Enbridge
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Chatham, Ontario, Canada
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February 19, 2019

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

Dear Ms. Walli:

Re: EB-2018-0300 – Enbridge Gas Inc. (Operating as Union Gas) - 2016 Disposition of Demand Side Management Deferral and Variance Accounts
EB-2018-0301 – Enbridge Gas Inc. (Operating as Enbridge Gas Distribution) - 2016 Disposition of Demand Side Management Deferral and Variance Accounts

On November 30, 2018 and December 10, 2018, Union Gas Limited ("Union") and Enbridge Gas Distribution Inc. ("EGD") respectively filed applications for an order or orders of the Ontario Energy Board ("OEB" or the "Board") seeking approval to dispose of 2016 balances in their Demand Side Management ("DSM") deferral and variance accounts. On January 1, 2019, EGD and Union amalgamated to become Enbridge Gas Inc. ("Enbridge Gas").

As the applications are being heard by the OEB on a combined basis,[1] and pursuant to the OEB's Procedural Order No.1 dated January 21, 2019, Enbridge Gas has compiled all responses to interrogatories in the attached combined package. Responses to interrogatories directed to each of the above noted proceedings, EB-2018-0300 (Union) and EB-2018-0301 (EGD), are clearly identified throughout. These responses will be delivered to parties by email, will be filed on the OEB's RESS, and copies will be sent by courier to the OEB.

As stated in the responses at Exhibit C.STAFF.EGD.2, Exhibit C.SEC.EGD.1, Exhibit C.SEC.EGD.6, Exhibit C.STAFF.Union.2 and Exhibit C.SEC.Union.20, live Excel spreadsheets have been provided to the requesting party via email, copying the OEB. Other parties who wish to receive a copy of the live Excel spreadsheets can contact Enbridge Gas directly.

[1] EB-2018-0300 / EB-2018-0301, OEB Letter of Direction, December, 21, 2018.

If you have any questions with respect to this submission please contact me at 519-436-4558.

Yours truly,

[original signed by]

Adam Stiers
Technical Manager, Regulatory Applications

Encl.

c.c.: Dennis O'Leary (Aird & Berlis)
Myriam Seers (Torys)
EB-2018-0300/EB-2018-0301 Intervenors

Enbridge Gas Inc.
(Operating as Enbridge Gas Distribution)
EB-2018-0301

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
Board Staff ("STAFF")

Reference: Exhibit B, Tab 1, Schedule 1, Page 8 of 18, Paragraph 19

Question: Enbridge Gas has requested approval of audit-adjusted 2016 targets and makes reference to a number of OEB documents to support its position.

a) Please provide a direct reference to an OEB statement indicating that the approved 2016 targets would be subject to any adjustments.

Response:

Enbridge Gas has identified three places where the OEB has addressed targets in its 2015-2020 DSM Plan Decisions:

i. "To calculate next year's targets, the OEB directs the utilities to use the new, updated input assumptions and net-to-gross factors that are the result of the annual evaluation process. The OEB finds it appropriate to use the best available information to determine subsequent targets for prescriptive programs."[1] The OEB did not exclude the 2016 DSM program year from this directive.

ii. The OEB goes on to state that with regard to custom programs, *"*In 2016, the free rider rates will be updated based on the results of the [2015] net-to-gross study and the annual evaluation process*"*.[2]

iii. On February 3, 2016, Union submitted Written Comments to the OEB specific to Section 9.5 of the Board's decision on the Utilities' 2015-2020 DSM Plans. Union sought clarification of the timing of new and updated input assumptions as it related to the annual audit process. Union put forward its interpretation of the Board's decision:

[1] EB-2015-0029/0049, Decision and Order, January 20, 2016, p. 75.
[2] EB-2015-0029/0049, Decision and Order, January 20, 2016, p. 21.

> "…to mean that input assumptions and net-to-gross adjustment factors are finalized for a given year based on the previous year's final DSM audit…for the purpose of determining Union's 2016 DSM Incentive, the 2016 results will use the same input assumptions and net-to-gross adjustment factors that were used to determine Union's 2016 targets."[3]

Subsequently, within its revised decision on the Utilities' 2015-2020 DSM Plans and in response to Union's written comments, "The OEB confirm[ed] that Union's interpretation is correct."[4]

The Board confirmed the above interpretation yet again in its 2015 Clearance Decision dated July 12, 2018 (EB-2017-0324). Specifically, at page 6 of its Decision the Board stated:

> "Union Gas submitted that it interpreted the OEB's 2015-2020 DSM Decision to mean that input assumptions and net-to-gross adjustment factors are finalized based on the previous year's audit…On February 24th, 2016, the OEB issued a revised decision on the 2015-2020 DSM Plans confirming Union Gas' interpretation."

Consistent with this OEB guidance, both utilities have adjusted the 2016 gas savings targets for each of the EGD rate zone and Union rate zones as described in each of the utilities' 2016 DSM Deferral and Variance Account Applications.[5]

[3] EB-2015-0029, Union Gas Limited Written Comments, February 3, 2016, pp. 2-3.
[4] EB-2015-0029/0049, Revised Decision and Order, February 24, 2016, p.3
[5] EB-2018-0301 Exhibit B, Tab 1, Schedule 1, pp. 2-7; EB-2018-0300 Exhibit A, Tab 2, pp. 3-9.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
Board Staff ("STAFF")

Reference: Exhibit B, Tab 2, Schedule 1, Page 144 of 245, Table 10.3 – DSMVA Determination: 2016 Spending vs. Amount Built Into Rates

Question: Enbridge Gas has provided details on its DSMVA balance, approved 2016 budget and actual 2016 spending.

a) In excel format, with all cells open and calculations visible and accessible, please expand "Table 10.3 – DSMVA Determination" to show the spending for each program compared to the OEB approved budget for that program (incorporating data from Table 10.1 is satisfactory). In addition to the expanded Table 10.3, please provide clear details on where program funding was shifted from one program to another. Further, where a program budget changed, please indicate the reasonableness for increasing that program budget with reference to need, program performance and timing of when the budget increases were required.

Response:

Table 10.1 is presented below with additional detail that shows the movement of program funding along with the DSMVA. Column F is the only calculated value and the formula is shown at the top of the column. The Excel spreadsheet of the table below has been provided directly to Board Staff via email. Other parties who wish to obtain the Excel spreadsheet can contact Enbridge Gas directly.

No program budgets changed, but where actual spending differed materially from the OEB-approved budget, the explanation can be found in the response at Exhibit C.SEC.EGD.19.

A		B	C	D	E	F
Program	**Offer**	**OEB Approved Budget (Built Into Rates)**	**2016 Spending**	**Variance**	**Re-allocation**	**DSMVA**
Resource Acquisition		**$34,336,673**	**$38,867,717**	**$4,531,044**		**=C-B-E**
	Home Energy Conservation	*$12,148,317*	*$22,057,458*	*$9,909,141*	*$3,644,495*	*$6,264,646*
	Residential Adaptive Thermostats	*$876,371*	*$1,666,753*	*$790,382*	*$262,911*	*$527,471*
	Commercial & Industrial Prescriptive	*$2,196,952*	*$1,001,671*	*-$1,195,281*	*-$659,086*	*-$536,195*
	Commercial & Industrial Custom	*$7,020,664*	*$6,746,119*	*-$274,545*	*-$274,545*	*$0*
	Commercial & Industrial Direct Install	*$4,955,421*	*$2,390,902*	*-$2,564,519*	*-$1,486,626*	*-$1,077,892*
	Small Commercial New Construction	*$396,933*	*$0*	*-$396,933*	*$0*	*-$396,933*
	Energy Leaders (Large & Small C/I)	*$400,000*	*$73,775*	*-$326,225*	*-$120,000*	*-$206,225*
	Run it Right (RA)	*$1,260,162*	*$300,962*	*-$959,200*	*-$378,049*	*-$581,152*
	Comprehensive Energy Management (RA)	*$48,805*	*$0*	*-$48,805*	*-$14,642*	*-$34,164*
	Overheads	*$5,033,048*	*$4,630,077*	*-$402,971*	*-$402,971*	*$0*
Low Income		**$11,945,410**	**$8,732,572**	**-$3,212,838**		
	Home Winterproofing	*$5,806,064*	*$4,543,350*	*-$1,262,714*	*-$56,934*	*-$1,205,780*
	Low-Income Multi-Residential Affordable Housing	*$3,279,028*	*$2,326,325*	*-$952,703*	*-$56,934*	*-$895,769*
	Low-Income New Construction	*$1,116,696*	*$258,877*	*-$857,819*	*-$335,009*	*-$522,810*
	Overheads	*$1,743,622*	*$1,604,019*	*-$139,603*	*-$139,603*	*$0*
Market Transformation		**$6,579,034**	**$6,377,381**	**-$201,653**		
	Residential Savings by Design	*$3,250,842*	*$3,469,121*	*$218,279*	*$218,279*	*$0*
	Commercial Savings by Design	*$1,345,890*	*$1,398,940*	*$53,050*	*$53,050*	*$0*
	School's Energy Competition	*$302,197*	*$289,555*	*-$12,642*	*-$12,642*	*$0*
	Run it Right (MT)	*$250,824*	*$225,819*	*-$25,005*	*-$25,005*	*$0*
	Comprehensive Energy Management (MT)	*$464,930*	*$106,806*	*-$358,124*	*-$139,479*	*-$218,645*
	Overheads	*$964,351*	*$887,140*	*-$77,211*	*-$77,211*	*$0*
Program Cost Subtotal		**$45,120,096**	**$46,856,434**	**$1,736,338**		
Overhead Subtotal		**$7,741,021**	**$7,121,236**	**-$619,785**		
Porfolio Overheads		**$3,500,000**	**$1,670,616**	**-$1,829,384**	**$0**	**-$1,829,384**
Total		**$56,361,117**	**$55,648,285**	**-$712,832**	**$0**	**-$712,832**

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
Board Staff ("STAFF")

Reference: Exhibit B, Tab 4, Schedule 1 – Rate Allocation and Clearance of 2016 DSM Balances

Question: Enbridge Gas has requested approval to recover its 2016 DSM deferral and variance account balances from rate payers as a one-time adjustment within the next available QRAM following the OEB's Decision and Order.

a) Please confirm that Enbridge's proposed cost allocation and disposition methodologies are consistent with prior year OEB Decisions. If there are any instances where Enbridge has made changes, please clearly identify where changes have been made and provide justification.

Response:

Confirmed.

EGD's cost allocation and disposition methodologies for the 2016 DSM deferral and variance account balances are consistent with prior year OEB Decisions.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Reference: Exhibit B, Tab 3, Schedule 1, page 9 of 51

Preamble: The Evaluation Contractor states that: "Explicit documentation was not available for all program stages for programs such as Enbridge's Market Transformation Run It Right program. In that program, there was no documentation for participants moving to step 4 of the program (see Appendix H), only documentation that the participants had completed step 3 and utility confirmation that this is equivalent to engagement in step 4. Similar recommendations are included in section 5.1.2 for whole home simulation modeling programs."

In their response, EGD states, inter alia: "Enbridge believes it collects documentation sufficient to support results for non-savings metrics."

Question:

a) Please confirm that EGD is not actioning this recommendation from the EC.

b) If (a) is confirmed, please state why EGD does not believe any action is warranted, given that the outcome provided by the EC does not state that it was impossible for the EC to come to a conclusion regarding non-savings metrics, but that it would reduce burden on utility staff and reduce evaluation costs.

