge is kept apprised of the various discussions regarding building code amendments. Enbridge has had a direct influence in these discussions through the Building Code Conservation Advisory Council on which an Enbridge staff person has been engaged from its inception in February 2010 until the March of 2014. Enbridge has also submitted comments through the Provincial Appointments Secretariat. In addition, an SBC Board Member has been on the Council since its inception, and continues to do so.

Witnesses: S. Bertuzzi
S. Hicks
M. Lister

CCC INTERROGATORY #7

INTERROGATORY

Topic 13 - Other

Reference: (Ex. B/T1/S2/p. 16)

The evidence states, “Enbridge submits that there should be a discrete budget for pilots and research, which in many instances will involve collaboration with other utilities and organizations.” EGD is proposing $1 million per year for the Collaboration and Innovation Fund. Please explain how that budget will be managed. What types of programs would be undertaken? How will EGD prioritize the way in which the money is spent? If the money is not spent in a given year will it be returned to ratepayers? If not, why not?

RESPONSE

Please see the response to SEC Interrogatory #3 found at Exhibit I.T5.EGDI.SEC.3.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

ENVIRONMENTAL DEFENCE INTERROGATORY #20

INTERROGATORY

Topic 13 – Other

Reference: Ex. B, Tab 2, Schedule 4

Would Enbridge object to a proposal to rate base DSM expenditures to better match the distribution of their benefits and costs over time and to mitigate the rate impacts of rising DSM budgets? Please fully justify your response.

RESPONSE

In Enbridge's view sufficient research, analysis and discussion has not yet occurred, both internal to the utility and before the Board, to provide a definitive position on this matter. Given the positive impacts of Enbridge's DSM activities over the past two decades, Enbridge does not see a specific need to modify DSM's funding mechanisms at this time.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

ENERGY PROBE INTERROGATORY #1

INTERROGATORY

Topic 13 - Other

Reference: No Reference

Please map each DSM Sector - Residential, Commercial and Industrial to the EGD Rate classes for the period 2012-2014. Please provide in Excel Spreadsheet Format (where appropriate).

i) Rate class definition (consumption or other)
ii) Types of customers in the rate class
iii) The number of customers in the rate class
iv) Total annual gas throughput (i.e. consumption) by the rate class
v) Normalized Average Consumption (NAC) or Average Use per customer
vi) Total annual expenditure on gas distribution
vii) Average commodity costs for system supply customers as of December 2014
viii) The Average Unit rate paid for gas distribution and if applicable, other costs
ix) Total Gas Bill December 2014 at average use

RESPONSE

(i) Rate class definitions are provided below:

Bundled Services:

Rate 1
To any Applicant needing to use the Company's natural gas distribution network to have transported a supply of natural gas to a residential building served through one meter and containing no more than six dwelling units ("Terminal Location").

Rate 6
To any Applicant needing to use the Company's natural gas distribution network to have transported a supply of natural gas to a single terminal location ("Terminal Location") for non-residential purposes.

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

Rate 9
To any Applicant needing to use the Company's natural gas distribution network to have transported a supply of natural gas to a single terminal location ("Terminal Location") at which, such gas is authorized by the company to be resold by filling pressurized containers.

Rate 100
To any Applicant who enters into a Service Contract with the Company to use the Company's natural gas distribution network for the transportation, to a single terminal location ("Terminal Location"), to be delivered at a specified maximum daily volume of not less than 10,000 cubic metres and not more than 150,000 cubic metres.

Rate 110
To any Applicant who enters into a Service Contract with the Company to use the Company's natural gas distribution network for the transportation, to a single terminal location ("Terminal Location"), of an annual supply of natural gas of not less than 146 times a specified maximum daily volume of not less than 1,865 cubic metres.

Rate 115
To any Applicant who enters into a Service Contract with the Company to use the Company's natural gas distribution network for the transportation, to a single terminal location ("Terminal Location"), of an annual supply of natural gas of not less than 292 times a specified maximum daily volume of not less than 1,165 cubic metres.

Rate 135
To any Applicant who enters into a Service Contract with the Company to use the Company's natural gas distribution network for the transportation, to a single terminal location ("Terminal Location"), of an annual supply of natural gas of not less than 340,000 cubic metres.

Rate 145
To any Applicant who enters into a Service Contract with the Company to use the Company's natural gas distribution network for the transportation of a specified maximum daily volume of natural gas to a single terminal location ("Terminal Location") which can accommodate the total interruption of gas service as ordered by the Company exercising its sole discretion. The Company reserves the right to satisfy itself that the customer can accommodate the interruption of gas through either a shutdown of operations or a demonstrated ability and readiness to switch to an alternative fuel source. Any Applicant for service under this rate schedule must agree to transport a minimum annual volume of 340,000 cubic metres.

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

Rate 170
To any Applicant who enters into a Service Contract with the Company to use the Company's natural gas distribution network for the transportation of a specified maximum daily volume of natural gas of not less than 30,000 cubic metres and a minimum annual volume of 5,000,000 cubic metres to a single terminal location ("Terminal Location") which can accommodate the total interruption of gas service when required by the Company. The Company reserves the right to satisfy itself that the customer can accommodate the interruption of gas through either a shutdown of operations or a demonstrated ability and readiness to switch to an alternative fuel source. The Company, exercising its sole discretion, may order interruption of gas service upon not less than four (4) hours' notice.

Rate 200
To any Distributor who enters into a Service Contract with the Company to use the Company's natural gas distribution network for the transportation of an annual supply of natural gas to customers outside of the Company's franchise area.

Unbundled Services:

Rate 125
To any Applicant who enters into a Service Contract with the Company to use the Company's natural gas distribution network for the transportation, to a single terminal location ("Terminal Location"), of a specified maximum daily volume of natural gas. The maximum daily volume for billing purposes, Contract Demand or Billing Contract Demand, as applicable, shall not be less than 600,000 cubic metres. The Service under this rate requires Automatic Meter Reading (AMR) capability.

Rate 300
To any Applicant who enters into a Service Contract with the Company to use the Company's natural gas distribution network for the transportation to a single Terminal Location of a specified maximum daily volume of natural gas. The Company reserves the right to limit service under this schedule to customers whose maximum contract demand does not exceed 600,000 m3. The Service under this rate requires Automatic Meter Reading (AMR) capability. Service under this schedule is firm unless a customer is currently served under interruptible distribution service or the

Company, in its sole judgment, determines that existing delivery facilities cannot adequately serve the load on a firm basis.

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

(ii) Customers types by rate class are as follows:

Bundled Services:

Rate Class	Type
1	Residential
6	Apartment
	Commercial
	Industrial
9	Container Service
100	Apartment
	Commercial
	Industrial
110	Apartment
	Commercial
	Industrial
115	Commercial
	Industrial
135	Commercial
	Industrial
145	Apartment
	Commercial
	Industrial
170	Commercial
	Industrial
200	Wholesale

Unbundled Services:

Rate Class	Type
125	Power Plant
300	Apartment
	Commercial
	Industrial

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

(iii) Total customers in each rate class are as follows:

Bundled Services:

Rate Class	Number of Customers		
	2012	2013	2014
1	1,826,796	1,866,534	1,899,632
6	157,500	158,495	159,577
9	9	9	8
100	0	0	0
110	201	201	191
115	30	30	27
135	38	38	41
145	108	108	103
170	38	38	34
200	1	1	1

Unbundled Services:

Rate Class	Number of Customers		
	2012	2013	2014
125	5	5	5
300 (Firm)	7	2	1
300 (Interruptible)	1	1	1

Source: Board approved budget for 2012-2014

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

(iv) The annual gas throughput (i.e. consumption) by rate class is as follows:

Bundled Services:

Rate Class	Annual Consumption (10^3m^3)		
	2012	**2013**	**2014**
1	4,583,338	4,792,028	4,621,279
6	4,772,169	4,764,874	4,570,174
9	1,177	1,988	630
100	0	0	0
110	488,031	487,553	617,636
115	532,453	539,357	470,990
135	55,183	55,183	56,500
145	154,354	152,823	164,010
170	519,974	516,365	462,904
200	162,216	163,080	164,887

Unbundled Services:

Rate Class	Annual Consumption (10^3m^3)		
	2012	**2013**	**2014**
125	106,168*	119,224*	119,224*
300 (Firm)	887*	302*	187*
300 (Interruptible)	31,049	31,049	30,000

Source: Board approved budget for 2012-2014
*Denotes contract demand (CD) values. The company does not forecast consumption/annual volumes for these customers.

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

(v) The normalized average consumption (NAC) per customer (m^3)* is as follows:

Bundled Services:

Rate Class	2012	2013	2014
1	2,509	2,567	2,433
6	30,299	30,063	28,639
9	130,778	220,926	78,728
100	0	0	0
110	2,428,017	2,425,638	3,233,698
115	17,748,442	17,978,556	17,444,069
135	1,452,188	1,452,188	1,378,041
145	1,429,199	1,415,031	1,592,330
170	13,683,528	13,588,548	13,614,819
200	162,215,983	163,080,197	164,887,200

Unbundled Services:

Rate Class	2012	2013	2014
125	N/A	N/A	N/A
300 (Firm)	N/A	N/A	N/A
300 (Interruptible)	31,049,402	31,049,402	30,000,003

*The average use per customer in this response is equal to the annual consumption from (iv) divided by the number of customer from (iii)

(vi) The total annual expenditure on gas distribution ($M) is as follows

2012*	**2013****	**2014*****
1,004	1,021	980

*EB-2011-0277, Exhibit N1, Tab 1, Schedule 1, Appendix A, Col. 3, Row 27
**EB-2011-0354, Final Rate Order, Appendix A, Page 1, Col. 5, Line 24 - Line 4
***EB-2012-0459, Appendix A, Page 1, Col. 5, Line 22 - Line 4

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

(vii) Average commodity costs for system supply customers as of December 2014*

Bundled Services:

Rate Class	System Sales Gas Supply Charge (¢/m^3)
1	14.62
6	14.65
9	14.58
100	14.65
110	14.58
115	14.58
135	14.62
145	14.74
170	14.58
200	14.58

Unbundled Services:

Rate Class	System Sales Gas Supply Charge (¢/m^3)
125	N/A
300	N/A

*Source: EB-2014-0191, Exhibit Q4-3, Tab 4, Schedule 1, Page 2

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

(viii) The average unit rate paid for gas distribution, including other costs (as applicable) is as follows:

Bundled Services*:

Rate Class	Distribution (¢/m^3)**
1	15.92
6	7.19
9	13.94
100	0.00
110	2.02
115	1.14
135	1.62
145	2.11
170	0.84
200	2.46

Unbundled Services:

Rate Class	Distribution (¢/m^3)
125	8.0942***
300	24.4780****

*Source: EB-2014-0191, Exhibit Q4-3, Tab 4, Schedule 1, Page 2, Col. 3
**Customers are not billed based on an average distribution rate. Customers are billed on a combination of monthly customer charge, blocked delivery charge and contract demand charge (if applicable).
***Contract demand charge from EB-2014-0191, Exhibit Q4-3, Tab 4, Schedule 5, Page 5, Line 1, Col. 6
****Contract demand charge from EB-2014-0191, Exhibit Q4-3, Tab 4, Schedule 5, Page 7, Col. 6

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

(ix) Total Gas Bill December 2014 for typical customers*

Bundled Services:

Rate Class	Annual Consumption (m^3)	Annual Gas Bill ($)
1	2,400	876
6	29,278	8,322
9	N/A	N/A
100	339,188	83,761
110	598,568	137,201
115	69,832,850	14,496,622
135	598,567	121,725
145	598,567	131,679
170	9,976,120	1,912,831
200	N/A	N/A

Unbundled Services:

Rate Class	Annual Consumption (m^3)	Annual Gas Bill ($)
125	N/A	N/A
300	N/A	N/A

*Source: EB-2014-0191, Exhibit Q4-3, Tab 4, Schedule 6, Page 1 - Page 8

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

ENERGY PROBE INTERROGATORY #33

INTERROGATORY

Topic 13 - Other

Reference.: Exhibit B, Tab 4, Schedule 3, Page 1-On-Bill Financing

a) Please provide a Summary of the OBF options that are “on the Table”.

b) Please indicate which options involve EGD financing and which third party financing.

c) Please indicate which, if any, involve EGD guarantees.

d) Please provide a copy of the Study re using LIC for OBF (page 2 para 7).

RESPONSE

a) Enbridge is engaging in exploratory research activities and participating in meetings with stakeholders to discuss a variety of financial product options including on-bill financing, municipal loan funds, i.e. local improvement charge (“LIC”), and private sector loans.

b) Please refer to response a) above.

c) Please refer to response a) above.

d) Please see attached copy of the “Application of Local Improvement Charges to the Commercial, Institutional and Industrial Sectors for Energy/Water/LID Retrofit Projects and for District Energy: Project Update Summary for Enbridge Gas Distribution” dated June 22, 2015.

Witnesses: M. Lister
E. Lontoc
J. Paris

Application of Local Improvement Charges to the Commercial, Institutional and Industrial Sectors for Energy/Water/LID Retrofit Projects and for District Energy: Project Update Summary for Enbridge Gas Distribution

Sonja Persram, BSc., MBA, LEED© AP, Project Manager
H. Robert (Bob) Bach, SBC Project Manager
June 22, 2015

This Sustainable Buildings Canada (SBC) project provides methods for municipalities and property owners to both mitigate and adapt to climate change. It will clarify the authority for, and pilot the use of Local Improvement Charges (LICs) for the following:

- Commercial/industrial/institutional properties not including MURBs. Properties used for institutional purposes do not pay property taxes but many are subject to payments in lieu of taxes. The eligibility of measures to reduce industrial process energy use will be assessed. Others' prior published legal opinions that were contra to the Ontario Ministry of Municipal Affairs and Housing will be addressed. This includes clarifying that LICs are not loans, the rationale for commercial properties being eligible given strictures against bonusing, and that payment balances can continue to be repaid by a new owner without new legislation. The project will also identify circumstances where LIC financing would not affect municipal debt totals. Additionally the project will include methods to address lessee arrangements, and whether banks as third party financing entities can finance LICs or purchase bonds issued by municipalities for LICs.
- District energy system expansion and connections.
- Energy and water conservation retrofit measures and renewable energy system retrofits have already been authorized. We will examine whether financing low impact development measures on the property is feasible, including for brownfield properties. This will substantially open up the potential of this financing mechanism to support climate change adaptation measures on-site. The combination of on-site measures will be analysed in conjunction with municipal stormwater fees that offset costs for stormwater infrastructure.
- Electricity storage systems onsite and at the community energy level are being considered; they are not currently within the budget.

Participating municipalities will pilot a total of 3 owner-occupied institutional/commercial office buildings, with some retail and possibly industrial buildings if eligible. The 3 engaged municipalities, along with their LDCs and their regional conservation authorities, are: the City of Guelph, the City of London which are aiming toward pilots and a third municipality whose participation is confidential at this time. The City of Mississauga is 'listening in'. Letters of Commitment from the municipalities are attached.

The project is being conducted in two phases, spanning two years. In Phase I (approximately 1 year in duration) we will:

1) Assess and clarify the legal authority for, and the accounting and financial feasibility of using the LIC financing mechanism for the above uses in Ontario. This step is currently underway.
2) Conduct an analysis of selected US Commercial Property Assessed Clean Energy (PACE) programs which use a similar financing mechanism and approach.

3) Ascertain Ontario industry capacity and market demand for building energy/water/Low Impact Development (LID) upgrades, develop collaborative opportunities with utilities and conservation authorities, and identify optimal marketing methods.
4) Complete the balance of a program design pilot project framework for municipalities, their conservation authorities and commercial building owners. Monitoring, measurement and verification (MMV) will address energy/water as well as an assessment methodology for municipalities to determine the level of achievement in addressing the 90th percentile rain event, comparisons of LID measures, and ways to assess the program features themselves.
5) Carry out communications meetings, webinars, and iterative materials development throughout all the activities of our project with our participating municipalities and their conservation authorities providing rationales for and tracking of decisions.
6) Provide a report on this section with recommendations for the municipalities regarding scaling up, and for other stakeholders as appropriate.

In Phase II over 1 year we will:

1) Conduct a Low Impact Development and pilot process INFO session with participating building owner executives and key municipal representatives.
2) Develop an LIC framework for municipalities to use for district energy expansion and connection.
3) Provide communications consulting from one senior consultant to support municipalities' pilot tasks for one day per month (total) for 9 months.
4) Support municipalities during implementation regarding their third-party MMV quantification.
5) Provide a final report on the pilot test with recommendations for the municipalities and other stakeholders for scaling up.

The project budget is $335,000. Funders to date include NAIOP[1] Greater Toronto, Enbridge Gas Distribution, and IESO, as well as the three municipalities. Additional requests have been made to other funders and are pending.

The Project Team includes the following individuals:

- Project Manager is Sonja Persram, BSc., MBA, LEED® AP, President, Sustainable Alternatives Consulting Inc.
- Project Manager for Sustainable Buildings Canada is H. Robert (Bob) Bach, P.Eng.
- Legal Consultant, Municipal law is Stanley Makuch, LLM, a long-time LIC advisor.
- Scott Muldavin, a U.S. consultant on PACE to the DOE who has been a Senior Advisor to the Rocky Mountain Institute, is project advisor and collaborator. His services will be sought as a consultant for the PACE research.
- Commercial energy and water conservation consultant is Peter Love, President, Energy Services Association of Canada, also long-time LIC advisor.

[1] Formerly the National Association for Office and Industrial Parks, now NAIOP, the Commercial Real Estate Development Association

- Consultant on commercial real estate issues is Bill Johnston, LLB, Realtor, who is also a long term LIC advisor and is providing his services pro bono.

Sonja Persram analyzed LICs and program best practices for sustainability, facilitated LIC regulatory change for the David Suzuki Foundation and developed a large multi-sector collaboration in support of LICs including government at all levels and 28 engaged Ontario municipalities, with 22 more interested. She consulted on LICs to the City of Toronto, and on sustainable LIC program design to the Nova Scotia Department of Energy and Halifax Regional Municipality.

Bob Bach designs, implements, and evaluates energy efficiency programs, including developing measurement, monitoring and verification protocols for governments and utilities, and a founding director of SBC, vice-Chair of the Ontario Building Code Conservation Advisory Council, and a member of the IESO Advisory Council on Conservation.

Bill Johnson is former President of the Toronto Real Estate Board and Director of the Canadian Real Estate Association.

Peter Love was Ontario's first Chief Energy Conservation Officer.

Stan Makuch contributed much knowledge on LICs and on the regulatory changes. He has 31 years and 30 years' experience respectively as a highly-regarded academic and practicing municipal lawyer. He has dealt with issues of the broader powers of municipalities, bonusing, municipal financing, the Municipal Act, the Planning Act and LICs.

ENERGY PROBE INTERROGATORY #35

INTERROGATORY

Topic 13 – Other

Reference: No EGD Reference. EB-2015-0029 Union, Exhibit A, Tab 2, Appendix D, Stakeholder Engagement

Please file and provide a Copy of EGD's Stakeholder Engagement Plan equivalent to that filed by Union Gas per reference noted above.

RESPONSE

Please see the response to SEC Interrogatory #25 found at Exhibit I.T6.EGDI.SEC.25.

Witnesses: F. Oliver-Glasford
R. Sigurdson

ENERGY PROBE INTERROGATORY #36

INTERROGATORY

Topic 13 - Other

Reference.: Exhibit B, Tab 1, Schedule 2, Tables 1&2
Exhibit B, Tab 1, Schedule 4, Page 2
Exhibit B, Tab 2, Schedule 1.
EB-2015-0029 Exhibit A, Tab 3, Table 2 and Table 3

Preamble: Enbridge's DSM portfolio in 2016 and beyond include [inter-alia]- A more balanced portfolio which values the achievement of all cost-effective DSM as opposed to only those opportunities with the highest levels of cost-effectiveness.

a) Please provide Overview Comparison Tables of EGD and Union Portfolios similar to Table 1 on Page 2 and Table 2 on Page 3 (first Reference).

b) Please present in a comparison Table the EGD and Union 2015 and 2016 DSM Portfolios (as filed) preferably on a Sectoral basis, or by the types of Program - RA/Low Income and Market Transformation per Table 1 2015 Budget (page 5) and Table 1 Page 4 Program- RA, LI and MT.

c) Please provide a Comparison Table showing at 100% the Shareholder incentive resulting from each Scorecard and Total Incentive for EGD and Union for 2015-2020. List any assumptions.

RESPONSE

a) Please see below the requested overview:

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

	Enbridge	Union
DSM Budgets	**(millions)**	**(millions)**
2015	$37.7	$34.0
2016	$63.5	$57.3
2017	$73.8	$56.0
2018	$79.7	$61.4
2019	$81.3	$62.5
2020	$82.9	$64.7
TOTAL	**$418.9**	**$335.9**

	Enbridge	Union
CCM Targets	**(millions)**	**(millions)**
2015	774	2283
2016	1002	1161
2017	1083	1203
2018	1148	1249
2019	1166	1264
2020	1182	1280
2020 GOAL	**6355 (incl. 2015)**	**8440 (incl. 2015)**

b) Please see below a side by side comparison of the Enbridge and Union Gas proposed DSM offers. While best efforts have been made to accommodate comparability, offers displayed will not in all instances be "apples to apples" (e.g., Enbridge's single Market Transformation and Energy Management (" MTEM") Program has been divided in order to compare alongside Union's Market Transformation and Performance-Based Conservation programs). Where one utility has made available an offer to which the other does not have a comparable, a simple synopsis has been provided. For additional details on those particular offers please see Exhibit B, Tab 1, Schedule 4 (regarding budgets, metrics, and targets) and Exhibit B, Tab 2, Schedule 1 (regarding offer descriptions).

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

RESOURCE ACQUISITION: RESIDENTIAL

	Enbridge	Union
Offer	**Home Energy Conservation (HEC)**	**Home Reno Rebate**
2016 Budget	$12.15M (incl. fixed costs)	$7,23M (incentives/promotion only)
2016 Target	7,508 participants & 102,622,499 CCM	3,000 participants & 77,950,500 CCM
Eligibility / Target Market	Residential customer. Must undertake 2 deep measures and save 15% aggregate across all participants	Residential customer, must have natural gas furnace / boiler
Incentive Structure	$500 for pre and post energy audits plus: - $500 for 15-25% savings - $1,100 fpr 26-49% savings - $1,600 for 50%+ savings	$500 for pre and post energy audits plus: - Rebates for individual measures ranging from $40 for windows to $1,500 for exterior insulation - Bonus $250 for each measure installed beyond first 2 - Maximum incentive amount of $5,000
Offer	**Adaptive Thermostats**	**Energy Saving Kit (ESK)**
2016 Budget	$0.88M (incl. fixed costs)	$0.39M (incentives/promotion only)
2016 Target	23,864,839 CCM	11,990,584 CCM
Eligibility / Target Market	Residential customers	Residential customers that have not received a kit to date and live in detached, semi-detached, townhouses or row houses with natural gas space and water heating
Incentive Structure	$75 upon proof of purchase and installation	ESKs are provided at no cost. ESKs include: - showerhead, aerator, pipe wrap, teflon tape, $25 coupon for purchase of programmable thermostat

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

RESOURCE ACQUISITION: COMMERCIAL & INDUSTRIAL

	Enbridge	Union
Offer	**Custom**	**Custom**
2016 Budget	$7.02M	$7.81M (incentives / promotion only)
2016 Target	574,065,893 CCM	745,094,379 CCM
Eligibility / Target Market	Wide variety of Commercial and Industrial rates and customer types	Wide variety of Commercial and Industrial rates and customer types
Incentive Structure	Commercial: - 0 to 10% savings, $0.10/m3; 0 to 20% savings, $0.20/m3; savings of 20% and above, $0.30/m3, to a maximum of $100K per project Industrial - $0.10/annual m3 for customers with > 340,000 m3 annual consumption - $.030/annual m3 for customers with <340,000m3 annual consumption - Max of 50% of project cost or $100k	- $0.10/annual m3 for Contract customers up to 50% of project or $100k - $.0.20/annual m3 for General Service customers up to 50% of project or $40k - Additional incentives available for engineering studies and metering upgrades - No incentives for O & M projects
Offer	**Prescriptive**	**Prescriptive**
2016 Budget	$2.2M	$6.76M (incentives / promotion only)
2016 Target	133,443,227 CCM	274,596,193 CCM
Eligibility / Target Market	Wide variety of Commercial and Industrial rates and customer types	Wide variety of Commercial and Industrial rates and customer types, targeting non-participants and entities with multiple facilities managed through a head office
Incentive Structure	Variety of incentives	Variety of incentives

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

RESOURCE ACQUISITION: COMMERCIAL & INDUSTRIAL (continued)

	Enbridge	Union
Offer	**Direct Install**	**Direct Install (Pilot)**
2016 Budget	$4.96M	Not specified
2016 Target	60,358,661 CCM	Not specified
Eligibility / Target Market	Wide variety of Commercial and Industrial rates and customer types, with focus and marketing toward smaller customers	Small commercial customers under 75,000m3 in annual consumption that operate less than two locations (i.e. no national accounts) and pay their own gas bill
Incentive Structure	50% of total cost of installation, or 100% for pre-rinse spray valves	50-100% of total cost of installation depending on results of survey and pilot in 2016 and 2017
Other Comments		Union has proposed a $1M per year total pilot budget which decreases to $500k in 2018
Offer	**Energy Leaders Initiative**	**N/A**
Synopsis	Increased incentive structure and tailored initiatives such as public recognition for customers with high levels of energy efficiency	
Offer	**Small Commercial New Construction**	**N/A**
Synopsis	2016 Pilot for small commercial new construction market	