Response

a) Not confirmed. Although EGD maintains its position that the eligibility criteria were met for the Run it Right program in 2016, which supported customers transitioning into step 4 (the monitoring phase), further enhancements were in-fact made to support the recommendation made by the Evaluation Contractor. In an effort to continuously improve the program and the documentation tracked for participants, EGD added documentation to substantiate that the Energy Management Information System is in place to support monitoring.

b) Please see the response to part a) above.

ENBRIDGE GAS INC.
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Answer to Interrogatory from
Green Energy Coalition ("GEC")

Question:

Enbridge and Union have highlighted in the 2016 Clearance applications that there is a dispute between the utilities, OEB Staff and some other parties regarding interpretation of past OEB guidance with respect to whether the 2015 Custom Program NTG adjustments should be used to revise the 2016 target (as well as to estimate 2016 actual results for comparison to the target). Putting aside the interpretation of that guidance, do the companies believe, as a matter of policy (whether currently or in the future), that it is appropriate for NTG adjustments used to estimate actual savings from Custom C&I projects in a given year also be used to adjust savings targets for such Custom C&I projects in future years? If so, please explain the policy rationale for doing so.

Response:

As a matter of policy, as discussed in the utilities' 2015 Clearance of Deferral and Variance Accounts proceedings (EB-2017-0323/EB-2017-0324), Enbridge Gas believes that the current approach to the measurement of NTG is problematic and its application to both targets and results needs further consideration.[1]

Enbridge Gas is beginning to turn its attention to the post-2020 DSM framework. Without a complete picture of what the DSM framework will be, it is premature for Enbridge Gas to comment on what recommendation will be brought forward in its post-2020 DSM plan.

[1] EB-2017-0323, Exhibit A, Tab 2, pp. 36 – 40; EB-2017-0324, Exhibit A, Tab 1, Schedule 3, pp. 29 – 46.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Question:

Regarding B/1/1 p. 9, in addition to providing "details of the change to the August 1 revised scorecard" as requested in SEC Interrogatory 5, please also provide an Excel spreadsheet, with all assumptions and formulae intact, that shows how the change was computed.

Response:

Please see the response at Exhibit C.SEC.EGD.5 for detail of the change to the August 1st revised scorecard.

Please see Exhibit C.SEC.EGD.1.Attachment 1 for the calculation of the corrected 2016 adjusted targets.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Question:

Please calculate the requested clearance values assuming that 2016 targets are adjusted for the updated NTG values only for truly custom programs (i.e. for custom programs that are not simply a program where customers choose from a menu of prescriptive measure options with minimal utility staff involvement).

Response:

The requested clearance values presented in EGD's pre-filed evidence have been determined in the manner requested above. EGD calculated the adjusted 2016 target values by updating the NTG values for its custom offers, specifically, Commercial and Industrial Custom and Run It Right, which were also considered custom offers in the 2015 NTG Study. Enbridge made no adjustment to the NTG values already applied to prescriptive offers in the 2016 targets.

Details regarding the 2016 target adjustment calculation can be found in the response at Exhibit C.SEC.EGD.1.Attachment 1.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Question:

Enbridge argues that the OEB intended for Custom C&I NTG adjustments applied to estimates of actual 2015 savings also be used to adjust 2016 goals. If that was the case, why was there not a transparent calculation of 2016 goals by program type – i.e. so that a single NTG assumption change in an Excel spreadsheet could be inserted with the rippling effects on performance metrics subsequently and transparently computed – filed by the utilities and in the public record? In other words, why did Enbridge have to go through a series of calculations, involving several assumptions as described in B/1/1 pp. 10-11 (paragraphs 25-27) to estimate the impact of applying the 2015 Custom C&I NTG values on 2016 targets?

Response:

For a more detailed explanation of why EGD was required to update the 2016 targets, based on the Board's direction, please see the response at Exhibit C.STAFF.EGD.1.

The need for EGD to go through a series of calculations, as outlined at Exhibit B, Tab 1, Schedule 1 pp. 10-11, was a result of a number of differences between the 2015 and 2016 Resource Acquisition program scorecards.

For the 2015 DSM program year, with 2015 being a roll-over/transition year from 2014, EGD had only a single overall CCM volume metric in its Resource Acquisition scorecard which incorporated all m^3 related achievements from all of the various Resource Acquisition offers into a single target, including the Custom C/I offers. In contrast, beginning with EGD's 2016 DSM program year, EGD's Resource Acquisition scorecard design included separate metrics for Large and Small volume results. The free-ridership values proposed in the 2015 NTG Study outcome did not segment/differentiate free-ridership rates based on customer volume segmentation (e.g., large and small volume categories). Consequently, calculations needed to be incorporated to adjust for this difference.

In addition, the 2015 NTG Study was completed such that the grouping of free-ridership factors proposed by the EC (DNV GL) were not the same as the groupings that were previously considered in the 2015 or 2016 targets. The groupings in the 2015 NTG

Study were determined by DNV GL, despite EGD's recommendation that they be maintained as previously reported. To illustrate, the custom targets previously reflected net amounts which were based on five distinct free-ridership values for custom C/I, broken out by sector (Commercial, Multi-Residential, New Construction, Industrial and Agriculture). In the 2015 NTG Study, however, new free-ridership rates were determined across a different custom customer population segmentation, termed "domains" in the 2015 NTG Study. Additionally, these groupings/domains proposed by DNV GL were not differentiated by large and small volume customer types, thus calculations needed to be performed to apply (map) the 2015 NTG Study findings to the 2016 targets.

It was the result of the realities of how DNV GL proposed new NTG values (segmented differently than the previous values), in combination with the different scorecard designs from 2015 and 2016, that EGD was required to complete "mapping" calculations. EGD is not aware whether DNV GL considered the Board's prior guidance, and the need for consistency in the reporting of NTG values to enact this guidance, when it issued its 2015 NTG Study.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Question:

Given that there may be new NTG results available for the 2017 and 2018 program periods, what vintage of NTG values does the company propose be used for the custom targets for those years that will be used to calculate DSM account clearances?

Response:

In accordance with the direction provided by the Board regarding the application of the target adjustment mechanism, 2017 custom program targets will be determined using the same NTG values as those used to determine 2016 custom program results. 2018 custom program targets will use the same NTG values as those used to determine 2017 custom program results.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit B, Tab 4, Schedule 1, page 2

Question: Are the allocation methodologies used by Enbridge for the allocation of the 2016 DSM deferral and variance account balances to rate classes generally consistent with the allocation methodologies used by Union Gas? If not, please explain any significant differences.

Response:

The allocation of the 2016 DSM deferral and variance account balances is generally consistent between the EGD rate zone and Union rate zones, with the exception of the pooling of Rate M4, Rate M5 and Rate M7 DSM budget costs and DSMVA balances, which is only applicable to the Union rate zones. Please see the response at Exhibit C.LPMA.Union.1 for additional detail regarding pooling.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
Ontario Sustainable Energy Association ("OSEA")

Reference: Exhibit B, Tab 2, Schedule 1, Page 146 of 245

Question:

a) What are the sources of the input assumptions used in the Technical Resource Manual?
b) What is the number and proportion of input assumptions based on Canadian data?
c) What is the number and proportion of input assumptions based on Canadian data for natural gas utilities?
d) What is the number and proportion of input assumptions based on US data?
e) What is the number and proportion of input assumptions based on US electrical utilities' data?
f) What is the number and proportion of input assumptions based on US natural gas utilities' data?
g) What is the number and proportion of input assumptions based on US in comparable climates as Ontario data?
h) What is the number and proportion of input assumptions based on US natural gas utilities' data that are in US States where the heating load is less than ¼ of the total natural gas load?

Response:

a) Sources of input assumptions used in the Technical Reference Manual, which is available on the OEB's website,[1] are contained in Attachment 1. Where an assumption has been made that is not publicly available, it has been explained.

   As noted in the TRM, sources for the overarching common input assumption used in multiple substantiation documents are provided for the following categories:
   - Gas Properties
   - Physics Properties

[1]Natural Gas Demand Side Management Technical Resource Manual, Version 3.0, November 30, 2018: http://www.rds.oeb.ca/HPECMWebDrawer/Record/627797/File/document.

- Conversion factors
- Building Use and Occupancy
- Weather & Water (Ontario specific)
- Water Heating Assumptions/Set points (Canada specific)
- Space Conditioning Assumptions/Set points (American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) principles, or Ontario based studies)

Aside from food service technologies, the sources for these common input assumptions are either Ontario specific, are standard engineering practices as found in ASHRAE, or are otherwise scientifically accepted properties/conversion factors.

b) There are 27 citations referenced in the Common Input Assumptions table, and 340 citations supporting the prescriptive/mass market technologies included in the TRM. It is unclear how much each source file is based on data versus engineering principles, evaluation efforts, or known common data. For example, all weather data underpinning technology savings in the TRM rely on weather data from London, Ontario, while individual ASHRAE standards may or may not be based on actual data. Based solely on the count of the citations listed in the TRM, it would appear that 166 of 367 come from Canadian sources.[2]

It is worth clarifying that the Introduction section of the TRM does provide some "Additional Notes" to further elucidate the question of source information:[3]

> This TRM includes prescribed (prescriptive and quasi-prescriptive) savings estimates that are expected to serve as average, representative values for the province of Ontario. All information is presented on a per-measure basis. In using the measure-specific information in this TRM, it is important to keep the following notes in mind:
> •Measure lives serve to represent the Ontario market and include measure persistence unless otherwise noted.
> •In general, the baselines included in the TRM are intended to reflect average practices and conditions in Ontario.

And, the TRM introduction also includes the following description of sources/references:[4]

[2] Citations may reference a source document more than once.
[3] Natural Gas Demand Side Management Technical Resource Manual, Version 3.0, November 30, 2018, pp. 9-10.
[4] Natural Gas Demand Side Management Technical Resource Manual, Version 3.0, November 30, 2018, p. 9.

> This TRM aims to provide best available and substantiated information collected at the time of its production. References (many available online) to documents are provided for each key assumption. Examples of references deemed appropriate for this TRM include:
>
> •Efficiency program evaluations conducted both in Ontario and other jurisdictions within Canada and United States;
>
> •Government studies on the performance and/or cost of efficiency technologies – within Ontario, other parts of Canada, the U.S. or outside North America when applicable;
>
> •Other published research on the performance and cost of efficiency measures; within Ontario, other parts of Canada, the U.S. or outside North America when applicable;
>
> •Information collected directly from key technology manufacturers and/or other parts of the supply chain for the technology in Ontario (e.g. distributors, contractors, etc.)

c) Of the 166 Canadian citations noted above, 57 were either commissioned by or contain data specific to EGD/Union. No other Canadian natural gas utilities have been cited.

d) Of the 367 citations, 131 are from the USA and an additional 35 are from the ASHRAE. Although ASHRAE originated as an American association, it is now a global professional association dedicated to improving the engineering principles and standards for building services engineering, energy efficiency, indoor air quality, and sustainable development. Given this distinction, the 35 ASHRAE references were not counted towards USA sources.

e) Of the 367 citations listed in the TRM, 8 appear to be specific to electricity utilities, while 7 were commissioned for US combined gas & electric utilities or utility commissions, and there are 12 citations for the California Public Utility Commission's (CPUC) Database for Energy Efficiency Resources (DEER). In aggregate, these would equate to 27 citations.

f) Of the 367 citations listed in the TRM, 3 appear to be from US natural gas utilities. As noted above, there are an additional 7 citations for combined gas & electric utilities, and 12 from the CPUC's DEER. In aggregate, these would equate to 22 citations.

g) Input assumptions that relate to weather sensitive data, as noted in the common input assumptions table, are based on London, Ontario weather data.

h) Please see the response to part g) above.