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

LOW INCOME

	Enbridge	Union
Offer	**Home Winterproofing**	**Home Weatherization**
2016 Budget	$5.76M	$6.29M (incentives / promotion only)
2016 Target	28,892,118 CCM	32,772,265 CCM
Eligibility / Target Market	Social and assisted housing, and income-qualified customers in low-rise / Part 9 OBC buildings	Social and assisted housing, and income-qualified customers in low-rise / Part 9 OBC buildings
Incentive Structure	- No Charge home assessment and weatherization - Direct install of "basic measures" - Health and safety measures as warranted	- A free home energy audit ("Initial Audit") is provided - All qualifying building envelope upgrades are installed for free including: attic insulation, wall insulation, basement insulation and draft-proofing measures - Free installation of up to two energy efficient showerheads, two metres of pipe wrap and a programmable thermostat. Kitchen carbon monoxide detector, and bathroom aerators are left behind for self-installation - Health and safety measures as warranted

LOW INCOME (continued)

	Enbridge	Union
Offer	**Multi-Residential Affordable Housing**	**Multi-Family**
2016 Budget	$3.28M	$2.65M (incentives / promotion only)
2016 Target	58,969,452 CCM	17,141,672 CCM
Eligibility / Target Market	Social and assisted housing providers who own and operate Part 3 buildings and private multi-residential building owners that provide housing to low income households. In addition, shelters and supportive housing will be targeted.	Social and Assisted Housing and Low Income Market Rate Multi-Family (LI MR MF) Buildings
Incentive Structure	- Half cost of energy audit up to $5k or $0.01/m3 of annual consumption - Custom incentive of $0.40/m3 saved up to 50% of project cost - Variety of prescriptive incentives by technology - In-suite direct install measures at no cost - Free access to benchmarking	- Energy audit costs of up to $5k per building or $25k per housing provider - Custom incentives of $0.10/CCM or up to 50% of project, except windows which are $1k per unit - In-suite hot water conservation measures provided at no cost to customer
Offer	**Low Income New Construction**	**N/A**
Synopsis	Comprehensive new construction offer for low income and affordable housing providers which incorporates some elements of Savings by Design (such as the IDP process)	
Offer	**N/A**	**Aboriginal Offering**
Synopsis		Weatherization, Furnace End-of-Life, and ESK offer targeted toward 13 reserves served by Union Gas
Offer	**N/A**	**Furnace End-of-Life Upgrade**
Synopsis		Incentive for private market including aboriginal reserves is the full incremental cost of upgrading to a 95% or greater efficiency furnace, when existing furnace reaches end of life. Incentive for social and assisted housing providers is half of the incremental cost.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

MARKET TRANSFORMATION / NEW CONSTRUCTION

	Enbridge	Union
Offer	**Residential Savings by Design**	**Optimum Home**
2016 Budget	$3.25M	$1.04M (full program budget)
2016 Target	30 builders enrolled 2,501 homes built	2015 Actual homes built + 20%
Eligibility / Target Market	Builders of new, Part 9 residential low rise houses (townhouses, semi-detached and detached homes) in the EGD franchise area	Residential new build market, both single family detached homes as well as individually metered town-homes
Incentive Structure	Fixed incentive of $25K per builder to cover cost of IDP and an incentive of up to $2K per home for 2012 OBC > 25%. - Builders that complete the IDP portion of the offer for the first time are eligible to receive $2K per home completed to the SBD standard (up to 50 homes); - Builders that complete the IDP portion of the offer for the second time are eligible to receive $1K per home completed to the SBD standard (up to 100 homes); - Builders that complete the IDP portion of the offer for the third time are eligible to receive $500 per home completed to the SBD standard (up to 200 homes).	The builder incentive for the original three program phases, and new incremental engagement phase, is as follows and are provided in the form of consulting services, education and training: -Phase 1 - $30K per builder -Phase 2 – $30K per builder -Phase 3 – $15K per builder Incremental engagement (after the completion of Phase 3) will be provided up to $17.5K per builder over the 2015-2016 period.
Other Comments		To be discontinued in 2017. Possibility of re-evaluation after new OBC as part of mid-term review
Offer	**Commercial Savings by Design**	**N/A**
Synopsis	Comprehensive new construction offering for commercial building projects larger than 50,000ft2 in aggregate	
Offer	**New Construction Commissioning**	**N/A**
Synopsis	New construction offering designed to ensure buildings are optimized prior to occupation in accordance with their designs	
Offer	**Home Rating**	**N/A**
Synopsis	Enbridge will continue to pursue the voluntary adoption of home energy ratings in the real estate market by focusing on mass markets, as opposed to the realtor community, and incenting the completion of energy audits.	

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

ENERGY MANAGEMENT / PERFORMANCE-BASED CONSERVATION

	Enbridge	Union
Offer	**Run it Right (RiR)**	**RunSmart**
2016 Budget	$1.81M (including Energy Compass)	$82,000 (promotion / incentives only)
2016 Target	75 Participants	25 Participants
Eligibility / Target Market	Wide variety of Commercial rates and customer types	General service Commercial customers with annual consumption greater than 50,000m3. Must not have recently implemented energy conservation measures at their site (i.e. not a DSM participant)
Incentive Structure	Incentives per building are determined through a cross-reference of consumption and complexity, where the smallest and simplest building would receive $2,500 and a large, complex building could receive $10,000	- No charge for site assessment - No incentive below 5% savings - $0.20/m3 for savings between 5-10% - Incremental $0.05/m3 for savings from 10-15% - Incremental $.10/m3 for savings >15% - Not eligible for custom project incentives
Offer	**My Home Health Record**	**Behavioural Based Programming**
2016 Budget	$3.91M	$2.67M ($1.55M start-up; $1.12M in promotion)
2016 Target	19,500,000 CCM	N/A
Eligibility / Target Market	Residential Customers	Residential Customers
Incentive Structure	Utility pays for home energy reports on behalf of customers.	Utility pays for home energy reports on behalf of customers.
Other Comments	Enbridge intends to launch in 2015 working with Opower with savings targets/claims beginning in 2016. Working with Opower Enbridge can substantiate an approach to determine the persistence/measure life of savings.	Union to conduct procurement in 2015 to determine vendor, with a launch in 2016 and savings targets/claims beginning in 2017. Union has presumed a 1 year standard measure life for behavioural home energy reports.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

ENERGY MANAGEMENT / PERFORMANCE-BASED CONSERVATION (continued)

	Enbridge	Union
Offer	**Comprehensive Energy Management (CEM)**	**Strategic Energy Management (SEM)**
2016 Budget	$0.51M	$215,000 shared (promotion / incentives only)
2016 Target	6 participants	3 participants
Eligibility / Target Market	The primary target market will be composed of industrial customers whose annual gas consumption is between 340,000 m3 and 5,000,000 m3. Larger commercial customers may also be enrolled in this offer.	UGL's contract industrial-manufacturing customers are eligible to participate, provided that the customer: (1) has not previously participated in the IEMS program; (2) does not currently have an energy management system in place; (3) the customer has a minimum annual natural gas usage of 1,000,000 m3
Incentive Structure	Four types of incentives: (1) funds to offset the cost of monitoring systems (80% of eligible costs to a maximum of $100K) (2) funds for cubic metres saved and verified ($0.30/m3 up to $100K per project) (3) incentives for specific EE project investments (4) funds to promote EE awareness & training, of up to $10K per participant	- Year 1: up to $25K will be provided towards the purchase and installation of sub-metering and data management equipment and in-kind support will be made available at no cost to assess and identify appropriate unitized energy use metrics, to recommend sub-metering requirements, and to aid in the development of a continuous improvement energy management plan for the customer. - Year 2: no incentive is provided as only baseline data is being collected. - Year 3: the customer is to submit a 12-month performance report and for a 5% savings over baseline the customer will receive a $10K fixed incentive - Year 4: 10% savings over baseline will receive a $15K fixed incentive. - Year 5: $20K for a 15% savings over baseline
Other Comments		Total RunSmart and SEM budgets combined are $548k for 2016. **Comparison assumes each account for 50% of total budget**

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

ENERGY MANAGEMENT / PERFORMANCE-BASED CONSERVATION / OTHER

	Enbridge	Union
Offer	**Energy Compass**	**N/A**
Synopsis	Enbridge will continue to offer Energy Compass to its customers, closely linked with the delivery and marketing of Run it Right.	
Offer	**Schools Energy Competition**	**N/A**
Synopsis	The offer will provide a unique platform that includes educational awareness and empowers students with the ability to impact gas consumption in their schools and their homes. Through the use of concepts such as Community Based Social Marketing ("CBSM") and competition, this offer will educate students, with an aim to change behaviours.	
Offer/Initiative	**Energy Literacy**	**N/A**
Synopsis	Beginning in 2017 Enbridge will embark on pure energy literacy initiatives such as leveraging the electricity SaveONenergy brand, energy literacy stations in public spaces, or an energy education video game targeted at youth and young adults.	
Offer	**N/A**	**Large Volume**
Synopsis		Union will be providing dedicated technical support and training to its Rate T2/Rate 100 Large Volume customers. Union will offer these services with a budget of $809k, and will not claim any savings for these activities.

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

c) Please see below a comparison of the allocation of potential shareholder incentives amongst Enbridge and Union's respective scorecards.

DSM Scorecards	Enbridge	Union
2016 Scorecards, Weighting and Incentive @ 100% of Target	Resource Acquisition 58% - $2.41M Low Income 20% - $0.83M Market Transformation & Energy Management 23% - $0.94M	Resource Acquisition 70% - $2.94M Low Income 26% - $1.08M Market Transformation 2.4% - $0.10M Performance-Based Conservation 1.3% - $0.05M
2016 – 2020 Annual Incentive @ 100% of Target	**$4.18M**	**$4.18M**
2015 Rollover Incentive @ 100% of Target	*$4.44M*	*$4.40M*
2015-2020 Incentive @ 100% of Target Each Year	**$31.99M**	**$31.90M**

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

ENERGY PROBE INTERROGATORY #37

INTERROGATORY

Topic 13 - Other

Reference: EGD no Reference, Union EB-2015-0029 Exhibit A, Tab 1, pages 22-23

Preamble: Under Section 14.1 of the Guidelines, the Board requested the following characteristics of EGD and Union distribution systems:

a) Total natural gas purchases;
b) Sales by rate class;
c) Number of customers by rate class; and,
d) Summaries of sales and number of customer figures for all rate classes within the various customer types (e.g. Residential, Low Income, Commercial, Industrial and Large Volume) that DSM programs will be developed for and offered to.

Please provide a tabulation of the following Benchmarks/Metrics for the Two Utilities for the year 2014:

Utility Metrics
Rate Base
Revenue Requirement
Sales by Rate class
#customers by sector (Residential, Low Income, Commercial and Industrial
Throughput (2014) by Sector

DSM Metrics 2015
Total DSM Budget per customer
CCM/Customer and % of throughput
Residential Budget Total and $ per Residential Customer/yr
RA Cost effectiveness CCM/$ Residential and Low Income

DSM Metrics 2016
Total DSM Budget per customer
CCM/Customer and % of throughput
Residential Budget Total and $ per Residential Customer/yr
RA Cost effectiveness CCM/$ Residential and Low Income

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

RESPONSE

Enbridge has made best efforts to fulfill Energy Probe's request, bearing in mind that some of the requested information is available to the Company while other information cannot reasonably be compiled as it relates to another utility and is not maintained by Enbridge. The Company does not represent Union Gas in presenting the data below, which it has assembled for illustrative purposes only.

Please see Exhibit B, Tab 2, Schedule 4 for Enbridge's throughput by Rate Class. Enbridge's throughput volumes are tracked at the rate class level, as rates are designed based on customer consumption patterns and volumes as opposed to customer characteristics.

Please see EB-2015-0029, Exhibit A, Tab 1, Appendix A Schedules 1, 2, 3 and 4 for the Union Gas sales by rate class, customers by sector and throughput by sector.