Common Input Assumption

Gas Properties/Physics Properties/Energy Conversions					Origin
Input Variable	**Assumption**	**Units**	**Source / Comments**	**Affected Subdocs**	
Energy density of natural gas	35,738	Btu/m^3 mmBtu/m^3 m^3/mmBtu MJ/m^3	RATE CHANGE #94, EB-2011-0354/EB-2013-0295 The source of the heat content for natural gas is the rate case as approved by the OEB	All Measures	Ontario
Conversions					
Conversion of Btu/kWh	3,412	Btu/kWh	https://www.extension.iastate.edu/agdm/wholefarm/pdf/c6-86.pdf	All Measures	Globally accepted conversion factor
Conversion of kW/HP	0.7457	kW/HP	https://www.extension.iastate.edu/agdm/wholefarm/pdf/c6-86.pdf	All Measures	Globally accepted conversion factor
Physics Properties					
Acceleration due to gravity	2.2 ft/sec^2 (9.8 mp	ft/sec^2	http://www.engineeringtoolbox.com/accelaration-gravity-d_340.html	Commercial Air Curtains	Globally accepted factor

Fluid Properties				Origin
Property	**Assumption**	**Units**	**Source / Comments**	**Affected Subdocs**	
Specific heat capacity of water	1.0000	Btu/lb ˚F	CSA P.3-04 Standard, Testing Method for Measuring Energy Consumption and Determining Efficiencies of Gas-Fired Storage Water Heaters.	Residential Tankless Water Heater Commercial ENERGY STAR Dishwasher Residential High Efficiency Water Heater	Canada
Density of water (@ 100 F)	8.2900	lb/gal (US gallon)	http://www.engineeringtoolbox.com/water-specific-volume-weight-d_661.html	Residential Tankless Water Heater Commercial ENERGY STAR Dishwasher Residential High Efficiency Water Heater	Globally accepted conversion factor
Density of exhaust air (@ 72 F, 50% RH)	0.0740	lb_m/ft^3	Air density calculated based on space temperature temperature setpoint in the common assumptions below. Exhaust air will be at the space conditions. Based on approach in ASHRAE Systems and Equipment Handbook 2012, Chapter 26	Commercial ERV Commercial HRV	Globally accepted factor

Building Use and Occupancy					Origin
Input Variable	**Assumption**	**Units**	**Source / Comments**	**Affected Subdocs**	
Average single family residential household size	2.9	residents/house	Enbridge, Results of "Residential Market Survey 2013", http://www12.statcan.ca/census-recensement/2006/dp-pd/tbt/Rp-eng.cfm?LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=0&GID=837983&GK=0&GRP=1&PID=89071&PRID=0&PTYPE=88971,97154&S=0&SHOWALL=0&SUB=0&Temporal=2006&THEME=69&VID=0&VNAMEE=&VNAMEF=	Residential Showerheads (Single and Multiresidential) Residential Faucet Aerators (Kitchen and Bathroom) Residential High Efficiency Water Heater	Enbridge
Average multi-residential household size	1.96	residents/house	Enbridge, Results of "Residential Market Survey 2013", (Calulcated by determining the weighted average between buildings over 5 stories and buildings of five stories or less) http://www12.statcan.ca/census-recensement/2006/dp-pd/tbt/Rp-eng.cfm?LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=0&GID=837983&GK=0&GRP=1&PID=89071&PRID=0&PTYPE=88971,97154&S=0&SHOWALL=0&SUB=0&Temporal=2006&THEME=69&VID=0&VNAMEE=&VNAMEF=	Residential Showerheads (Single and Multiresidential)	Enbridge
Food service days per year	312	days	http://www.fishnick.com/equipment/techassessment/Appliance_Tech_Assessment.pdf , (typical operating hours of equipment 6 days per week, 52 weeks per year)	Commercial Cooking Measures (Underfired Broilers, Steamers, Fryers, and Convection Ovens) Commercial ENERGY STAR Dishwasher	USA

Weather/Water Assumptions				Affected Subdocs	Origin
Input Variable		**Assumption**	**Units**	**Source / Comments**		
Average city or inlet water temperature		9.39 C (48.9 F)	deg C (deg F)	Average of findings in two studies, adjusted for Toronto water inlet temperature. Mayer, P. W. et al, Residential Indoor Water Conservation Study: Evaluation of High Efficiency Indoor Plumbing Fixture Retrofits in Single-Family Homes in East Bay Municipal Utility District Service Area, 2003 and Skeel, T. and Hill, S. Evaluation of Savings from Seattle's "Home Water Saver" Apartment/Condominium Program, 1994. Both cited in: Summit Blue (2008).From Faucet Aerator (Residential Bathroom)	Commercial Pre-Rinse Spray Nozzle Residential Tankless Water Heater Residential Faucet Aerators (Kitchen and Bathroom) Residential High Efficiency Water Heater Commercial Ozone Laundry	USA
Water Heating Assumptions/Setpoints				**Affected Subdocs**	**Origin**
Input Variable		**Assumption**	**Units**	**Source / Comments**		
Domestic hot water factory set tank temperature	Commercial (for some facility types)	60 C (140F)	deg C (deg F)	http://www.nrcan.gc.ca/sites/oee.nrcan.gc.ca/files/pdf/publications/infosource/pub/home/Heating_With_Gas.pdf, page 20	Commercial Pre-Rinse Spray Nozzle Commercial ENERGY STAR Dishwasher	Canada
	Residential	48.9 C (120F)	deg C (deg F)	EGD contacted manufacturers in 2014 regarding the High Efficiency Water Heating sub-doc hot water temperature factory setting. They state residential storage water heaters are preset at 120 deg F.	Residential Tankless Water Heater Residential Faucet Aerators (Kitchen and Bathroom) Residential High Efficiency Water Heater	Enbridge
Natural gas storage tank water heater	Recovery Efficiency (Residential)	78.68%		Average from all models listed on NRCan. (2014).	Residential Faucet Aerators (Kitchen and Bathroom) Residential Pipe Wrap	Canada
	Thermal Efficiency (Commercial)	83.0%		Average of standard efficiency of units shipped in 2009, Caneta Research Inc., "Report For Baseline Information - TRM Development, page 5," Caneta Research, Inc, Mississauga, Ontario, August 19, 2013	Commercial ENERGY STAR Dishwasher Commercial Ozone Laundry Commercial Pre-Rinse Spray Nozzle	Ontario

Space Conditioning Assumptions/Setpoints				Affected Subdocs	Origin
Input Variable	**Asssumption**	**Units**	**Source / Comments**		
Commercial heating system efficiency (Air Systems)	80%	Thermal Efficiency	ASHRAE 90.1-2004, ASHRAE 90.1-2007, ASHRAE 90.1-2010, for units below 225 MBH (Table 6.8.1E)	Commercial Kitchen DCV Commercial DCV Commercial Destratification Fans Commercial Air Curtains Commercial ERV Commercial HRV	Globally accepted factor
Heating System Enabled (F)	12.78 C (55 F)	deg C (deg F)	Based on engineering judgment, professional experience with building design, and discussion from both ASHRAE Handbook 2013 and the Nexant ERV-HRV 2010 report: "Historically, heating degree days were reported on a 65°F basis (HDD65) due to poor insulation and low internal gains in a space... A newer building will have an even lower balance temperature with the current value of 50°F, since it will have improved insulation resulting in less heatloss." (Nexant ERV-HRV 2010 report pg. 6-40) ERS assumed a 55F balance temperature to be representative of all building types.	Commercial DCV	Globally accepted factor
OA temperature heating system enabled	33.03°F (0.6˚C)	deg C (deg F)	Average London, ON outside dry bulb temperature when temperature drops below 55F based on TMY3 weather data.Relative to a 55F balance point.	Commercial Air Curtains Commercial ERV Commercial HRV	Ontario
Heating Hours per year*	5,293	hours	Relative to a 55F balance point. Based on CWEC data for London, ON (2016). Heating hours per year is the number of hours during the year when a heating system may be enabled due to the outdoor temperature being below the balance point. The balance point is the outdoor temperature at which the heating system will be enabled because the internal gains and the building losses are at equal. Below this temperature, heat must be added to the building to maintain the indoor temperature.	Residential Pipe Wrap Commercial Destratification Fans Commercial HRV Commercial ERV	Ontario
Heating days per year	221	days	Relative to a 55F balance point. Based on CWEC data for London, ON (2016).	Commercial Air Curtains	Ontario
Effective full load heating hours commercial New Cons	1,500	hrs	25%Oversized_Infrared Analysis (Agviro Replicated) - with notes and Toronto March 4 2009 -.xls The full load heating hours is the number of hours during the year for which a heating system must operate at full load under design conditions or the peak capacity, in order for the system to satisfy the annual heating requirements of a new building.	Commercial Condensing Unit Heater Commercial Infrared Heaters	Ontario
Effective full load heating hours commercial Retrofit*	2,000	hrs	25%Oversized_Infrared Analysis (Agviro Replicated) - with notes and Toronto March 4 2009 -.xls The full load heating hours is the number of hours during the year for which a heating system must operate at full load under design conditions or the peak capacity, in order for the system to satisfy the annual heating requirements of an average existing building.	Commercial Condensing Unit Heater Commercial Infrared Heaters	Ontario
Rooftop Unit Cooling System Efficiency	13 SEER (3.81 COP - Converted to COP by dividing SEER by 3.412 Btu/W)	Btu/Watt	Ministry of Municipal Affairs and Housing-Building and Development Branch, "Supplemental Standard SB-10 (Energy Efficiency Supplement)," Ministry of Municipal Affairs and Housing, Toronto, 2011	Commercial Air Curtains Commercial Kitchen DCV	Ontario
Space Temperature Setpoint	22.2 C (72 F)	deg C (deg F)	Accepted based on engineering judgement. Typical conditions used in design projects. (Based on technical bulletin, ASHRAE 55-2013 notes that for thermal comfort purposes, temperature could range from between approximately 67 and 82 °F - https://www.ashrae.org/File%20Library/docLib/Technology/FAQs2014/TC-02- 01-FAQ-92.pdf) Is used in examples: (http://www.climatemaster.com/downloads/lc1019-ashrae-journal-climatemaster-gshp-vs-VRF_article.pdf, p.7) (Energy Management Handbook, Wayne C. Turner, Steve Doty, p. 335)	Commercial Condesing Make-Up Air Unit Commercial DCV Commercial Destratification Fans Commercial Air Curtains Commercial ERV Commercial HRV	Globally accepted factor
OA temperature cooling system enabled	77.2°F (25.1˚C)	deg C (deg F)	Average London, ON outside dry bulb temperature when temperature is above 72F based on TMY3 weather data	Commercial Air Curtains	Ontario
Inside enthalpy for cooling season	22.7 Btu/lb	Btu/lb	Enthalpy at 72°F and 30% R.H. (ASHRAE Standard 62.1-2013 recommends that relative humidity in occupied spaces be controlled to less than 65% to reduce the likelihood of conditions that can lead to microbial growth. https://www.ashrae.org/File%20Library/docLib/Technology/FAQs2014/TC-02-01-FAQ-92.pdf)	Commercial Air Curtains	Globally accepted factor
Outside enthalpy for cooling season	27.4 Btu/lb	Btu/lb	Average hourly London, ON enthalpy June-August based on TMY3 weather data. Link: http://climate.weather.gc.ca/climate_normals/normals_documentation_e.html?docID=1981 (Under the Data menu dropdown, "Canadian Weather year for Energy Calculation)	Commercial Air Curtains	Ontario