	Enbridge	Union
Rate Base*	$4,421	$3,735
Revenue Requirement*	$2,436	$1,635
Total DSM Budget / No. of Customers	$29.80	$43.28
DSM Budget in Residential Rates (2020)	$49,628,011	$34,261,000
Annual Cost of DSM to Residential Customer (2020)**	$26.57	$24.75
RA CCM/$ (2016)	30.26	36.00
Low Income CCM/$ (2016)	8.66	4.54

*2014 for Enbridge, 2013 for Union

**Includes shareholder incentive at 100% target. Union figure is unweighted average of Rate M1 and 01

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

GEC INTERROGATORY #1

INTERROGATORY

General: For each rate class that is eligible for one or more of Enbridge's DSM offers, please provide the following for each of the last three years:

a. The rate class number
b. A brief description of the types of customers that are in the rate class
c. The number of customers in the rate class
d. Total annual gas throughput (i.e. consumption) by all customers in the rate class
e. The median annual consumption of customers in the rate class
f. Total annual expenditure on gas – including commodity costs – by all customers in the rate class
g. The average rate paid for gas, including distribution costs, commodity costs and any other costs

RESPONSE

a. Per Enbridge's response to Energy Probe Interrogatory #1 (ii) in Exhibit I.T13.EGDI.EP.1, the rate class numbers are as follows:

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

Bundled Services:

Rate Class	Type
1	Residential
6	Apartment
	Commercial
	Industrial
9	Container Service
100	Apartment
	Commercial
	Industrial
110	Apartment
	Commercial
	Industrial
115	Commercial
	Industrial
135	Commercial
	Industrial
145	Apartment
	Commercial
	Industrial
170	Commercial
	Industrial
200	Wholesale

Unbundled Services:

Rate Class	Type
125	Power Plant
300	Apartment
	Commercial
	Industrial

b. Per Enbridge's response to Energy Probe Interrogatory #1 (i) in Exhibit I.T13.EGDI.EP.1, please see below for a description of rate classes:

Rate class definition (consumption or other)

Bundled Services:

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

Rate 1
To any Applicant needing to use the Company's natural gas distribution network to have transported a supply of natural gas to a residential building served through one meter and containing no more than six dwelling units ("Terminal Location").

Rate 6
To any Applicant needing to use the Company's natural gas distribution network to have transported a supply of natural gas to a single terminal location ("Terminal Location") for non-residential purposes.

Rate 9
To any Applicant needing to use the Company's natural gas distribution network to have transported a supply of natural gas to a single terminal location ("Terminal Location") at which, such gas is authorized by the company to be resold by filling pressurized containers.

Rate 100
To any Applicant who enters into a Service Contract with the Company to use the Company's natural gas distribution network for the transportation, to a single terminal location ("Terminal Location"), to be delivered at a specified maximum daily volume of not less than 10,000 cubic metres and not more than 150,000 cubic metres.

Rate 110
To any Applicant who enters into a Service Contract with the Company to use the Company's natural gas distribution network for the transportation, to a single terminal location ("Terminal Location"), of an annual supply of natural gas of not less than 146 times a specified maximum daily volume of not less than 1,865 cubic metres.

Rate 115
To any Applicant who enters into a Service Contract with the Company to use the Company's natural gas distribution network for the transportation, to a single terminal location ("Terminal Location"), of an annual supply of natural gas of not less than 292 times a specified maximum daily volume of not less than 1,165 cubic metres.

Rate 135
To any Applicant who enters into a Service Contract with the Company to use the Company's natural gas distribution network for the transportation, to a single terminal location ("Terminal Location"), of an annual supply of natural gas of not less than 340,000 cubic metres.

Rate 145
To any Applicant who enters into a Service Contract with the Company to use the Company's natural gas distribution network for the transportation of a specified maximum daily volume of natural gas to a single terminal location ("Terminal Location") which can accommodate the total interruption of gas service as ordered by the Company exercising its sole discretion. The Company reserves the right to satisfy itself that the customer can accommodate the interruption of gas through either a shutdown of operations or a demonstrated ability

and readiness to switch to an alternative fuel source. Any Applicant for service under this rate schedule must agree to transport a minimum annual volume of 340,000 cubic metres.

Rate 170
To any Applicant who enters into a Service Contract with the Company to use the Company's natural gas distribution network for the transportation of a specified maximum daily volume of natural gas of not less than 30,000 cubic metres and a minimum annual volume of 5,000,000 cubic metres to a single terminal location ("Terminal Location") which can accommodate the total interruption of gas service when required by the Company. The Company reserves the right to satisfy itself that the customer can accommodate the interruption of gas through either a shutdown of operations or a demonstrated ability and readiness to switch to an alternative fuel source. The Company, exercising its sole discretion, may order interruption of gas service upon not less than four (4) hours notice.

Rate 200
To any Distributor who enters into a Service Contract with the Company to use the Company's natural gas distribution network for the transportation of an annual supply of natural gas to customers outside of the Company's franchise area.

Unbundled Services:

Rate 125
To any Applicant who enters into a Service Contract with the Company to use the Company's natural gas distribution network for the transportation, to a single terminal location ("Terminal Location"), of a specified maximum daily volume of natural gas. The maximum daily volume for billing purposes, Contract Demand or Billing Contract Demand, as applicable, shall not be less than 600,000 cubic metres. The Service under this rate requires Automatic Meter Reading (AMR) capability.

Rate 300
To any Applicant who enters into a Service Contract with the Company to use the Company's natural gas distribution network for the transportation to a single Terminal Location of a specified maximum daily volume of natural gas. The Company reserves the right to limit service under this schedule to customers whose maximum contract demand does not exceed 600,000 m3. The Service under this rate requires Automatic Meter Reading (AMR) capability. Service under this schedule is firm unless a customer is currently served under interruptible distribution service or the Company, in its sole judgment, determines that existing delivery facilities cannot adequately serve the load on a firm basis.

c. Per Enbridge's response to Energy Probe Interrogatory #1 (iii) in Exhibit I.T13.EGDI.EP.1, please see below for the number of customers by rate class:

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

Bundled Services:

Rate Class	Number of Customers		
	2012	2013	2014
1	1,826,796	1,866,534	1,899,632
6	157,500	158,495	159,577
9	9	9	8
100	0	0	0
110	201	201	191
115	30	30	27
135	38	38	41
145	108	108	103
170	38	38	34
200	1	1	1

Unbundled Services:

Rate Class	Number of Customers		
	2012	2013	2014
125	5	5	5
300 (Firm)	7	2	1
300 (Interruptible)	1	1	1

Source: Board approved budget for 2012-2014

d. Per Enbridge's response to Energy Probe Interrogatory #1 (iv) in Exhibit I.T13.EGDI.EP.1, annual gas for customers by rate class is as follows:

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

Rate Class	Annual Consumption (10^3m^3)		
	2012	2013	2014
1	4,583,338	4,792,028	4,621,279
6	4,772,169	4,764,874	4,570,174
9	1,177	1,988	630
100	0	0	0
110	488,031	487,553	617,636
115	532,453	539,357	470,990
135	55,183	55,183	56,500
145	154,354	152,823	164,010
170	519,974	516,365	462,904
200	162,216	163,080	164,887

Unbundled Services:

Rate Class	Annual Consumption (10^3m^3)		
	2012	2013	2014
125	106,168*	119,224*	119,224*
300 (Firm)	887*	302*	187*
300 (Interruptible)	31,049	31,049	30,000

Source: Board approved budget for 2012-2014

*Denotes contract demand (CD) values. The company does not forecast consumption/annual volumes for these customers.

e. Per Enbridge's response to Energy Probe Interrogatory #1 (ix) in Exhibit I.T13.EGDI.EP.1, average annual consumption* for typical customers (by rate class) is as follows:

Bundled Services:

Rate Class	Annual Consumption (m^3)
1	2,400
6	29,278
9	N/A
100	339,188
110	598,568
115	69,832,850
135	598,567
145	598,567
170	9,976,120
200	N/A

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

Unbundled Services:

Rate Class	Annual Consumption (m^3)
125	N/A
300	N/A

*As of December 2014; Source: EB-2014-0191, Exhibit Q4-3, Tab 4, Schedule 6, Page 1 - Page 8

f. Per Enbridge's response to Energy Probe Interrogatory #1 (ix) in Exhibit I.T13.EGDI.EP.1, total annual expenditure on gas, including commodity costs, by all customers is as follows:

2012*	2013**	2014***
1,004	1,021	980

*EB-2011-0277, Exhibit N1, Tab 1, Schedule 1, Appendix A, Col. 3, Row 27
**EB-2011-0354, Final Rate Order, Appendix A, Page 1, Col. 5, Line 24 - Line 4
***EB-2012-0459, Appendix A, Page 1, Col. 5, Line 22 - Line 4

g. Per Enbridge's response to Energy Probe Interrogatory #1 (ix) in Exhibit I.T13.EGDI.EP.1, the average rate paid for gas, including distribution costs, commodity costs and any other costs is as follows:

Bundled Services*:

Rate Class	Distribution (¢/m^3)**
1	15.92
6	7.19
9	13.94
100	0.00
110	2.02
115	1.14
135	1.62
145	2.11
170	0.84
200	2.46

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

Unbundled Services:

Rate Class	Distribution (¢/m^3)
125	8.0942***
300	24.4780****

*Source: EB-2014-0191, Exhibit Q4-3, Tab 4, Schedule 1, Page 2, Col. 3
**Customers are not billed based on an average distribution rate. Customers are billed on a combination

of monthly customer charge, blocked delivery charge and contract demand charge (if applicable).
***Contract demand charge from EB-2014-0191, Exhibit Q4-3, Tab 4, Schedule 5, Page 5, Line 1, Col. 6

****Contract demand charge from EB-2014-0191, Exhibit Q4-3, Tab 4, Schedule 5, Page 7, Col. 6

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

GEC INTERROGATORY #2

INTERROGATORY

General: for rate 1 (residential), please provide the average annual consumption in usage deciles (i.e. for the top 10% of customers, for the customers in the 80% to 90% decile, for customers in the 70% to 80% decile, etc.).

RESPONSE

Please see below Enbridge's response to the above noted request. Though the Company has made best efforts to provide the data requested, due to system limitations this analysis was conducted outside of the Enbridge's CIS system. As such, the Company's ability to verify accuracy was limited.

Consumption Decile	Average Annual Consumption (m^3)
0-10%	536
11-20%	629
21-30%	738
31-40%	869
41-50%	1012
51-60%	1182
61-70%	1398
71-80%	1734
81-90%	3079
91-100%	13299

Witnesses: F. Oliver-Glasford
B. Ott
E. Reimer
P. Tharmalingam

GEC INTERROGATORY #36

INTERROGATORY

Topic 13 - Other

Reference B/T1/S1 p1 and B/T2/S2 p.2

Enbridge indicates it is proud of past DSM efforts and intends to play an integral role in the Province's efforts to combat climate change. It also indicates that planned gas savings will be of great assistance to the province meetings its GHG reduction goals.

a) Does EGD have a policy or plan or program to manage its GHG emissions or those of its customers? If not, why not? If so please provide a copy and copies of any annual or progress reports.

b) Did Enbridge submit comments on Ontario's recent Climate Change Discussion Paper? If so please provide a copy.

RESPONSE

a) Enbridge Gas Distribution's parent company, Enbridge Incorporated ("Enbridge Inc."), has an extensive Corporate Social Responsibility ("CSR") strategy and reporting initiative. The strategy and CSR Report cover a wide range of topics across Enbridge Inc.'s diverse suite of business units and contains a significant section dedicated to the topic of Energy and Climate Change. Due to the scope of even this individual section of Enbridge Inc.'s CSR report, which in addition to non-DSM Enbridge activities includes activities conducted by Enbridge Inc.'s liquid pipeline, gas transportation, renewable energy and other divisions, Enbridge Inc.'s entire CSR Report, and specifically the Energy and Climate Change portion of the report, is publicly available and located at the following internet link: http://csr2014.enbridge.com/report-highlights/material-topics/energy-and-climate-change/overview/

b) Yes, Enbridge Inc. submitted a response to the Ontario Government's recent Climate Change Discussion Paper on March 27, 2015. (Attachment)

Witnesses: F. Oliver-Glasford
B. Ott

27 March 2015

The Honourable Glen Murray
Minister of Environment and Climate Change
c/o Kathy Hering
Climate Change and Environmental Policy Division
77 Wellesley Street West
10th Floor
Toronto, ON M7A 2T5
Email: kathy.hering@ontario.ca

Dear Minister Murray,

RE: Ontario's Climate Change Discussion Paper 2015

Please find enclosed a copy of Enbridge's submission to the Ontario government's 2015 public consultations on climate change. Our submission outlines some of the actions that Enbridge has taken and is currently taking to reduce greenhouse gas emissions. It also discusses some of the ways Enbridge can work with the province to help meet Ontario's 2020 and 2050 greenhouse gas emission reduction targets.

We appreciate the opportunity to provide comment and believe that the implementation of these recommendations will help secure Ontario's position as both an economic and environmental leader into the future.

We also appreciate your ministry's specific mention of Enbridge as one of Ontario's sustainability leaders, noting that in 2014, Enbridge was named one of the *Global 100 Most Sustainable Corporations* for the sixth year in a row. We share your conviction that the test of a successful Ontario climate policy is one that also enhances our province's competitiveness and long-term prosperity.

We look forward to the release of the province's climate change strategy and action plan to be released this year.

If you have any questions or would like further information from Enbridge, please do not hesitate to contact our team at 416-758-7966.

Regards,

Glenn Beaumont, P. Eng.
President, Enbridge Gas Distribution Inc.

Ontario Climate Change Discussion 2015:

Climate Change Submission from Enbridge Inc.