Citations of the TRM Version 3.0

Sector	Category	Measure	Decision Type	Count
Residential	**Space Heating**	**Adaptive Thermostat**	**New Construction/ Retrofit**	**18**
Reference/ Citation				Origin
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Sector	Category	Measure	Decision Type	Count
Residential	**Space Heating**	**High Efficiency Condensing Furnace**	**New Construction/ Time of Natural Replacement**	**9**
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Sector	Category	Measure	Decision Type	Count
Residential	**Water Heating**	**High Efficiency Gas Storage Water Heaters**	**New Construction**	**11**
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Sector	Category	Measure	Decision Type	Count
Residential	**Water Heating**	**Low -Flow Showerheads**	**New Construction**	**5**
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Sector	Category	Measure	Decision Type	Count
Residential	**Water Heating**	**Low-Flow Showerheads**	**Retrofit**	**5**

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Sector	Category	Measure	Decision Type	Count
Residential	**Water Heating**	**Low-Flow Faucet Aerators**	**Retrofit**	**8**

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Sector	Category	Measure	Decision Type	Count
Residential	**Water Heating**	**Pipe-Wrap**	**Retrofit**	**7**

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Sector	Category	Measure	Decision Type	Count
Residential	**Space Heating**	**Programmable Thermostat**	**Retrofit**	**18**

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Sector	Category	Measure	Decision Type	Count
Residential	**Water Heating**	**Tankless Gas Water Heaters**	**New Construction/ Time of Natural Replacement**	**8**

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Sector	Category	Measure	Decision Type	Count
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Sector	Category	Measure	Decision Type	Count
Commercial	**Space Heating**	**Air Curtains**	**New Construction/ Retrofit**	**10**

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Sector	Category	Measure	Decision Type	Count
Commercial	**Space Heating**	**Pedestrian Air Curtains with Vestibule**	**New Construction/ Retrofit**	**13**

Reference/ Citation	Origin
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Sector	Category	Measure	Decision Type	Count

Commercial	**Space Heating**	**Condensing Make-Up Air Unit (MUA)**	**New Construction/ Time of Natural Replacement**	**12**
Reference/ Citation				Origin
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Sector	Category	Measure	Decision Type	Count
Commercial	**Space Heating**	**Condensing Storage Water Heater**	**New Construction/ Time of Natural Replacement**	**10**
Reference/ Citation				Origin
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Sector	Category	Measure	Decision Type	Count
Commercial	**Space Heating**	**Condensing Unit Heater**	**New Construction/Time of Natural Replacement**	**6**
Reference/ Citation				Origin
[1] Natural Gas Technologies Centre, "DSM Opportunities Associated with Unit Heaters," Union Gas, Boucherville, QC, 2009.				Union Gas commissioned study
[2] Province of Ontario, "Ontario Regulation 404/12, Energy Efficiency Appliances and Products, Schedule 3, Section 1.1.iv.," Government of Canada, Consolidation period from 31 March 2014. [Online]. Available: https://www.ontario.ca/laws/regulation/120404/v8. [Accessed Sept 2014].				Ontario
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Sector	Category	Measure	Decision Type	Count
Commercial	**Space Heating**	**Demand Controlled Ventilation**	**New Construction/Retrofit/Time of Natural Replacement**	**9**
Reference/ Citation				Origin
[1] ASHRAE, "ANSI/ASHRAE Standard 62.1 - 2013, Table 6.2.1.1, Page 12-16," American Society of Heating, Refrigeration and Air-Conditioning Engineers, Atlanta, 2013.				Global
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[9] California Public Utilities Commission: Database for Energy Efficient Resources (DEER) – 2014, Updated-EULrecords_02-05-2014; EUL ID: HVAC-VSD-DCV Available from: http://deeresources.com/files/deerchangelog/deerchangelog.html				USA (CPUC/DEER)
Sector	Category	Measure	Decision Type	Count
Commercial	**Space Heating**	**Demand Controlled Ventilation**	**New Construction/Retrofit/Time of Natural Replacement**	**7**
Reference/ Citation				Origin

[1] ASHRAE, "ANSI/ASHRAE Standard 62.1 - 2013, Table 6.2.1.1, Page 12-16," American Society of Heating, Refrigeration and Air-Conditioning Engineers, Atlanta, 2013.	Global
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[7] Enermodal Engineering, "Union Gas Market Research - Demand Controlled Ventilation Systems- Task 6, see page 40 for measure cost data," Enermodal Engineering, Kitchener, Ontario, 2013	Union Gas commissioned study

Sector	Category	Measure	Decision Type	Count
Commercial	**Space Heating**	**HVLS (High Volume Low Speed) Destratification Fans**	**New Construction/Retrofit**	**8**

Reference/ Citation	Origin
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Sector	Category	Measure	Decision Type	Count
Commercial	**Space Heating**	**Incremental Energy Recovery Ventilation (ERV) (55% Effective Baseline)**	**New Construction/Time of Natural Replacement**	**12**

Reference/ Citation	Origin
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Sector	Category	Measure	Decision Type	Count
Commercial	**Space Heating**	**Incremental Energy Recovery Ventilation (ERV)(No ERV Baseline)**	**New Construction/ Retrofit**	**12**

Reference/ Citation	Origin
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Sector	Category	Measure	Decision Type	Count
Commercial	**Food Service**	**ENERGY STAR Convection Oven- FULL SIZE**	**New Construction/Time of Natural Replacement**	**8**

Reference/ Citation	Origin

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Sector	Category	Measure	Decision Type	Count
Commercial	**Water Heating**	**ENERGY STAR Dishwashers**	**New Construction/Time of Natural Replacement**	**9**
Reference/ Citation				Origin
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Sector	Category	Measure	Decision Type	Count
Commercial	**Food Service**	**ENERGY STAR Fryer**	**New Construction/ Time of Natural Replacement**	**9**
Reference/ Citation				Origin
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Sector	Category	Measure	Decision Type	Count
Commercial	**Food Service**	**ENERGY STAR Steam Cookers**	**New Construction/ Time of Natural Replacement**	**13**
Reference/ Citation				Origin
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Sector	Category	Measure	Decision Type	Count
Commercial	**Space Heating**	**Incremental Heat Recovery Ventilation (HRV) (55% Effectiveness Baseline)**	**New Construction/ Time of Natural Replacement**	**12**
Reference/ Citation				Origin

[1] Natural Resources Canada, "Heat Recovery Ventilators," 2 2012. [Online]. Available: http://oee.nrcan.gc.ca/sites/oee.nrcan.gc.ca/files/files/pdf/publications/HRV_EN.pdf. [Accessed 11 2013].	Canada (gov't)
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[5] ENERGY STAR, "Technical Specifications for Residential Heat Reocovery Ventilators and Energy Recovery Ventilators (H/ERVs) Version 2.0", 2015. [Online]. Available: http://www.nrcan.gc.ca/energy/products/forparticipants/specifications/13695. [Accessed Nov 2017].	Canada
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[7] Natural Resources Canada, "Heat/Energy Recovery Ventilators," 2 2012. [Online].Available:http://oee.nrcan.gc.ca/sites/oee.nrcan.gc.ca/files/files/pdf/publications/HRV_EN.pdf. [Accessed 11 2013].	Canada (gov't)
[8] ASHRAE Handbook, "Heating, Ventilating and Air Conditioning Systems andEquipment, 22, 26, and 28," 2012. [Online]. Available:http://handbook.ashrae.org/Handbook.aspx. [Accessed Oct 2014].	Global
[9] Airxchange, "Frost Control Strategies for Airxchange Enthalpy Wheels," 2005.[Online]. Available: http://www.airxchange.com/Collateral/Documents/English-US/Frost%20Control%20Strategies%20for%20Airxchange%20Wheels.pdf.[Accessed Oct 2014].	USA
[10] Nexant, "Evaluation of Natural Gas DSM Measures: ERVs & HRVs," March 12 2010.	Union Gas commissioned study
[11] CPUC, "Database for Energy Efficient Resources (DEER)," March 2014. [Online]. Available: www.deeresources.com.	USA (CPUC/DEER)
[12] ERV/HRV manufacturer, Interviewee, Incremental costs of installed equipment.[Interview]. Nov 2015.	Ontario (for TEC)

Sector	Category	Measure	Decision Type	Count
Commercial	**Space Heating**	**Incremental Heat Recovery Ventilation (HRV) (No HRV Baseline)**	**New Construction/Retrofit**	**11**
Reference/ Citation				Origin
[1] Natural Resources Canada, "Heat Recovery Ventilators," 2 2012. [Online].Available:http://oee.nrcan.gc.ca/sites/oee.nrcan.gc.ca/files/files/pdf/publications/HRV_EN.pdf. [Accessed 11 2013].				Canada (gov't)
[2] ASHRAE Handbook, "Heating, Ventilating and Air Conditioning Systems and Equipment, 22, 26, and 28," 2012. [Online]. Available:http://handbook.ashrae.org/Handbook.aspx. [Accessed Oct 2014].				Global
[3] ENERGY STAR, "Technical Specifications for Residential Heat Reocovery Ventilators and Energy Recovery Ventilators (H/ERVs) Version 2.0", 2015 [Online]. Available: hhttp://www.nrcan.gc.ca/energy/products/for-participants/specifications/13695. [Accessed Nov 2017].				Canada
[4] W. Jayes, "Psychrometric Calculations," 2014 Nov The Sugar Engineers. [Online].Available: http://www.sugartech.co.za/psychro/index.php.				Multinational
[5] EERE, "Weather Data," US DOE, Jul 2012. [Online]. Available:https://energyplus.net/weatherlocation/north_and_central_america_wmo_region_4/CAN/ON/CAN_ON_London.716230_CWEC. [Accessed Oct 2014].				USA
[6] Nexant, "Evaluation of Natural Gas DSM Measures: ERVs & HRVs," March 12 2010.				Union Gas commissioned study
[7] Airxchange, "Frost Control Strategies for Airxchange Enthalpy Wheels," 2005.[Online]. Available: http://www.airxchange.com/Collateral/Documents/English-US/Frost%20Control%20Strategies%20for%20Airxchange%20Wheels.pdf.[Accessed Oct 2014].				USA
[8] "Building Code Act 1992 - Supplementary Standard SB-10," Ministry of Municipal Affairs and Housing, 14 September 2012. [Online].				Ontario
[9] CPUC, "Database for Energy Efficient Resources (DEER)," March 2014. [Online]. Available: www.deeresources.com.				USA (CPUC/DEER)
[10] RS Means Building Construction Cost Data, "RS Means Online," The Gordian Group, 2nd quarter 2015. [Online]. Available: https://www.rsmeansonline.com/.[Accessed 2 7 2015].				USA
[11] Manufacturer, Interviewee, ERV/HRV Incremental costs of installed equipment.[Interview]. Nov 2015.				Ontario (for TEC)