27 March 2015

Table of Contents

Introduction

Enbridge Inc. (Enbridge) recognizes that climate change is a critical global issue. As a company that operates in many different jurisdictions in Canada and the US, we support the idea that governments at all levels should have the ability to establish climate change, carbon policies and instruments that will meet their unique economic needs. We also acknowledge that carbon reduction is a shared responsibility with implications for citizens, governments and business. We are committed to being part of collaborative solutions that accelerate progress, equity, efficiency and competitiveness.

Our corporate Climate Change Policy focuses on reducing greenhouse gas emissions from existing operations, designing new facilities with a view to reducing emissions and on developing new renewable and alternative energy sources. This is in keeping with our overall commitment to protect the environment, while enhancing our position as one of North America's leading sustainable energy delivery companies.

We have contributed to the climate change challenge through our actions that have led to verifiable GHG reductions within our operations and at our facilities. Enbridge understands that meaningful GHG reductions at an economy-wide scale will require governments to collaborate with industry, and the consuming public to establish clear, realistic GHG emission objectives, and the corresponding policies and regulations to achieve them.

The issues around carbon and climate are complex. For this reason we believe they are best addressed on a 'portfolio' basis that includes the following issues: regulation; carbon pricing; energy efficiency and conservation; technology and innovation; renewables; and business development and competitiveness. As stated above, we believe different provinces and states should build and evolve their systems to meet their own jurisdictional realities, while keeping an eye open to the benefits of coordination over time. On an issue such as carbon pricing, cross-jurisdictional alignment around a common set of principles will lead to further gains in both reduction and efficiency.

It is important for government to encourage the development of GHG mitigation policies and regulations across all sectors of the economy; and engage energy consumers, the HVAC community, energy transporters and energy producers. Government policies must be tailored to our energy intensive and export-based economy, and must enable us to remain competitive while making meaningful reductions in GHG emissions. Energy regulators should also be encouraged to consider societal benefits of proposals before them, including GHG emission reductions.

At Enbridge, our approach has been to:

Build the Foundation

• Develop and implement an enterprise-wide plan including an internal GHG reporting system that ensures we understand the sources, types and magnitude of all GHG emissions within our operations.
• Identify, implement, and monitor the success of GHG reduction within our operations.

Lead by Example

• Set GHG performance improvement targets and publicly report on our progress in achieving these targets.
• Invest in alternative and renewable energy sources that will play an important economic and environmental role in the transition to a lower carbon economy.
• Look for opportunities to educate the public, our consumers and our employees about climate change and what we can all do about it.

Work with Others

• Collaborate with key industry associations and non-government organizations to assist governments in establishing clear, economically sound rules to reduce GHGs and to conduct research and deploy new GHG reduction technologies where appropriate.
• Share information on current and emerging "best-available technologies that are economically achievable" and partner with key stakeholders to ensure governments are aware of, and understand these technologies and opportunities.

Enbridge: Reducing Emissions, Growing Renewables and Investing in New Technologies

As previously mentioned, a focus on reducing GHG emissions from existing operations, designing new facilities in a way to reduce emissions, and developing new renewable and alternative energy sources are the hallmarks of Enbridge's Climate Change Policy.

Since the early 1990s, Enbridge Gas Distribution Inc. (EGD) has undertaken many initiatives to reduce GHG emissions from its natural gas distribution operations. The largest of these initiatives has been the multi-year, multi-million dollar cast iron pipe replacement program, which EGD started in the early 1990s and completed in 2012. Through this program, EGD replaced approximately 1,800 kilometres of aging—and leaking – cast iron and bare steel pipe with coated steel and plastic pipe. As a result, EGD has reduced the risk of leaks and, consequently, its annual fugitive GHG emissions by approximately 144,000 tonnes of carbon dioxide equivalent (CO_2e).

There has also been a continued decline in methane losses from pipeline damage incidents due to industry efforts such as the implementation of a province-wide, "One Call" locate system, which EGD helped to establish in Ontario. Over the past several years, EGD has also installed excess flow shut-off valves on new service line installations, which reduces the amount of natural gas released when service lines are damaged.

EGD's extensive asset integrity program which involves preventive maintenance on equipment and piping with higher risk of leaking also helps to reduce methane leaks. Begun in the early 1990s, this initiative has reduced methane emissions released from distribution pneumatic valves by approximately 95 per cent. In fact, since that time EGD has replaced the majority of high-bleed-rate pneumatic valves in service.

As of 2013, approximately 75 per cent of EGD's fleet vehicles (648 vehicles) run on natural gas, reducing EGD's GHG emissions by more than 400 tonnes of CO_2e per year compared to operating them on gasoline and diesel. EGD continues to show leadership through continued efforts to have its buildings become LEED-compliant, as is the case with its new Training and Operations Centre located in Markham, Ontario.

As well as minimizing emissions, Enbridge is one of the largest renewable energy generation companies in Canada, and to date has invested about $4 billion in renewable and alternative energy projects across North America. In fact, in 2009 following its expansion, Enbridge's 80MW Sarnia Solar Project was the world's largest photovoltaic power station and today remains the largest in Canada.

In Ontario, Enbridge is the province's largest solar power generator and second largest wind power generator. Along with wind and solar assets, Enbridge also operates a turbo-expander, that together have a current generating capacity of more than 490 megawatts, enough to meet the needs of approximately 160,000 homes and result in the avoidance of approximately 440,000 tonnes of GHG emissions each year. However, our target is to nearly double the amount of net generation capacity in

our renewable and alternative energy portfolio from 2014 levels of more than 1,600 MW to over 3,000 MW by 2018 across North America.

Enbridge's 'turbo-expander' generator operates at its EGD Toronto headquarters. A turbo-expander generator harvests the energy which is usually wasted when gas pressures are reduced at pressure reduction stations for commercial and residential use. The turbo-expander converts this energy into low-impact electricity as the natural gas continues to flow to homes and businesses. In 2014, the turbo-expander provided EGD's Toronto head office with 61 per cent of its annual electricity requirement. EGD's head office has also invested in a number of equipment upgrades which have reduced its energy requirement from 12.4 million kWh (1990) to 2.2 million kWh (2014). Together these initiatives have resulted in a cumulative savings of $8.4 million from 2004 to 2014.

Enbridge's Renewable and Alternative Energy Assets in Ontario:

Project Name	Type	Total Generating Capacity	Location	Service Date
Turbo-expander	Expansion Turbine	1 MW	Toronto, Ontario	2008
Cruickshank	Wind	8 MW	Bruce County, Ontario	2009
Underwood	Wind	182 MW	Bruce County, Ontario	2009
Sarnia Solar Project	Solar	80 MW	Sarnia, Ontario	2009-10
Talbot	Wind	99 MW	Chatham, Ontario	2010
Tilbury Solar Project	Solar	5 MW	Tilbury, Ontario	2010
Amherstburg II Solar Project	Solar	15 MW	Amherstburg, Ontario	2011
Greenwich	Wind	99 MW	Dorian, Ontario	2011
Wasdell Fall's Hydro-electric Project (partnership with Coastal Hydropower Corp.)	Hydro	1.65 MW	Washago, Ontario	April 2015

Enbridge has also partnered up with Hydrogenics to develop a pilot Power-to-Gas plant with a 2 MW design rating in the Greater Toronto Area. This plant has an in-service date of 2016 and will be North America's first Power-to-Gas site. Power-to-Gas is an emerging technology which uses low cost power largely produced from renewable sources (wind power, solar power and hydro-electric power) to make hydrogen through electrolysis. The hydrogen then can be used either as a transportation fuel or in relatively low concentrations it can be injected into the existing natural gas system displacing traditionally sourced natural gas and also creating a form of energy storage. The benefit of blending hydrogen with natural gas is similar, in some respects, to that of the introduction of biogas into the natural gas pipeline system as a means of providing a renewable natural gas product to consumers. However, cutting edge technology in Germany suggests that in future, this hydrogen could also be 'methanized', through a process which involves hydrogen, carbon dioxide and a catalyst to create synthetic natural gas, which could then be injected into Ontario's natural gas system.

Five Steps to Achieving Ontario's 2020 and 2050 Targets

As Enbridge endeavors to become North America's leader in energy delivery through all forms of energy distribution and transmission, we remain committed to protecting the environment and growing our position as a leader in sustainable energy delivery. As such, we are pleased to have been recently recognized as one of three Canadian energy companies on the 2015 Global 100 List of Most Sustainable Corporations, and one of three Canadian energy companies on the 2014 Dow Jones Sustainability World Index. Both of these independent rating systems assess corporate performance on key social, economic and environmental indicators.

As mentioned above, Enbridge regularly invests in new innovative technologies to help reduce GHG emissions in generation, conservation, transportation and delivery. It is from our own experience, as well as lesson-drawing from other utilities across the continent, that we provide the following five recommendations to help Ontario meet its 2020 and 2050 targets. (Strategies related to these recommendations are identified in further detail in the sections that follow.)

1. Ontario should adopt a broader clean transportation policy that supports a range of low carbon vehicles, including, electric, hybrid (primarily light duty applications) and natural gas (primarily medium/heavy duty vehicles). The transportation sector accounts for 34 per cent of Ontario's total emissions and is the province's fastest growing source. Of these emissions, around 30 per cent are attributed to over-the road heavy-duty vehicles. Converting heavy-duty and medium-duty fleet vehicles from diesel to natural gas would result in a 20 per cent reduction in GHG emissions from these vehicles.

2. Ontario should support the establishment of a renewable natural gas market (produced from landfills or organic waste from sewage, agriculture and forestry or other renewable such as hydrogen blends and methanization from surplus wind and solar energy), which would result in creating local supply, employment opportunities and lower GHG emissions through the reduced use of traditionally sourced natural gas in the province. Natural gas is Ontario's cleanest fossil fuel, however over the long-term; a recent study suggests that upwards of 30 per cent of Ontario's natural gas usage could be replaced with a renewable input fuel ('green gases').[1]

3. Ontario should explore further cooperation with willing natural gas utilities and electricity distribution utilities to expand their Demand Side Management Programs to include emission reductions targets and incentives. Demand Side Management (DSM) utility conservation programs continue to play a key role in the market adoption rate of newly commercialized energy efficient technologies and best practices.

4. Ontario should establish a clear policy which endorses combined heat and power (CHP) as the preferred option for large industries, condominium buildings or large institutions such as hospitals, universities etc. Localized CHP electricity generation is not only more efficient and would reduce the province's GHG emissions, but as seen in Europe, it increases grid resiliency and has the added potential to reduce the need for future transmission assets. To encourage industrial customers to invest in the Province, a definitive policy should be established that clearly endorses CHP as a favourable application to reduce GHG emissions in thermal-based processes.

5. Ontario should consider ways to ensure that any carbon pricing mechanisms or instruments are conducted in a transparent and equitable manner. The province should also consider directing a portion of these collected revenues towards an innovation fund. The fund could support the development and commercialization of higher efficiency technologies which could in turn be jointly funded by the utilities through their Demand Side Management (DSM) conservation programs.

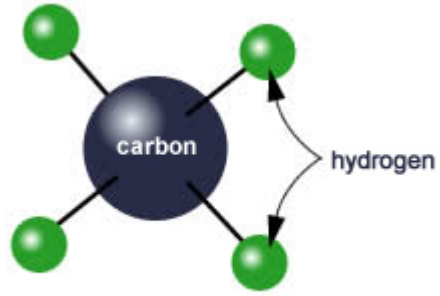
Catching Up: Natural Gas, a Cleaner Transportation Option

According to the Environmental Commissioner of Ontario's 2012 Climate Change Report, while the electricity and industry sectors have experienced an overall decline in GHGs since 1990, transportation has witnessed an equally significant increase. The commissioner said: "There remains a significant amount of untapped low- and medium cost- GHG emissions reduction potential in Ontario, particularly in the manufacturing and freight transportation subsectors."

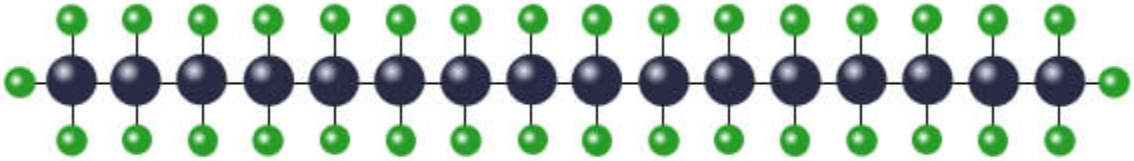
[1] *Potential Production of Renewable Natural Gas from Ontario Wastes,* Alberta Innovates Technology Futures, May 2011.

Not only is the transportation sector responsible for the largest increase in GHG emissions of all sectors, transportation now represents the greatest share of provincial emissions. For medium- to heavy-duty vehicle applications, natural gas can reduce emissions over diesel by 20 per cent. Natural gas vehicles also fight against poor air quality, such as smog, by significantly lowering NOx and SOx emissions as well as particulates compared to diesel and gasoline fuels.