Sector	Category	Measure	Decision Type	Count
Commercial	**Space Heating**	**High Efficiency Condensing Furnace**	**New Construction/Time of Natural Replacement**	**9**
Reference/ Citation				Origin
[1] ASHRAE, "AHRI Directory of Certified Product Performance for Furnaces," [Online]. Available: (http://www.ahridirectory.org/ahridirectory/pages/rwh/defaultSearch.aspx).				Global
[2] Province of Ontario, "Ontario Regulation 404/12, Energy Efficiency Appliances and Products, Schedule 3, Section 1.1.iv.," Government of Canada, Consolidation period from 31 March 2014. [Online]. Available: https://www.ontario.ca/laws/regulation/120404/v8. [Accessed 14 July 2014].				Ontario
[3] ENERGY STAR, "Furnaces Key Product Criteria," [Online]. Available:https://www.energystar.gov/index.cfm?c=furnaces.pr_crit_furnaces. [Accessed Nov 2014].				USA
[4] ServiceOntario, "Ontario Regulation 332/12 Building Code, Section 12.3.1.5," Oct 2003. [Online]. Available: http://www.elaws.gov.on.ca/html/regs/english/elaws_regs_120332_e.htm . [Accessed Aug 2014].				Ontario
[5] Quantec, "Comprehensive Demand-Side Management Resource Assessment," Pudget Sound Energy, May 2007.				USA, combined gas/electric utility
[6] ACEEE, "Powerful Priorities: Updating Energy Effiency Standards for Residential Furnaces, Commercial Air Conditioners, and Distribution Transformers," Septemeber 2004.				USA
[7] NRCan, "Bulletin on Proposed Regulations," Mar 2007. [Online]. Available:http://www.nrcan.gc.ca/energy/regulations-codes-standards/bulletins/7233.[Accessed Aug 2014].				Canada (gov't)
[8] ASHRAE, ASHRAE Handbook - HVAC Applications I-P Edition, Atlanta: ASHRAE, 2008, p. 32.8.				Global
[9] Navigant Consulting, "Incremental Cost Study Report Final, pg 52," 23 Sep 2011.[Online]. Available: http://www.neep.org/incremental-cost-study-phase-1-2011.[Accessed Sep 2014].				USA

Sector	Category	Measure	Decision Type	Count
Commercial	**Food Service**	**High Efficiency Underfired Broilers**	**Construction/ Time of Natural Replacement**	**4**
Reference/ Citation				Origin
[1] Food Service Technology Center, "Commercial Cooking Appliance Technology Assesment," Fisher-Nickel, 2002, p.4-9. [Online]. Available: http://www.fishnick.com/equipment/techassessment/Appliance_Tech_Assessment.pdf. [Accessed July 2014].				USA
[2] Food Service Technology Center, "Gas Broiler Life-Cycle Cost Calculator," Fisher Nickel, Inc, 2014. [Online]. Available:http://www.fishnick.com/saveenergy/tools/calculators/gbroilercalc.php. [Accessed July 2014].				USA
[3] NGTC, "DSM Opportunities Associated with Gas-Fired Food Service Equipment," Natural Gas Technologies Centre, 2010, p. 9, 62-63.				Union Gas commissioned study
[4] Garland Canada, "Price List Canada 2014," Manitowoc, February 1, 2014. [Online]. Available: http://www.garlandcanada.ca/asset/?id=jwmud. [Accessed July 2014].				Canada

Sector	Category	Measure	Decision Type	Count
Commercial	**Space Heating**	**Infrared (IR) Heaters<300kBtu/hr**	**New Construction**	**11**
Reference/ Citation				Origin
[1] Agviro, "Assessment of Average Infrared Heater Savings," 2004.				Union Gas commissioned study
[2] SpaceRay, "Infrared Heating Engineering Manual," 11 2004. [Online]. Available:www.spaceray.com/pdf/infrared-heating_engineering-manual_0305.pdf. [Accessed 11 2013].				USA
[3] ASHRAE, "HVAC Systems and Equipment, Chapter 16, page 1," 2012.				Global

[4] N. Buckley and T. Seel, "Case Studies Support Adjusting Heat Loss Calculations When Sizing Gas-Fired, Low-Intensity, Infrared Equipment, page 1857," in ASHRAE Transactions, 1848-1858, 1988.	Global
[5] Schwank, "Schwank High Intensity Infrared Heaters IR Radiant Efficiency,"Schwank, 2014. [Online]. Available: http://www.schwankgroup.com/products/high-intensity-heaters/. [Accessed Oct 2014].	Canada
[6] Province of Ontario, "Ontario Regulation 404/12, Energy Efficiency Appliances and Products, Schedule 3, Section 1.1.iv.," Government of Canada, Consolidation period from 31 March 2014. [Online]. Available: http://www.elaws.gov.on.ca/download/elaws_regs_120404_e.doc. [Accessed Sept 2014].	Ontario
[7] NRCan, "Gas Fired Unit Heaters," Canada, Sep 2012. [Online]. Available:http://www.nrcan.gc.ca/energy/regulations-codes-standards/products/6945.[Accessed Oct 2014].	Canada (gov't)
[8] KEMA, "Project 15 Prescriptive Gas - Final Program Evaluation Report, page 65,"National Grid, 2014.	USA, combined gas/electric utility
[9] Navigant Research, Horsepowers of conventional and infrared units through independent research, Trane, Schwank, Calcana, Spaceray and Solaronics.	Union Gas commissioned study
[10] Nexant, "Questar Gas, DSM Market Chrarcterization Report," August 2006.	USA, gas utility
[11] The United Illuminating Company and Connecticut Light & Power, "UI and CL&P Program Savings Documentation for 2011 Program Year," 2011. [Online]. Available:http://www.energizect.com/sites/default/files/2012%20CT%20Program%20Savings%20Documentation%20FINAL.pdf.	USA, electric utility

Sector	Category	Measure	Decision Type	Count
Commercial	**Space Heating**	**Infrared (IR) Heaters<300kBtu/hr**	**Retrofit**	**11**

Reference/ Citation	Origin
[1] Agviro, "Assessment of Average Infrared Heater Savings," 2004.	Union Gas commissioned study
[2] SpaceRay, "Infrared Heating Engineering Manual," 11 2004. [Online]. Available: www.spaceray.com/pdf/infrared-heating_engineering-manual_0305.pdf. [Accessed 11 2013].	USA
[3] ASHRAE, "HVAC Systems and Equipment, Chapter 16, page 1," 2012.	Global
[4] N. Buckley and T. Seel, "Case Studies Support Adjusting Heat Loss Calculations When Sizing Gas-Fired, Low-Intensity, Infrared Equipment, page 1857," in ASHRAE Transactions, 1848-1858, 1988.	Global
[5] Schwank, "Schwank High Intensity Infrared Heaters IR Radiant Efficiency," Schwank, 2014. [Online]. Available:http://www.schwankgroup.com/products/high-intensity-heaters/. [Accessed Oct 2014].	Canada
[6] Province of Ontario, "Ontario Regulation 404/12, Energy Efficiency Appliances and Products, Schedule 3, Section 1.1.iv.," Government of Canada, Consolidation period from 31 March 2014. [Online]. Available: http://www.elaws.gov.on.ca/download/elaws_regs_120404_e.doc. [Accessed Sept 2014].	Ontario
[7] NRCan, "Gas Fired Unit Heaters," Canada, Sep 2012. [Online]. Available:http://www.nrcan.gc.ca/energy/regulations-codes-standards/products/6945. [Accessed Oct 2014].	Canada (gov't)
[8] KEMA, "Project 15 Prescriptive Gas - Final Program Evaluation Report, page 65," National Grid, 2014.	USA, electric utility
[9] Navigant Research, Horsepowers of conventional and infrared units through independent research, Trane, Schwank, Calcana, Spaceray and Solaronics.	Union Gas commissioned study
[10] Nexant, "Questar Gas, DSM Market Chrarcterization Report," August 2006.	USA, gas utility
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Sector	Category	Measure	Decision Type	Count
Multi-residential/Low-Income	**Water Heating**	**Low-flow showerheads**	**New Construction**	**7**

Reference/ Citation	Origin
[1] "Ontario Building Code Act, 1992; O.Reg. 332/12," Service Ontario, e-Law.	Ontario
[2] L. Rothman, "SAS PHASE II Analysis for Enbridge Gas Distribution Inc.: Estimating the Impact of Low-Flow Showerhead Installation," SAS Institute Canada, Toronto, 2010.	Enbridge commissioned study
[3] Enbridge Gas Ltd., Bag Test Benchmarking Research, 2014.	Enbridge
[4] 2012-0441 Joint Submission from Enbridge Gas Distribution and Union Gas Ltd., "Low-Flow Showerheads (Various gpm, Enbridge TAPS, ESK and Multifamily) - Navigant Proposed Method of Occupancy Load Adjustment for Multi-Family," 2012.	Enbridge/ Union Gas
[5] Barkett, Brent; Cook, Gay, "Resource Savings Values in Selected Residential DSM Prescriptive Programs," Summit Blue, Ontario, 2008.	Union Gas commissioned study
[6] O. Drolet, "Showerheads/Aerators Flow Rate Validation," Natural Gas Technologies Centre, Ontario, 2007.	Ontario
[7] Enbridge Gas Showerheads Installed in Multiresidential Program Year Data 2015. [Interview]. 12 11 2015.	Enbridge

Sector	Category	Measure	Decision Type	Count
Multi-residential/Low-Income	**Water Heating**	**Low-flow showerheads**	**Retrofit**	**7**

Reference/ Citation	Origin
[1] "Ontario Building Code Act, 1992; Regulation 350/06," Service Ontario, e-Law, Ontario, 1992.	Ontario
[2] L. Rothman, "SAS PHASE II Analysis for Enbridge Gas Distribution Inc.: Estimating the Impact of Low-Flow Showerhead Installation," SAS Institute Canada, Toronto, 2010.	Enbridge commissioned study
[3] Enbridge Gas Ltd., Bag Test Benchmarking Research, 2014.	Enbridge
[4] 2012-0441 Joint Submission from Enbridge Gas Distribution and Union Gas Ltd., "Low-Flow Showerheads (Various gpm, Enbridge TAPS, ESK and Multifamily) - Navigant Proposed Method of Occupancy Load Adjustment for Multi-Family," 2012.	Enbridge/ Union Gas
[5] Barkett, Brent; Cook, Gay, "Resource Savings Values in Selected Residential DSM Prescriptive Programs," Summit Blue, Ontario, 2008.	Union Gas commissioned study
[6] O. Drolet, "Showerheads/Aerators Flow Rate Validation," Natural Gas Technologies Centre, Ontario, 2007.	Ontario
[7] Enbridge Gas Showerheads Installed in Multiresidential Program Year Data 2015. [Interview]. 12 11 2015.	Enbridge

Sector	Category	Measure	Decision Type	Count
Commercial	**Water Heating**	**Ozone Laundry Treatment**	**New Construction/Retrofit**	**8**

Reference/ Citation	Origin
[1] Natural Gas Technologies Centre, "DSM OPPORTUNITIES ASSOCIATED WITH OZONE LAUNDRY TREATMENT (FOR HOSPITALITY AND HEALTH CARE FACILITIES), p.5," Union Gas, Boucherville, November 25, 2009.	Union Gas commissioned study
[2] K. Charles, R. Magee, D. Won and E. Lusztik, "Indoor Air Quality Guidelines and Standards, pg 10," National Research Council Canada March 2005. [Online]. Available: http://archive.nrc-cnrc.gc.ca/obj/irc/doc/pubs/rr/rr204/rr204.pdf. [Accessed April 2014].	Canada (gov't)
[3] Laundry Consulting, "Ozone Laundry Systems," [Online]. Available:http://laundryconsulting.com/solution/green-laundry-technology/ozone-laundry-systems/. [Accessed April 2014].	USA
[4] Alliance for Water Efficiency, "Laundries and Dry Cleaning Operations," [Online].Available:http://www.allianceforwaterefficiency.org/uploadedFiles/Resource_Center/Library/non_residential/EBMUD/EBMUD_WaterSmart_Guide_Laundries_Dry-Cleaning_Operations.pdf.[Accessed April 2014].	USA
[5] EcoTex, Interviewee, Manufacturer. [Interview]. May 1, 2014, conducted by ERS.	For TEC
[6] O. Del, Interviewee, Manufacturer. [Interview]. May 12, 2014, conducted by ERS.	For TEC

[7] Articlean, Interviewee, Manufacturer. [Interview]. May 14, 2014, conducted by ERS.	For TEC
[8] J. R. G. Riopelle, Redacted - Final Report DSM Ozone Laundry Calculator, 2009, updated 2014, NGTC.	Union Gas commissioned study

Sector	Category	Measure	Decision Type	Count
Commercial	**Water Heating**	**Low-Flow Pre-Rinse Spray Nozzle**	**Construction/Time of Natural Replacement /Retrofit**	**5**

Reference/ Citation	Origin
[1] US Environmental Protection Agency, "Pre-Rinse Spray Valve Field Study Report," US Environmental Protection Agency - WaterSense Program, Washington.	USA
[2] Energy Profiles Ltd., "Deemed savings For (Low Flow) Pre-Rinse Nozzles," Energy Profiles Ltd., Ontario, 2009.	Ontario
[3] US Department of Energy, "How to Buy a Low-Flow Pre-Rinse Spray Valve," US Department of Energy, Federal Energy Management program, Washington.	USA
[4] Quantec, "Comprehensive Assessment of Demand-Side Resource Potentials," Pudget Sound Energy, Seattle, 2007-2008.	USA, combined gas/electric utility
[5] ERS, Pre-Rinse spray nozzle cost estimate, summary of prices for 14 models standard and low flow models, data from 5 on line sources. Estimated 25% adder for shipping., No. Andover, MA: ERS, 2015.	USA

Sector	Category	Measure	Decision Type	Count
Commercial	**Water Heating**	**Condensing Tankless Water Heater**	**New Construction/Time of Natural Replacement**	**9**

Reference/ Citation	Origin
[1] Caneta Research Inc., "Refinement to DSM Asessment of Commercial Water Heater Applications, Page 8-10," Caneta Research Inc, Mississauga, ON, 2009.	Union Gas commissioned study
[2] Director Building and Development Branch, Ontario Building Code 2006: Supplememtary Standard SB-10, Table 7.8 page 53, Toronto, Ontario: Minister of Municipal Affairs and Housing, 2011.	Ontario
[3] Ontario, "Building Code 332/12," 1992. [Online]. Available: https://www.ontario.ca/laws/regulation/120332.	Ontario
[4] ASHRAE, 2011 HVAC Applications Handbook - Section 50, Table 7, Atlanta, GA: ASHRAE, 2011.	Global
[5] M. Armstrong, "Enbridge Prescriptive Commercial Bolier Program - Prescriptive Savings Analysis, pages 14-15," AMEC, Cambridge, Ontario, 2012.	Enbridge commissioned study
[6] Caneta Research Inc., "Report For Baseline Information - TRM Development, page 5," Caneta Research, Inc, Mississauga, Ontario, August 19, 2013.	Ontario
[7] CPUC, "Database for Energy Efficient Resources (DEER)," California Public Utilities Commission, March 5, 2014. [Online]. Available: www.deeresources.com. [Accessed 23 June 2014].	USA (CPUC/DEER)
[8] Navigant Consulting Inc., "Incremental Cost Study Report - A Report of 12 Measures - Prepared for NEEP, page 59," Navigant Consulting Inc., Burlington, MA, 2011.	USA
[9] Schoenbauer, "Tankless Water Heaters: Do They Really Save Money?," Minnesota Center for Energy and Enviornment, Minneapolis, MN, 2012.	USA

Sector	Category	Measure	Decision Type	Count
Commercial	**Space Heating**	**Kitchen – Demand Controlled Ventilation**	**New Construction / Time of Natural Replacement**	**8**

Reference/ Citation	Origin
[1] Consortium for Energy Efficiency, "Commercial Kitchen Ventilation - An Energy Efficiency Program Administrator's Guide to Demand Control Ventilation," Consortium for Energy Efficiency, Boston, MA, 2010.	USA
[2] D. Fisher, "Future of DCV for Commercial Kitchens," ASHRAE Journal, no. February 2013, pp. 48 - 54, 2013.	Global
[3] Food Service Technology Center, "Demand Control Ventilation in Commercial Kitchens - An Emerging Technology Case Study - FSTC Report 5001-06.13," Fisher Nickel, Inc., San Ramon, CA, 2006.	USA
[4] San Diego Gas & Electric, "Work Paper WPSDGENRCC0019 - Commercial Kitchen Demand Controls - Electric," San Diego Gas & Electric, San Diego, CA, 2012.	USA combined gas/electric
[5] Southern California Edison - Design and Engineering Services, "Demand Control Ventilation for Commercial Kitchen Hoods," Southern California Edison, Rosemead, CA, 2009.	USA, electric utility
[6] Food Service Technology Center, "Food Service Technology Center - Outdoor Air Load Calculator," Fisher-Nickel, Inc. - for Pacific Gas and Electric, 2014. [Online]. Available: http://www.fishnick.com/ventilation/oalc/. [Accessed 3 November 2014].	Food USA
[7] Ministry of Municipal Affairs and Housing-Building and Development Branch, "Supplemental Standard SB-10 (Energy Efficiency Supplement)," Ministry of Municipal Affairs and Housing, Toronto, 2011.	Ontario
[8] California Public Utilities Commission, "DEER2014 EUL Table Update," 4 February 2014. [Online]. Available: http://www.deeresources.com/. [Accessed 18 August 2014].	USA, (CPUC/DEER)

Sector	Category	Measure	Decision Type	Count
Commercial	**Space Heating**	**Kitchen – Demand Controlled Ventilation**	**Retrofit**	**8**

Reference/ Citation	Origin
[1] Consortium for Energy Efficiency, "Commercial Kitchen Ventilation - An Energy Efficiency Program Administrator's Guide to Demand Control Ventilation," Consortium for Energy Efficiency, Boston, MA, 2010.	USA
[2] D. Fisher, "Future of DCV for Commercial Kitchens," ASHRAE Journal, no. February 2013, pp. 48 - 54, 2013.	Global
[3] Food Service Technology Center, "Demand Control Ventilation in Commercial Kitchens - AnEmerging Technology Case Study - FSTC Report 5001-06.13," Fisher Nickel, Inc., San Ramon, CA, 2006.	USA
[4] San Diego Gas & Electric, "Work Paper WPSDGENRCC0019 - Commercial Kitchen Demand Controls - Electric," San Diego Gas & Electric, San Diego, CA, 2012.	USA, combined gas/electric utility
[5] Southern California Edison - Design and Engineering Services, "Demand Control Ventilation for Commercial Kitchen Hoods," Southern California Edison, Rosemead, CA, 2009.	USA, electric utility
[6] Food Service Technology Center, "Food Service Technology Center - Outdoor Air Load Calculator," Fisher-Nickel, Inc. - for Pacific Gas and Electric, 2014. [Online]. Available:http://www.fishnick.com/ventilation/oalc/. [Accessed 3 November 2014].	USA
[7] Ministry of Municipal Affairs and Housing-Building and Development Branch, "Supplemental Standard SB-10 (Energy Efficiency Supplement)," Ministry of Municipal Affairs and Housing, Toronto, 2011.	Ontario
[8] California Public Utilities Commission, "DEER2014 EUL Table Update," 4 February 2014. [Online]. Available: http://www.deeresources.com/. [Accessed 18 August 2014].	USA (CPUC/DEER)

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
Ontario Sustainable Energy Association ("OSEA")

Reference: Exhibit B, Tab 1, Schedule 1, Page 12 of 18.

Question:

a) Has Union or Enbridge developed any estimates of how long it will be before the EM&V schedule and timing will be closer to the standard that Union/Enbridge instituted.

b) For each of the program years between 2008-2016, please provide the total cost of the EM&V process.

Response:

a) Given that oversight and management of the annual evaluation process is the responsibility of OEB Staff in the current DSM framework, it is difficult for the utilities to estimate the timing of upcoming evaluation efforts. Based on draft timelines provided to the EAC in December 2018 by OEB Staff, the 2017 and 2018 evaluation efforts are scheduled to be completed in December 2019. This schedule would mean that the 2018 audit completion date would be nearing the standard under the previous utility-coordinated process. However, with the exception of a Commercial/Industrial prescriptive evaluation effort on 2017 results that is currently in progress, remaining evaluation for 2017 and 2018, including work on the custom CPSV, has yet to commence. Enbridge Gas therefore has concerns whether the proposed 2017 and 2018 timeline can be maintained. It is imperative that the annual EM&V process correct persistent and accumulative delays in order to: (i) establish certainty of its targets in time for the 2019 and 2020 DSM program; (ii) ensure that the most recent information is available for consideration in the planning of the next DSM framework; and, (iii) to facilitate the timely clearance of DSM-related deferral and variance accounts.

b) The approximate spending pertaining to EM&V related efforts for EGD's DSM programs in each of the calendar years 2011 to 2016 is presented in the Table below. Information prior to 2011 is not readily available.

Fiscal Year	Evaluation Spend ($ million)
2011	$0.585
2012	$0.567
2013	$0.731
2014	$1.010
2015	$1.395
2016	$1.323

The accuracy of recorded amounts is influenced by accounting accruals made at year end. The accrual accounting method adheres to Generally Accepted Accounting Principles ("GAAP") and ensures costs are reported in the period that they are incurred (versus paid). Year-end accruals assign costs in one fiscal year and create an offset so that the payment of the actual invoices does not impact the following year's budget, except where estimates were inaccurate.

When the evaluation governance fully transitioned to an OEB-led process starting with the 2015 audit, EGD lost the ability to accurately forecast, accrue and track all EM&V related costs as well as to reconcile accrued amounts to invoices received. Sufficient detail is not provided in invoicing to support this and information provided by OEB Staff has been, at times, unreliable. Insufficient information to confirm accrual amounts at the time they are recorded and a lack of supporting documentation to then reconcile accruals to invoices received can impact the reporting of financial results. These same issues have continued to be problematic in 2017 and 2018.

Further, Enbridge Gas continues to believe that full transparency in budgets and spend is necessary so that the EAC, in its advisory role, can effectively provide guidance on the proposed cost of audit and work deliverables, the prioritization of other evaluation activities and studies, and cost/benefit improvements for the following year's audit.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
Ontario Sustainable Energy Association ("OSEA")

Reference: Exhibit B, Tab 2, Schedule 1, Page 115 of 245

Question:

a) How many schools that have participated in Enbridge's School Energy Competition offer also participate in Toronto Region Conservation Authority's Sustainable School program?

b) Does Enbridge coordinate with the TRCA?

Response:

a) In 2016, 25 schools participated in EGD's School Energy Competition offer. As outlined further in the response to part b) below, given that the objectives of the Toronto Region Conservation Authority's ("TRCA") Sustainable School program and EGD's School Energy Competition are vastly different, Enbridge Gas does not monitor participation in TRCA's Sustainable School program.

b) Enbridge Gas works with the TRCA on many of the initiatives they facilitate. However, since the TRCA's Sustainable School program focuses on Energy Management and Benchmarking, while Enbridge Gas's School Energy Competition offer is focused on student education and participation, there is no coordination across these two particular initiatives.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
Ontario Sustainable Energy Association ("OSEA")

Reference: Exhibit B, Tab 3, Schedule 1, Page 23 of 51

Preamble: In the 2016 DSM Annual Verification Report to the EAC, the Evaluation Contractor made a recommendation that Enbridge consider creating a policy to define rules for energy savings calculations and baselines for fuel switching and district heating/cooling measures. This same recommendation was made in the 2015 DSM Annual Verification Report.

In EB-2017-0324, Enbridge in Exhibit I.EGDI.OSEA.2 indicated that it was in the process of drafting a fuel switching policy. In EB-2018-0301, Enbridge states that it "is expected to adhere to DSM policies and guiding principles as defined by the Board in the 2015-2020 DSM Framework and Guidelines."