Government support for a range of lower emission transportation options could see diesel vehicles, such as regional and municipal transit (rail and buses) as well as inter-lake ships and freight trains converted to natural gas for a 20 per cent emission reduction. If only 10 per cent of on-road diesel and gasoline consumption was replaced by natural gas, Ontario would reduce GHG emissions by over 4,250 million tonnes CO_2e per year; while the use of natural gas to fuel locomotives and lake freighters will add significantly to these reductions.



methane molecule - CH_4



typical diesel chemical composition
cetane, or n-hexadecane is typical of diesel fuel - $C_{16}H_{34}$

Other provinces have already recognized the immediate benefits to GHG emission reductions that natural gas transportation can provide. For example in Quebec, the provincial government supports 30 per cent of the additional cost (up to a maximum of $75,000), for the purchase of vehicles running on natural gas. The province also provides an accelerated capital cost allowance for 2010-compliant transport truck tractors.

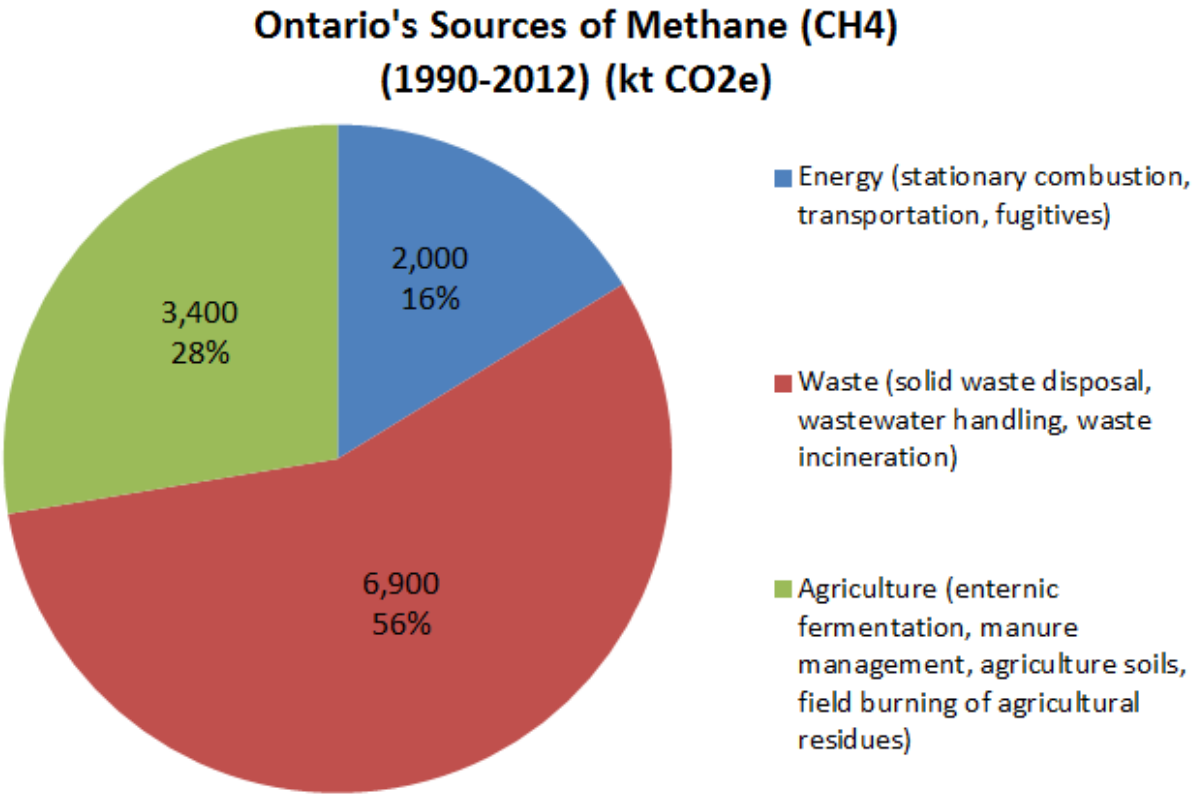
In British Columbia, FortisBC's Natural Gas for Transportation program provides incentive funding of up to 80 per cent of the difference in cost, for eligible medium and heavy natural gas vehicles. This incentive is available to commercial return-to-base fleet vehicles including highway tractors, vocational trucks including refuse trucks, and school and transit buses.

For remote communities where natural gas is not available and where homes and businesses are heated primarily by oil and propane, liquefied natural gas plants can be established along with small-scale natural gas systems to serve these communities. These plants would not only provide fuel-switching opportunities for rural communities but would also further support the conversion of diesel based local transit and serve as a base to serve long haul heavy duty vehicles and rail all contributing to lower emissions.

Greening the Natural Gas Grid: Powering Ontario on Waste

In 2014, natural gas accounted for 67% of the total energy distributed in Ontario by natural gas and electricity utilities. Moreover, on an energy equivalent basis, EGD's 2014 winter peak demand day was more than twice (210 per cent) the province's winter electricity peak day. However, over the long term, up to 30 per cent of Ontario's natural gas usage could be replaced with a renewable input fuel, leveraging the current infrastructure and customers' end use technologies.

Renewable natural gas (RNG), biogas or 'green gas' is a mixture of different gases produced in the breakdown of organic matter. RNG can be produced from raw materials such as agricultural waste, manure, municipal waste, plant material, sewage, green waste or food waste. It is a renewable energy source and in many cases exerts a very small carbon footprint. RNG can be produced by anaerobic digestion with anaerobic bacteria, which digest material inside a closed system, or fermentation of biodegradable materials. Just like natural gas, RNG can be compressed and used in the province's natural gas system and requires no capital cost to the customer as requires no additional equipment or appliances.



* Environment Canada, "National Inventory Report 1990–2012: Greenhouse Gas Sources and Sinks in Canada" (2014).

It is estimated that about 30 per cent of Ontario's natural gas consumption could be replaced with RNG.[2] Today, if simply all RNG from various wastes was captured, 18 per cent of current residential, commercial and industrial natural gas usage could be replaced with RNG over the long-term. Moreover, with gasification process capabilities becoming available over the long-term, it would be possible to offset an additional 12 per cent.

Partnerships with Ontario's agricultural and forestry sectors as well as waste water treatment plants and municipal solid waste centres could help the province to support the establishment of a renewable natural gas market, significantly reducing the emissions produced from traditional natural gas.

In future, synthetic natural gas produced by 'methanized' hydrogen in Power-to-Gas plants may also displace traditional natural gas.

[2] *Potential Production of Renewable Natural Gas from Ontario Wastes,* Alberta Innovates Technology Futures, May 2011.

Achieving 'Conservation First': Demand Side Management (DSM)

Utilities continue to be an effective avenue for accelerating the market adoption of higher efficient technologies and filling the technology funnel. In fact, in the Environmental Commissioner of Ontario's 2014 Annual Energy Conservation Progress Report, the Commissioner mentioned that conservation initiatives funded by Ontario's natural gas utilities continue to offer good value for society. "Each dollar spent on energy efficiency (by customers and utilities combined) yielded approximately $2.43 in savings (largely through savings on gas costs) for Enbridge's resource acquisition programs, and $1.53 for Enbridge's low-income programs, as measured using the Total Resource Cost test."

Over the last two decades, EGD has become a leader in conservation with expertise in many complex conservation markets (e.g., commercial greenhouses, boilers, ovens and industrial furnaces). Cumulatively, between 1995 and 2013, EGD's energy efficiency (DSM) programs have collectively saved 8.8 billion cubic metres of natural gas, roughly enough natural gas savings to serve nearly 2.9 million homes; in emissions, this translates to a reduction of 16.5 million tonnes of carbon dioxide emissions or equal to removing 3.2 million cars from the road for a year.

Demand Side Management (DSM) utility conservation programs continue to play a key role in the market adoption rate of newly commercialized energy efficient technologies and best practices. Ontario should explore cooperating with willing natural gas utilities to expand their DSM Programs to include emission reductions targets.

DSM frameworks that allow for deep (long lasting & highly energy efficient) measures (such as windows, insulation and condensing water heaters) to be implemented into existing building stock will allow long lasting measures to be installed in a larger number of existing buildings.

The design of future urban developments to encourage the integration of local thermal and electricity generation (combined heat and power) and allow for inputs of renewable energy (electricity and gas); energy storage and waste heat recovery from waste water and garbage; are key to an economical long term approach to energy conservation and meaningful GHG reductions. Moreover, approaches towards 'net-zero' energy or emissions should focus at the community or neighbourhood level rather than individual structures; in order to make use of various available tools (such as CHP, district energy, renewables etc.) and to achieve these goals in a cost effective manner.

A regulatory framework continues to be an effective; rate based, cost-effective and regulated way to deliver on government energy policy. Utilities provide trusted, unbiased information in the energy marketplace that can help customers make informed decisions.

Managing Energy Better: Combined Heat and Power

Combined Heat and Power (CHP) allows large industries, condominium buildings or large institutions (hospitals, universities etc.) to generate electricity internally alongside their boiler and heating systems. This can enable businesses and institutions to better manage their energy costs by significantly increasing energy efficiency and reducing GHG emissions through capture and utilization of heat that would otherwise be wasted. Due to its localised nature, CHP can eliminate the need for transmission infrastructure and new transmission lines or public power generation facilities; it also has a small footprint and can be sited within existing structures, making it an efficient solution to urban electricity supply constraints. Moreover, an increased number and decentralized locations of CHP units diversifies and enhances grid resilience and better prepares the province for major grid outages and emergencies. As climate change increases the likelihood of extreme weather events, CHP's advantage of increased

grid resiliency and the added potential to reduce the need for future transmission assets, only establishes it further as an attractive option.

To encourage industrial customers to invest in the province, a definitive policy should be established that clearly endorses CHP as a favourable application to increase efficiency and reduce GHG emissions in thermal-based processes. Today, the Independent Electricity System Operator (IESO)'s procured behind-the-meter CHP Conservation Demand Management (CDM) program has an electricity-reduction target of 7TWh by the end of 2020. Enbridge estimates that if 25 per cent of this goal was accomplished through CHP, the total GHG reduction over conventional large, central gas-fired generation plants and end-use gas-fired boilers would be 240,000 metric tonnes of CO_2e.

All multi-story buildings (e.g. multi-family, hotels, and commercial towers) in congested urban centers under construction, expansion or major renovation, should include in their designs the ability for the premise to reduce on-demand no less than 25 per cent of the facility's peak-design energy needs by either load-curtailment or on-site generation or some combination of the same.

All multi-family high-rise buildings should also include a minimum set of non-life-safety emergency loads connected to the facility's emergency generator for resilience in order to "Sustain Habitation" during times of wide-scale power outages when there are in fact no immediate emergencies. Designs that include integrating CHP into the building's emergency generator design, which include connection to these "Sustained Habitation" loads, should be strongly encouraged to improve operational efficiency.

In order to achieve the environmental benefits of CHP the province should consider:

- Making CHP a requirement whenever possible in congested urban areas of the provincial electricity grid, to provide heat and electricity for large businesses, multi-family residential buildings and other large institutions (hospitals, universities etc.);
- Work with industry to identify and remove barriers to CHP (e.g. requirements for technical interconnection solutions, uncertainty around future treatment of the Global Adjustment, etc.);
- The inclusion of CHP as an eligible natural gas DSM measure to account for the thermal attributes that the technology brings to the province's energy grids.

Furthermore, to help to broaden the reach of CHP in the marketplace, Ontario should allow the eligibility of third party ownership with IESO-procured CHP programs, in particular those that are included in the Conservation First framework (e.g. Process and System Utilization Improvement).

Pricing Carbon

Enbridge continues to be prepared to work with all levels of government and industry associations to encourage the energy sector to be a proactive participant in the development and implementation of climate change solutions. We support jurisdictionally-appropriate approaches to carbon pricing through market-based mechanisms as an element in a broader portfolio-based strategy that includes other policy levers, such as ones identified in this submission.

To be effective, government policies on carbon pricing must be tailored to our energy intensive and export-based economy, and must enable Ontario to remain competitive while making meaningful reductions in GHG emissions. Policies need to establish a defined price for carbon. Compliance options should focus on promoting both near-term reductions and the advancement of technology for larger future reductions over time. In our view, technology development and commercialization is critical to the creation of a lower carbon economy in Ontario.

The market mechanism involved must also protect our gas distribution customers against rate volatility which could result from a fluctuating emissions credit or tax market. Long term energy rate stability will help promote the province as an attractive place for economic investment for industry and manufacturing.

Conclusion

As the province's largest energy distribution company, 2-million customers strong, and as a provincial leader in natural gas distribution and both wind and solar generation, we appreciate the opportunity to provide the Government of Ontario with a summary of the actions we are taking to reduce our emissions, grow the renewable energy sector in Ontario, and invest in new technologies and programs that advance energy conservation and efficiency.