Question:

a) Please advise about the status of the Enbridge's fuel switching policy that was cited in EB-2017-0324.

b) Please provide further clarification about what specific DSM policies and guidelines principles is Enbridge going to adhere to in relation to rules for energy saving calculations and baselines for fuel switching and district heating/cooling measures.

Response:

a) There are no specific OEB guidelines within the current DSM framework around fuel switching eligibility. Enbridge Gas treats fuel switching projects on a case-by-case basis using the objectives of the current DSM framework to guide decisions. No formal policies have been developed by either EGD or Union; however, approaches to fuel switching projects will be reviewed as part of future DSM alignment efforts. As is the case with all custom projects, energy savings are calculated against a baseline that would consume a greater amount of natural gas. Fuel switching projects are subject to adjustment through the third-party annual custom project savings verification.

This approach is consistent with how custom projects are prepared and no immediate additional steps are needed within the current DSM framework to define rules specific to fuel switching projects, their energy savings or baselines.

b) Enbridge Gas believes a policy to address fuel switching more broadly should be considered as part of the development of the next generation DSM framework.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [Ex. B/1/1, p.9-11, and B/5/1, p. 3]

Question:

The table below sets out the Enbridge 2016 Resource Acquisition Scorecard approved by the Board on January 20, 2016, in EB-2015-0049. Enbridge claims that new targets should be applied, as set out in Ex. B/5/1, corrected since it was originally filed.

a. Please confirm the accuracy of the table below.

b. Please provide (in Excel and pdf formats) all calculations used to go from the Board-approved scorecard to the new proposed scorecard, including all assumptions used and all calculations carried out as part of those assumptions.

c. For each change, please indicate Enbridge's authority for the change, either from a Decision, policy, or other Board source.

Please ensure that the calculations are sufficiently granular that they can be completely understood by the Board and the parties. By way of example, and without limiting the generality of the foregoing, if a change was made to the C/I Custom Program component of the target due to a change in NTG, please show the original component that went into the Board's approved numbers, with all underlying assumptions and calculations, identify the changed inputs that Enbridge is proposing, and show the new component, with all underlying assumptions and calculations.

Enbridge 2016 Resource Acquisition Scorecard					
Programs	***Metrics***	***Metric Target***			***Weight***
		Lower Band	***Target***	***Upper Band***	
Home Energy Conservation (HEC) Adaptive Thermostats Commercial & Industrial Custom Commercial & Industrial Prescriptive Commercial & Industrial Direct Install Run-it-Right Comprehensive Energy Management Small Commercial New Construction	Large Volume Customers (CCM)	498,464,605	664,619,473	996,929,209	40%
	Small Volume Customers (CCM)	239,378,409	319,171,212	478,756,818	40%
Home Energy Conservation	Residential Deep Savings Participants (Homes)	6,194	8,259	12,388	20%

Response

a) Confirmed.

b) Please see Attachment 1. The Excel spreadsheet of this attachment has been provided directly to SEC and GEC via email. Other parties who wish to obtain the Excel spreadsheet can contact Enbridge Gas directly.

c) It is under the Board's authority and direction that EGD updated its 2016 targets. Please see the response at Exhibit C.STAFF.EGD.1 for further detail.

STEP 1: Establish Original Resource Acquisition Targets from 2016 Decision

Resource Acquisition	Lower Target	Middle Target	Upper Target
Large Volume Customers Cumulative Natural Gas Savings (m3)	**498,464,605**	**664,619,473**	**996,929,209**
Small Volume Customers Cumulative Natural Gas Savings (m3)	**239,378,409**	**319,171,212**	**478,756,818**
Residential Deep Savings Participants (Homes)	**6,194**	**8,259**	**12,389**

STEP 2: Breakout the 2016 Large/Small Resource Acquisition Targets by Program Offering

	Enbridge Plan Prosposed Cumulative Natural Gas Savings (m3)	OEB Approved Cumulative Natural Gas Savings (m3)	Program Offering % Distribution
Large C&I Custom	*539,997,933*	*593,997,726*	89.37%
Large C&I Direct Install	-		0.00%
Large C&I Prescriptive	*63,024,839*	*69,327,323*	10.43%
Run It Right	*303,005*	*333,306*	0.05%
Comprehensive Energy Management	*869,485*	*956,434*	0.14%
LARGE VOLUME SUM	***604,195,262***	***664,614,788***	**100.00%**

** Please note the cell (D19) above does not precisely match the Large Volume Approved Target due to rounding by the Board (see cell E5 in the sheet "9.3 Target increases" provided by the Board) - However the sum of the Large and Small Volume targets is*

	Enbridge Plan Prosposed Cumulative Natural Gas Savings (m3)	OEB Approved Cumulative Natural Gas Savings (m3)	Program Offering % Distribution
Home Energy Conservation	*102,622,499*	*112,884,749*	35.37%
Adaptive Thermostats	*23,864,839*	*26,251,323*	8.22%
Small C&I Custom	*32,895,470*	*36,185,017*	11.34%
Small C&I Direct Install	*60,358,661*	*66,394,527*	20.80%
Small C&I Prescriptive	*70,418,437*	*77,460,281*	24.27%
SMALL VOLUME SUM	***290,159,906***	***319,175,897***	**100.00%**

** Please note the cell (D28) above does not precisely match the Small Volume Approved Target due to rounding by the Board (see cell F5 in the sheet "9.3 Target increases" provided by the Board) - However the sum of the Large and Small Volume targets is*

STEP 3: Apply % distribution of program offering to Resource Acquisition Targets outlined in the January 20, 2016 Board Decision

	Program Offering % Distribution	Total OEB Approved Large Volume Cumulative Natural Gas Savings (m3)	CCM Target Distribution
Large C&I Custom	*89.37%*	*664,619,473*	*594,001,913*
Run It Right	*0.05%*	*664,619,473*	*333,308*
All other Large Volume Program Offerings	*10.58%*	*664,619,473*	*70,284,252*
Large Volume Customers Cumulative Natural Gas Savings (m3)			664,619,473

	Program Offering % Distribution	Total OEB Approved Small Volume Cumulative Natural Gas Savings (m3)	CCM Target Distribution
Small C&I Custom	*11.34%*	*319,171,212*	*36,184,486*
All other Small Volume Program Offerings	*88.66%*	*319,171,212*	*282,986,726*
Small Volume Customers Cumulative Natural Gas Savings (m3)			319,171,212

STEP 4: Determine weighted 2015 NTG adjustment factors

	2015 Pre-Audit Gross CCM Results	*2015 Pre-Audit Net CCM Results*	*Weighted 2015 Pre-Audit NTG*	*2015 Post-Audit Net CCM Results (only DNV NTG; No Realization Rate)*	*Weighted 2015 DNV NTG with Freeridership and Studied Spillover*	*Weighted 2015 NTG Adjustment Factor*
Custom	*810,046,137*	*556,241,778*	*68.67%*	*245,100,979*	*30.26%*	*44.06%*
Run It Right	*2,684,105*	*2,684,105*	*100.00%*	*1,343,663*	*50.06%*	*50.06%*

Program offerings were not segmented between large and small volume customers in 2015 therefore a combined weighted 2015 NTG will be used for 2016 Large C&I Custom and 2016 Small C&I Custom
The "2015 Post-Audit Net CCM Results (only DNV NTG; No Realization Rate)" [found in evidence EB-2018-031; Exhibit B; Tab 1; Schedule 1; Page 10] is calculated by applying the DNV NTG values on a project by project basis.

STEP 5: Applying weighted DNV NTG value to portion of Board Approved RA targets

	Board Approved Target - Net CCM	Weighted 2015 Pre-Audit NTG	Target - Gross CCM	Weighted 2015 DNV NTG with Freeridership and Studied Spillover	Revised Target
Large C&I Custom	594,001,913	68.7%	865,035,627	30.26%	261,739,510
Run It Right	333,308	100.0%	333,308	50.06%	166,854
All other Large Volume Program Offerings	70,284,252				70,284,252
Large Volume Customers	**664,619,473**				**332,190,616**

	Board Approved Target - Net CCM	Weighted 2015 Pre-Audit NTG	Target - Gross CCM	Weighted 2015 DNV NTG with Freeridership and Studied Spillover	Revised Target
Small C&I Custom	36,184,486	68.7%	52,694,897	30.26%	15,944,241
All other Small Volume Program Offerings	282,986,726				282,986,726
Small Volume Customers	**319,171,212**				**298,930,967**

STEP 6: Calculate the Lower and Upper Revised Targets

Resource Acquisition	Lower Target	Middle Target	Upper Target
Large Volume Customers Cumulative Natural Gas Savings (m3)	**249,142,962**	**332,190,616**	**498,285,924**
Small Volume Customers Cumulative Natural Gas Savings (m3)	**224,198,225**	**298,930,967**	**448,396,451**
Residential Deep Savings Participants (Homes)	**6,194**	**8,259**	**12,389**

Enbridge's Programs

Resource Acquistion Programs

Home Energy Conservation	2014 (actuals)	2015 (proposed)	2016	2017	2018	2019	2020
Proposed & Approved Budget	$8,605,657	***$1,873,185***	***$12,148,317***	***$15,180,000***	***$18,000,000***	***$18,360,000***	***$18,727,200***
Proposed Participant Target	5,213	762	7,508	10,000	12,346	12,948	13,478
Approved Participant Target		***762***	***8,259***	***10,526***	***12,731***	***13,246***	***13,781***
Proposed Lifetime savings (CCM)	89,690,562	Not available	102,622,499	136,680,000	168,740,741	176,970,719	184,222,043
Approved Lifetime savings (CCM)		***Not available***	***112,884,749***	***Formula - see section 9.4***			
TRC-Plus Ratio	1.96	Not available	1.70	1.80	1.90	1.94	1.94

References:
2014 budget from Table 1 of 2014 Annual Report; participants from Table 3 of 2014 Annual Report; savings from Table 6 of 2014 annual report; TRC from Table 9 of 2014 Annual Report
2015 proposed target escalates by 2% (rollover year); target participants from Exhibit B, Tab 1, Schedule 3, Table 3
2016-2020 budgets from Enbridge's IRR to GEC.11; lifetime savings from Enbridge's IRR to GEC.14; target participants from Enbridge's IRR to EP.19
2016-2020 TRC-plus values from Enbridge's DSM Plan: Exhibit B, Tab 2, Schedule 3, Tables 1 to 5
Approved 2016 target is explained in section 9.3

Residential Adaptive Thermostats	2014 (actuals)	2015 (proposed)	2016	2017	2018	2019	2020
Proposed & Approved Budget	Not offered	Not offered	***$876,371***	***$1,525,000***	***$2,175,000***	***$2,218,500***	***$2,262,870***
Proposed Lifetime savings (CCM)			23,864,839	47,655,000	71,482,500	74,847,871	77,026,478
Approved Lifetime savings (CCM)			***26,251,323***	***Formula - see section 9.4***			
TRC-Plus Ratio			1.68	1.75	1.77	1.79	1.79

References:
2016-2020 budgets from Enbridge's IRR to GEC.11; lifetime savings from Enbridge's IRR to GEC.14
2016-2020 TRC-plus values from Enbridge's DSM Plan: Exhibit B, Tab 2, Schedule 3, Tables 1 to 5
Approved 2016 target is explained in section 9.3