We also welcome the opportunity to continue to work with the Government of Ontario and share our knowledge and experience in the energy sector. We believe that the following recommendations represent significant, achievable and tangible ways to help Ontario meet its 2020 and 2050 greenhouse gas emission reduction targets, the principles contained within Ontario's Long Term Energy Plan and secure its position as both an economic and environmental leader. Accordingly, we ask the Government of Ontario to:

1. Adopt a broader clean transportation policy that supports a range of low carbon vehicles, including, electric, hybrid (primarily light duty applications) and natural gas (primarily medium/heavy duty vehicles).

2. Support the establishment of a renewable natural gas market (produced from landfills or organic waste from sewage, agriculture and forestry or other renewable such as hydrogen blends and methanization from surplus wind and solar energy) in Ontario to generate a supply of renewable natural gas which could replace 30 per cent of Ontario's natural gas demand.

3. Collaborate with willing natural gas utilities and electricity distribution utilities along with the IESO to expand Demand Side Management Programs to include emission reductions targets and incentives.

4. Establish a clear policy which endorses combined heat and power (CHP) as the preferred option for large industries, condominium buildings or large institutions such as hospitals, universities etc.

5. Ensure that any carbon pricing mechanisms or instruments introduced are conducted in a transparent and equitable manner and that a portion of any revenues collected are directed towards an innovation fund.

LIEN INTERROGATORY #1

INTERROGATORY

Topic 13 - Other

Regarding the sensitivity analysis in Exhibit B. Tab 1, Schedule 5, please provide the residential rate impact for Scenario 2 (125% budget increase) and Scenario 3 (150% budget increase).

RESPONSE

Please see below the two tables outlining Residential Rate 1 Allocation and Residential Average Monthly Bill Impacts respectively for scenarios 2 and 3 outlined within Exhibit B, Tab 1, Schedule 5.

Residential Rate 1 Allocation			
Year	Budget as Proposed	At 125% Budget Increase	At 150% Budget Increase
2016	$37,870,056	$47,047,061	$56,222,144
2017	$46,075,713	$57,708,302	$69,297,557
2018	$50,244,452	$63,054,362	$75,814,157
2019	$51,192,354	N/A	N/A
2020	$52,159,227	N/A	N/A

Residential Average Monthly Bill Impact			
Year	Budget as Proposed	At 125% Budget Increase	At 150% Budget Increase
2016	$1.64	$2.04	$2.43
2017	$1.99	$2.50	$3.00
2018	$2.17	$2.73	$3.28
2019	$2.22	N/A	N/A
2020	$2.26	N/A	N/A

Witnesses: K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

OSEA INTERROGATORY #1

INTERROGATORY

Topic 13 - Other

Preamble:

The Ontario Sustainable Energy Association (OSEA) is Ontario's lead advocate, facilitator and catalyst for sector transformation and the transition to a more sustainable energy economy. It champions policy and regulatory change for a more sustainable society powered, heated, cooled and transported by a portfolio of sustainable energy. OSEA members include individuals, manufacturers, installers, developers, municipalities, First Nations, unions, farmers, co-operatives and other community organizations, NGO's and other associations supportive of, and engaged in, the full portfolio of sustainable energy solutions.

Sustainability refers to meeting our own needs and improving the quality of our lives while ensuring the ecological system that sustains us is healthy and capable of supporting future generations. Sustainable energy involves the effective and efficient production and use of energy from an array of distributed sources matched in scale and quality to the end use. Included in the portfolio of Sustainable Energy are:

- Conservation, energy efficiency and demand management
- Renewable heat and electricity generation
- High efficiency combined heat and power (CHP) and district energy
- Energy storage
- Green buildings
- Smart-grids and Micro Grids
- Transportation that is powered by hydrogen, electricity, human or animal waste energy, and other non-fossil fuels

Ministerial Directive O.C. 467/2014 dated March 26, 2014 requires gas and electric distribution companies to collaborate more closely and implement a broader range of activities for gas demand side management (DSM) and electric conservation and demand management (CDM).

An overall energy systems perspective to conservation will include the following measures:

- improving the efficiency of the generation of electricity from natural gas from less than 40 per cent to a combined heat and power efficiency well in excess of 80 per cent

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

- the use of ground source heat pumps to increase efficient use of electricity for cooling and reduce the peak demand for natural gas in the winter, and
- in the transportation sector, managing peak uses of electricity and natural gas and creating virtual storage through electric cars and the renewed interest in natural gas vehicles for fleets, trucks and buses.

Ref: Exhibit B, Tab 1 Schedule 4, Table 6.

For Enbridge's 2016 to 2020 Resource Acquisition Offers, please explain how components of Sustainable Energy set out above, such as combined heat and power, ground source heat pumps, and replacement of existing equipment with higher efficiency measures will be considered and incorporated.

RESPONSE

Enbridge's Multi-Year DSM Plan extensively incorporates Sustainable Energy as defined above. While one of the most pointed examples of this incorporation is certainly the replacement of existing equipment with higher efficiency measures, a concept ingrained within the majority of Enbridge's Resource Acquisition and Low Income offers, the Company's efforts go far beyond this definition to include:

- The promotion and facilitation of high efficiency building design and construction through its Savings by Design, Small Commercial New Construction, and Low Income New Construction offers;
- The optimization of new buildings through its New Construction Commissioning offer;
- The facilitation of operational and behavioural improvements in energy use through its Comprehensive Energy Management, Run it Right, Schools Energy Competition and My Home Health Record offers;
- Investigation into the details and viability of Integrated Resource Planning for natural gas distributors; and,
- Other elements of Enbridge's DSM Plan such as energy literacy which seek to advance a culture of conservation within the Province of Ontario.

While the Company's DSM Plan is naturally focused on energy efficiency and conservation, Enbridge Inc.'s submission in response to the Ontario Government's Climate Change Discussion Paper, as provided in the response to GEC Interrogatory #36 found at Exhibit I.T13.EGDI.GEC.36, endorses several other forms of Sustainable Energy. Specifically, the Company has advocated for a broader clean transportation policy which incorporates a range of low carbon vehicles (inclusive of natural gas vehicles for medium to heavy-duty applications), the establishment of a renewable natural gas market (produced from landfills or organic waste from sewage, agriculture and forestry or other renewables such as hydrogen blends and methanization

from surplus wind and solar energy), and a clear policy establishing Combined Heat and Power ("CHP") as the preferred option for large industries, condominium buildings, and large institutions such as hospitals and universities.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

OSEA INTERROGATORY #2

INTERROGATORY

Topic 13 - Other

Preamble:

The Ontario Sustainable Energy Association (OSEA) is Ontario's lead advocate, facilitator and catalyst for sector transformation and the transition to a more sustainable energy economy. It champions policy and regulatory change for a more sustainable society powered, heated, cooled and transported by a portfolio of sustainable energy. OSEA members include individuals, manufacturers, installers, developers, municipalities, First Nations, unions, farmers, co-operatives and other community organizations, NGO's and other associations supportive of, and engaged in, the full portfolio of sustainable energy solutions.

Sustainability refers to meeting our own needs and improving the quality of our lives while ensuring the ecological system that sustains us is healthy and capable of supporting future generations. Sustainable energy involves the effective and efficient production and use of energy from an array of distributed sources matched in scale and quality to the end use. Included in the portfolio of Sustainable Energy are:
Conservation, energy efficiency and demand management

- Renewable heat and electricity generation
- High efficiency combined heat and power (CHP) and district energyEnergy storage
- Green buildings
- Smart-grids and Micro Grids
- Transportation that is powered by hydrogen, electricity, human or animal waste energy, and other non-fossil fuels

Ministerial Directive O.C. 467/2014 dated March 26, 2014 requires gas and electric distribution companies to collaborate more closely and implement a broader range of activities for gas demand side management (DSM) and electric conservation and demand management (CDM).

An overall energy systems perspective to conservation will include the following measures:

- improving the efficiency of the generation of electricity from natural gas from less than 40 per cent to a combined heat and power efficiency well in excess of 80 per cent

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

- the use of ground source heat pumps to increase efficient use of electricity for cooling and reduce the peak demand for natural gas in the winter, and
- in the transportation sector, managing peak uses of electricity and natural gas and creating virtual storage through electric

Ref: Exhibit B, Tab 1 Schedule 4, Table 13.

For Enbridge's 2016 to 2020 Low Income Offers, please explain how components of Sustainable Energy set out above, such as combined heat and power, ground source heat pumps, and replacement of existing equipment with higher efficiency measures will be considered and incorporated.

RESPONSE

Please see the response to OSEA Interrogatory #1 found at Exhibit I.T13.EGDI.OSEA.1.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

OSEA INTERROGATORY #3

INTERROGATORY

Preamble:

The Ontario Sustainable Energy Association (OSEA) is Ontario's lead advocate, facilitator and catalyst for sector transformation and the transition to a more sustainable energy economy. It champions policy and regulatory change for a more sustainable society powered, heated, cooled and transported by a portfolio of sustainable energy. OSEA members include individuals, manufacturers, installers, developers, municipalities, First Nations, unions, farmers, co-operatives and other community organizations, NGO's and other associations supportive of, and engaged in, the full portfolio of sustainable energy solutions.

Sustainability refers to meeting our own needs and improving the quality of our lives while ensuring the ecological system that sustains us is healthy and capable of supporting future generations. Sustainable energy involves the effective and efficient production and use of energy from an array of distributed sources matched in scale and quality to the end use. Included in the portfolio of Sustainable Energy are:
Conservation, energy efficiency and demand management

- Renewable heat and electricity generation
- High efficiency combined heat and power (CHP) and district energyEnergy storage
- Green buildings
- Smart-grids and Micro Grids
- Transportation that is powered by hydrogen, electricity, human or animal waste energy, and other non-fossil fuels

Ministerial Directive O.C. 467/2014 dated March 26, 2014 requires gas and electric distribution companies to collaborate more closely and implement a broader range of activities for gas demand side management (DSM) and electric conservation and demand management (CDM).

An overall energy systems perspective to conservation will include the following measures:

- improving the efficiency of the generation of electricity from natural gas from less than 40 per cent to a combined heat and power efficiency well in excess of 80 per cent

- the use of ground source heat pumps to increase efficient use of electricity for cooling and reduce the peak demand for natural gas in the winter, and

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

- in the transportation sector, managing peak uses of electricity and natural gas and creating virtual storage through electric

Ref: Exhibit B, Tab 1 Schedule 4, Table 20.

For Enbridge's 2016 to 2020 Market Transformation and Energy Management Offers, please explain how components of Sustainable Energy set out above, such as combined heat and power, ground source heat pumps, and replacement of existing equipment with higher efficiency measures will be considered and incorporated.

RESPONSE

Please see the response to OSEA Interrogatory #1 found at Exhibit I.T13.EGDI.OSEA.1.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

SEC INTERROGATORY #9

INTERROGATORY

Topic 13 - Other

Reference: Ex. B/1/4, p. 40

Please confirm that Enbridge proposes to reduce its targets for CCM on a go-forward basis if the input assumptions for any measure changes during the course of the plan. Please advise what Board approvals or review Enbridge is proposing for any proposed change in target resulting from this adjustment, and what Board approvals or review Enbridge is proposing with respect to the cost-effectiveness of programs affected by the changes in input assumptions.

RESPONSE

Enbridge has proposed a Target Adjustment Factor ("TAF") for the purpose of maintaining the balance that shall be struck by the Ontario Energy Board (the "Board") in this proceeding between the difficulty and achievability of DSM targets. In the Company's view, adjusting the natural gas savings achieved through a given DSM effort, whether that adjustment be up or down, without a commensurate adjustment to targets diminishes the hard work of the Board in evaluating the evidence brought before it to determine appropriate DSM targets. While situations could ensue which resulted in a decrease to Enbridge's CCM targets commensurate with decreases to natural gas savings claimed from a given DSM effort, it is equally likely that the TAF could adjust the Company's targets upwards to compensate for a new reality in which changing input assumptions or adjustment factors unduly benefitted shareholders through less challenging DSM targets. Enbridge believes that either of the above noted situations would diminish the effectiveness of the DSM shareholder incentive in driving aggressive DSM results.

In respect to the application of the TAF from a procedural prospective, Enbridge envisions that any adjustment calculations for a given program year would take place during the audit process relevant to that same program year. Subsequently, TAF calculations would be subject to the review of the Auditor, the Audit Committee, and ultimately all Intervenors and the Board through a Clearance of Accounts proceeding. Please also see the response to Board Staff Interrogatory #8 found at Exhibit I.T2.EGDI.STAFF.8

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

In response to SEC's final inquiry above, Enbridge has not proposed any formal approvals or review with respect to the cost-effectiveness of Programs affected by changes in input assumptions; a matter not addressed by the Company's TAF as outlined on page 40 of Exhibit B, Tab 1, Schedule 4. However, should a program or offer no longer be cost-effective, the Company would consult with stakeholders and make changes to the portfolio as appropriate.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

VECC INTERROGATORY #1

INTERROGATORY

Topic T13 - Other

Ref: General

a. Please define Enbridge's franchise area.

b. Please list the largest urban centres in Enbridge's franchise area.

c. Please summarize the key DSM trends from past DSM program delivery that informed Enbridge's proposed 2016-2020 DSM Plan.

d. Please summarize the key lessons learned from past DSM program delivery that informed Enbridge's proposed 2016-2020 DSM Plan.

e. Please provide total number of customers in each market sector targeted in Enbridge's 2016-2020 DSM Portfolio.

f. Please provide the Rate Classes that correspond to each market sector.

g. For each proposed DSM offering in Enbridge's DSM Plan, please quantify the target market by CCM contributor and provide the forecast participation rates for each year of the DSM Plan.

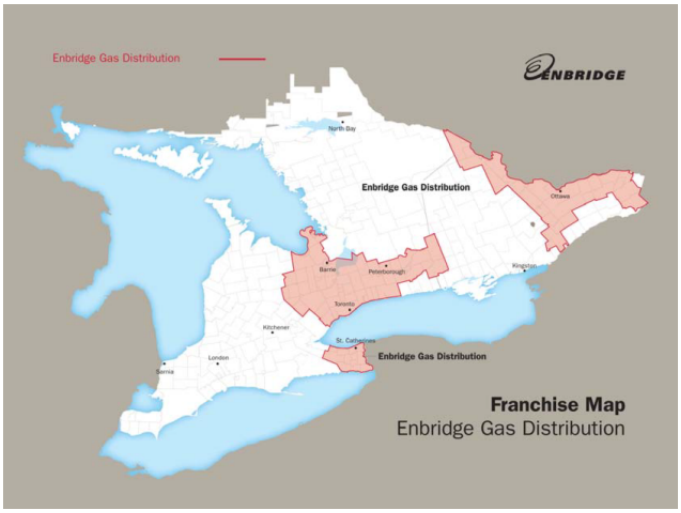
h. Please confirm the percentage of measures proposed in Enbridge's offerings that have a measure life of 10 years or more.

i. Please provide the number of new Enbridge staff positions required to delivery Enbridge's 2016-2020 DSM program and the incremental costs.

RESPONSE

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

a) Enbridge serves more than 100 communities in Ontario, including large population centres in central and eastern Ontario as well as the Niagara region. The highlighted sections below illustrate Enbridge's franchise area.



b) The largest urban centres in Enbridge's franchise area include:

- Toronto
- Ottawa
- Mississauga
- Brampton
- Markham
- Vaughan
- Richmond Hill

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

c) Please see below a table which outlines some key trends in DSM that have informed Enbridge's proposed DSM Plan:

Resource Acquisition	
Residential	- Increased interest from potential participants, industry players and municipalities - Increased interest from LDCs to explore collaboration opportunities for joint DSM/CDM delivery
Commercial	- Increasing number of projects completed per year - Decreasing savings per project year over year - Run it Right offer not yielding anticipated savings. 56M CCM were built into target assuming 12-15% savings per building, as opposed to 2-4% savings realized during implementation - Low gas prices and rising electricity and water costs make other conservation projects more attractive, especially given lucrative IESO incentives
Industrial	- Increasing number of projects completed per year - Decreasing savings per project year over year - Opportunities shifting from equipment upgrades to process improvements which yield less CCM - Increased internal competition for customer capital

Low Income	
Part 9 Single Family	- Social housing units are generally smaller than privately owned homes, meaning the savings potential is smaller - Overburdened social housing staff are sometimes challenged in terms of timing / availability
Part 3 Multi-Res	- Retrofit program fatigue as result of government stimulus funding from 2009 to 2011 - Toronto Community Housing issues have hindered results in this sector (organizational changes, limited capital budgets, etc.) - Privately owned multi-residential buildings with a high proportion of low income tenants are a difficult to reach segment of the market

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

Market Transformation	
SBD Residential	- Builders struggle to sell energy efficient homes - Ability to complete the IDP process multiple times would have a deeper and longer lasting effect on builder culture / practices - Increased interest in sustainable site design
SBD Commercial	- 100,000ft2 threshold for participation is restricting interested buildings, especially in situations where developers have 'cookie cutter' designs for smaller buildings (e.g. banks, retail) - Architects / engineers can perceive program as taking away their expertise
Home Labeling	- Brokers are supportive, but individual agents may view energy labels as a barrier to sale of the home - Provincial government remains non-committal on a mandatory approach - Home purchases are often competitive bidding processes, where energy efficiency is a very low priority for buyers and sellers

d) As described in the evidence, at Exhibit B, Tab 3, Schedule 2, Enbridge undertook a significant amount of Stakeholdering to hear from a variety of market participants, including customers, stakeholder groups, business partners, local electric distribution companies, associations, and governmental organizations. Key themes from those meetings are documented in the evidence. Aside from formal Stakeholdering, Enbridge has almost daily contact with all of these groups as it undertakes to deliver its DSM programs.

Through its own experience in the marketplace, Enbridge has also identified many barriers for each of its customer segments on a variety of issues. These barriers are addressed in the evidence in Exhibit B, Tab 2, Schedule 1, along with Enbridge's view as to how each program addresses the identified barriers, or key lessons learned. As a result, Enbridge has proposed amendments to several existing programs, and also new programs altogether to address these barriers.

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

e) Please see below the anticipated breakdown of Enbridge customers in 2016, segmented by market sector. Identifying quantifying the low income sector is highly challenging and as a result this segment has not been represented below.

2016	
Residential	1,971,943
Commercial	152,307
Industrial	6,096
Total	**2,130,346**

f) Please find the market sector / type attributable to each rate class:

Bundled Services:

Rate Class	Type
1	Residential
6	Apartment
	Commercial
	Industrial
9	Container Service
100	Apartment
	Commercial
	Industrial
110	Apartment
	Commercial
	Industrial
115	Commercial
	Industrial
135	Commercial
	Industrial
145	Apartment
	Commercial
	Industrial
170	Commercial
	Industrial
200	Wholesale

Unbundled Services:

Rate Class	Type
125	Power Plant
300	Apartment
	Commercial
	Industrial

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

g) Please see Enbridge's response to Board Staff Interrogatory #7, filed as Exhibit I.T2.EGDI.STAFF.7, for a breakdown of the Company's forecast CCM contributions.

h) Of Enbridge's prescriptive measures 94% have measure lives of 10 years or greater. Of the Company's custom measures 77% have measure lives of 10 years or greater.

i) Please see Enbridge's response to Consumers Council of Canada Interrogatory #5 found at Exhibit I.T3.EGDI.CCC.5 for commentary relating to increased resourcing to delivery DSM programs.

Witnesses: M. Lister
K. Mark
S. Moffat
F. Oliver-Glasford
B. Ott

VECC INTERROGATORY #6

INTERROGATORY

Topic 13 – Other

Ref: B-1-2 Page 6 Preamble: Enbridge engaged in a half-day discussion and discovery session with Union Gas Limited (Union Gas) to consider how to best align methodologies where feasible.

a) When was the session held?

b) Please summarize the timing of any additional discovery sessions held with Union Gas regarding Union and Enbridge's 2015-2020 DSM Plans.

c) Please discuss the opportunities for alignment between Enbridge and Union Gas.

RESPONSE

a) The joint Enbridge/Union Gas program discovery session was held on August 13, 2014.

b) An additional discussion was held with Union Gas to share Enbridge's experience thus far and discuss possible methodology for an Integrated Resource Planning ("IRP") study on Monday, January 12, 2015. Ongoing informal touch points occur at a number of levels within the DSM organization for discussion, and alignment where appropriate.

c) Opportunities for alignment between the two gas utilities include sharing of primary research findings, technical research and, as appropriate, offer details.

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

VECC INTERROGATORY #25

INTERROGATORY

Topic 13 - Other

Ref: B-3-4 Page 2 DSM Potential Study

Preamble: Enbridge indicates that the level of Enbridge's endorsement of the Potential Study found at C-1-1 may vary amongst the specific areas examined.

a) Please explain this statement more fully.

RESPONSE

Inherent to many potential study results and as indicated in EB-2015-0049, Exhibit C, Tab 1, Schedule 1, page 1 Section 1.3.1 Forecasting Limitations *"Model calibrations steps (e.g., comparing forecast results with achieved results) seek to ground the forecasts in the real world, but inaccuracies are bound to exist the further one drills into any particular technology or segment, even if the aggregate results are considered to be reasonable."*

By way of example, in the Low Income sector it is often difficult to identify buildings as "low income", resulting in uncertainties regarding the gas volumes allocated to this sector. This creates a risk of inaccuracy regarding Low Income potential because gas volumes are a key input into determining the potential results. However, any over or under estimate of gas volume allocation to the Low Income sector is counterbalanced by a corresponding under or over estimate of the gas volumes allocated to the residential and multi-res commercial sectors.

Witnesses: S. Mills
F. Oliver-Glasford
B. Ott
C. Welch

VECC INTERROGATORY #26

Topic 13 - Other

Ref: B-3-5 Carbon Pricing Preamble: Enbridge believes that it is appropriate to claim ownership of residential emission reductions as it is in a position to act as aggregator.

a) Please discuss if Enbridge has undertaken any research in other jurisdictions or stakeholder consultations to inform its position on carbon pricing.

b) By way of example, please explain more fully how residential DSM customers could use the economic value of their carbon emission reductions to increase the DSM incentives.

RESPONSE

a) Enbridge has not undertaken any research in other jurisdictions or stakeholder consultations to inform its position on carbon pricing. Quite simply, Enbridge sees a potential opportunity to provide a value added role for our residential customers on this currently crystalizing issue.

b) While Enbridge has not conducted any specific jurisdictional research or stakeholder consultations, the Company has had informal discussions with customers and associations on the potential ownership of carbon credits. As indicated in Exhibit B, Tab 3, Schedule 5, Enbridge understands that ownership of carbon credits may be an important issue for businesses and as such, one potential idea would be for all rate classes other than R1 to own the carbon credits facilitated by a DSM project or undertaking. As of yet, a clear Ontario approach to Carbon has not yet been released, and so the Company remains open to exploring different alternatives once the Provincial government establishes its carbon policy, framework, rules, guidelines, or any other direction that may forthcoming.

   The Company would be prepared to capture the CO_2 credit value associated with the residential Rate 1 DSM activity within the Carbon Dioxide Offset Credits Deferral Account ("CDOCDA").

Witnesses: S. Mills
F. Oliver-Glasford
B. Ott

VECC INTERROGATORY #29

INTERROGATORY

Topic 13 - Other

Ref: B-4-2 Page 2 Collaboration and Innovation Fund

a) Please provide the criteria used to determine the initiatives that are eligible for funding.

RESPONSE

The Collaboration and Innovation Fund is a new idea premised on the evolving electricity conservation market and the Board priorities and as such is expected to evolve over the course of this proceeding and the multi-year plan. However, Enbridge has developed a filter for assessing initiatives against the following objectives:

- Has it been endorsed/approved by the IESO?
- Will it be straightforward to integrate/collaborate this initiative?
    - This objective refers to the ease in which the gas and electric initiative can be integrated.
- Will it address a new or unsaturated market opportunity?
- Is it innovative – either in approach or technology?
- Does it improve the customer's ability to access conservation programming?
- Does it broaden the reach of conservation programming?
- Does it aid in using program dollars more effectively?

Witnesses: M. Lister
F. Oliver-Glasford
B. Ott

VECC INTERROGATORY #30

INTERROGATORY

Topic 13 – Other

Ref: C-1 Schedules 1-4

a) Please provide the cost of each report.

b) Please indicate the method to retain Navigant Consulting Inc. to prepare each applicable report? (i.e. sole source, RFP)

RESPONSE

a) With respect to Exhibits C, Tab 1, Schedule 1 and C, Tab 1, Schedule 2, please refer to BOMA Interrogatory #50 found at Exhibit I.T13.EGDI.BOMA.50. With respect to Exhibit C, Tab 1, Schedule 3 please refer to CCC Interrogatory #19 found at Exhibit I.T12.EGDI.CCC.19. The total project cost for Exhibit C, Tab 1, Schedule 4 the Avoided Distribution Costs Study was $49,820.

b) With respect to Exhibits C, Tab 1, Schedule 1 and C, Tab 1, Schedule 2, Navigant was retained following an RFP process. It is anticipated that Exhibit C, Tab 1, Schedule 3 will be issued through an RFP process once the Ontario Energy Board's decision on EB-2015-0049 is received. Exhibit C, Tab 1, Schedule 4 was issued on a sole sourced basis to Navigant Consulting as the Avoided Distribution cost was a time sensitive input required to conduct a sensitivity analysis for the Natural Gas Energy Efficiency Potential Study.

Witnesses: S. Mills
F. Oliver-Glasford
B. Ott
C. Welch