Commercial & Industrial Custom	2014 (actuals)	2015 (proposed)	2016	2017	2018	2019	2020
Proposed & Approved Budget	$5,713,503	Not available	***$7,020,664***	***$7,157,145***	***$7,361,562***	***$7,508,793***	***$7,658,968***
Lifetime savings (CCM) - Large Custom	177,663,455		539,997,933	536,457,192	548,595,666	549,648,515	551,011,813
Lifetime savings (CCM) - Small Custom	307,222,026		32,895,470	33,354,000	31,360,151	31,987,345	32,627,103
Proposed Lifetime savings (CCM)	484,885,481		572,893,403	569,811,192	579,955,817	581,635,860	583,638,916
Approved Lifetime savings (CCM)			***630,182,743***	***Formula - see section 9.4***			
TRC-Plus Ratio - Large Custom	3.89		3.10	3.10	3.10	3.10	3.09
TRC-Plus Ratio - Small Custom			1.18	1.18	1.18	1.18	1.18

References:
2014 budget and savings from Tables 15 and 17 of the 2014 Annual Report; 2014 TRC from Table 9 of 2014 Annual Report
2016-2020 budgets from Enbridge's IRR GEC.11; lifetime savings from Enbridge's IRR GEC.14
2016-2020 TRC-plus values from Enbridge's DSM Plan: Exhibit B, Tab 2, Schedule 3, Tables 1 to 5
Approved 2016 target is explained in section 9.3

Commercial & Industrial Direct Install	2014 (actuals)	2015 (proposed)	2016	2017	2018	2019	2020
Proposed & Approved Budget	Not offered	Not offered	***$4,955,421***	***$5,060,872***	***$4,758,344***	***$4,853,510***	***$4,950,581***
Proposed Lifetime savings (CCM)			60,358,661	61,200,000	57,541,562	58,692,377	59,866,244
Approved Lifetime savings (CCM)			***66,394,527***	***Formula - see section 9.4***			
TRC-Plus Ratio			7.77	7.72	7.72	7.72	7.72

References:
2016-2020 budgets from Enbridge's IRR GEC.11; lifetime savings from Enbridge's IRR GEC.14
2016-2020 TRC-plus values from Enbridge's DSM Plan: Exhibit B, Tab 2, Schedule 3, Tables 1 to 5
Approved 2016 target is explained in section 9.3

Commercial & Industrial Prescriptive	2014 (actuals)	2015 (proposed)	2016	2017	2018	2019	2020
Proposed & Approved Budget	$767,984	Not available	***$2,196,952***	***$2,241,134***	***$2,232,905***	***$2,277,564***	***$2,323,114***
Lifetime savings (CCM) - Large Prescriptive	7,598,262		63,024,839	62,678,913	64,063,124	64,226,928	64,475,723
Lifetime savings (CCM) - Small Prescriptive	79,068,251		70,418,437	71,400,000	67,131,822	68,474,439	69,843,952
Proposed Lifetime savings (CCM)	86,666,513		133,443,276	134,078,913	131,194,946	132,701,367	134,319,675
Approved Lifetime savings (CCM)			***146,787,604***	***Formula - see section 9.4***			
TRC-Plus Ratio - Large Prescriptive	3.37		10.85	10.73	10.64	10.55	10.47
TRC-Plus Ratio - Small Prescriptive	5.59		28.56	28.48	28.48	28.48	28.48

References:
2014 budget and savings from Tables 15 and 17 of the 2014 Annual Report; 2014 TRCs from Table 9 of 2014 Annual Report
2016-2020 budgets from Enbridge's IRR to GEC.11; lifetime savings from Enbridge's IRR to GEC.14
2016-2020 TRC-plus values from Enbridge's DSM Plan: Exhibit B, Tab 2, Schedule 3, Tables 1 to 5
Approved 2016 target is explained in section 9.3

Small Commercial New Construction	2014 (actuals)	2015 (proposed)	2016	2017	2018	2019	2020
Proposed Budget	Not offered	Not offered	$396,933	$1,305,566	$2,396,825	$2,444,762	$2,493,657
Approved Budget			***$396,933***	***$1,305,566***	***$1,305,566***	***$0***	***$0***
Proposed Lifetime savings (CCM)			N/A	14,620,000	17,960,200	19,548,431	23,236,432
Approved Lifetime savings (CCM)			N/A	***16,082,000***	N/A	N/A	N/A
TRC-Plus Ratio			Not available				

References:
2016-2020 budgets from Enbridge's IRR to GEC.11; lifetime savings from Enbridge's IRR to GEC.14
Approved 2016 target is explained in section 9.3

Energy Leaders	2014 (actuals)	2015 (proposed)	2016	2017	2018	2019	2020
Proposed Budget	Not offered	Not offered	$400,000	$600,000	$800,000	$816,000	$832,320
Approved Budget - As Pilot			***$400,000***	***$400,000***	***$400,000***	***$0***	***$0***
TRC-Plus Ratio			Not available				

Note: No evaluation metrics as this program is a lead-in to other programs
References:
2016-2020 budgets from Enbridge's IRR to GEC.11
Approved 2016 target is explained in section 9.3

Low Income Programs

Low-Income Multi-Residential - Affordable Housing	2014 (actuals)	2015 (proposed)	2016	2017	2018	2019	2020
Proposed & Approved Budget	$1,930,180	***$2,208,300***	***$3,279,028***	***$3,418,121***	***$3,813,296***	***$3,889,562***	***$3,967,353***
Proposed Lifetime savings (CCM)	29,801,158	68,700,000	59,000,000	62,000,000	69,700,000	71,500,000	73,300,000
Approved Lifetime savings (CCM)		***68,700,000***	***64,900,000***	***Formula - see section 9.4***			
TRC-Plus Ratio	2.03	Not available	1.87	1.88	1.88	1.88	1.88

References:
2014 budget from Table 8 of 2014 Annual Report; savings from Table 1 of 2014 Annual Report; TRC from Table 9 of 2014 Annual Report
2015 budget from Enbridge's undertaking JT1.6; savings from undertaking JT1.36
2016-2020 budgets from Enbridge's IRR GEC.11; lifetime savings from Enbridge's IRR GEC.14
2016-2020 TRC-plus values from Enbridge's DSM Plan: Exhibit B, Tab 2, Schedule 3, Tables 1 to 5
Approved 2016 target is explained in section 9.3

Home Winterproofing (Low-Income)	2014 (actuals)	2015 (proposed)	2016	2017	2018	2019	2020
Proposed Budget	$4,494,530	$4,655,790	$5,756,064	$6,240,000	$6,427,200	$6,555,744	$6,686,859
Approved Budget		***$4,655,790***	***$5,806,064***	***$6,290,000***	***$6,477,200***	***$6,605,744***	***$6,736,859***
Proposed Lifetime Savings (CCM)	25,673,482	24,100,000	28,900,000	30,300,000	30,300,000	30,000,000	29,700,000
Approved Lifetime Savings (CCM)		***24,100,000***	***31,790,000***	***Formula - see section 9.4***			
TRC-Plus Ratio	1.03	Not available	1.20	1.19	1.19	1.18	1.17

References:
2014 budget from Table 8 of 2014 Annual Report; savings from Table 1 of 2014 Annual Report; TRC from Table 9 of 2014 Annual Report
2015 budget from Enbridge's undertaking JT1.6; savings from undertaking JT1.36
2016-2020 budgets from Enbridge's IRR to GEC.11; lifetime savings from Enbridge's IRR to GEC.14
2016-2020 TRC-plus values from Enbridge's DSM Plan: Exhibit B, Tab 2, Schedule 3, Tables 1 to 5
Approved 2016 target is explained in section 9.3

Low-Income New Construction	2014 (actuals)	2015 (proposed)	2016	2017	2018	2019	2020
Proposed & Approved Budget	Not offered	***$250,000***	***$1,116,696***	***$1,200,000***	***$1,400,000***	***$1,428,000***	***$1,456,560***
Proposed Participant Target		Not available	5	7	9	8	5
Approved Participant Target			***6***	***Formula - see section 9.4***			
Proposed and Approved % Part 3 Participants Enrolled		***40% (metric in 2015 only)***	***Not applicable***				
TRC-Plus Ratio		Not applicable					

References:
2015 budget was part of Enbridge's incremental budget, not Enbridge's 2015 Low-Income budget, see Enbridge's DSM Plan: Exhibit B, Tab 1, Schedule 3, Page 16.
2016-2020 budgets from Enbridge's IRR to GEC.11
Approved 2016 target is explained in section 9.3

Market Transformation & Energy Management Programs

Residential Savings by Design	2014 (actuals)	2015 (proposed)	2016	2017	2018	2019	2020
Proposed & Approved Budget	$1,334,035	***$2,493,900***	***$3,250,842***	***$3,250,000***	***$3,250,000***	***$3,320,443***	***$3,392,296***
Proposed Participant Target - Builders Enrolled	23	18	30	20	22	23	25
Approved Participant Target - Builders Enrolled	23	18	***33***	***Formula - see section 9.4***			
Proposed Participant Target - Homes Built	1,059	1,111	2,501	2,250	2,295	2,341	2,388
Approved Participant Target - Homes Built		***1,111***	***2,751***	***Formula - see section 9.4***			
TRC-Plus Ratio	Not Applicable - Market Transformation New Construction Program						

References:
2014 budget from Table 8 of 2014 Annual Report; 2014 builder enrolled and homes metric participant metric from Table 3 of 2014 Annual Report
2015 proposed target escalates the 2014 proposed budget by 2% (rollover year); target builder enrolled and homes metric participant metric from Enbridge's Plan: Exhibit B, Tab 1, Schedule 3, Table 7
2016-2020 budgets from Enbridge's IRR to GEC.11
Approved 2016 target is explained in section 9.3

Commercial Savings by Design	2014 (actuals)	2015 (proposed)	2016	2017	2018	2019	2020
Proposed & Approved Budget	$739,435	$969,000	***$1,345,890***	***$950,000***	***$1,075,000***	***$1,098,300***	***$1,122,068***
Proposed Participant Target - New Developments Enrolled	19	18	30	15	20	21	21
Approved Participant Target		***18***	***33***	***Formula - see section 9.4***			
TRC-Plus Ratio	Not Applicable - Market Transformation New Construction Program						

References:
2014 budget from Table 8 of 2014 annual report; new developments enrolled participant metric from Table 3 of 2014 Annual Report
2015 proposed target escalates by 2% (rollover year); new developments enrolled participant metric at Enbridge's Plan: Exhibit B, Tab 1, Schedule 3, Table 8
2016-2020 budgets from Enbridge's IRR to GEC.11
Approved 2016 target is explained in section 9.3

New Construction Commissioning - *Not Approved*	**2014 (actuals)**	**2015 (proposed)**	**2016**	**2017**	**2018**	**2019**	**2020**
Proposed Budget	Not offered	Not offered	$850,000	$925,000	$1,000,000	$1,020,000	$1,040,400
Approved Budget			***$0***	***$0***	***$0***	***$0***	***$0***
Proposed Participant Target - New Developments Enrolled			20	26	28	28	28
Approved Participant Target			***0***	***0***	***0***	***0***	***0***
TRC-Plus Ratio			Not Applicable - Market Transformation New Construction Program				

References:
2016-2020 budgets from Enbridge's IRR to GEC.11
2016-2020 participants from Enbridge's DSM Plan:Exhibit B, Tab 1, Schedule 4

My Home Health Report - *Not Approved*	**2014 (actuals)**	**2015 (proposed)**	**2016**	**2017**	**2018**	**2019**	**2020**
Proposed Budget	Not offered	$2,650,000	$3,913,434	$6,910,000	$6,910,000	$7,059,774	$7,212,543
Approved Budget		***$2,650,000***	***$0***	***$0***	***$0***	***$0***	***$0***
Proposed Lifetime savings (CCM)		Not available	19,500,000	25,000,000	19,800,000	18,000,000	14,300,000
Approved Lifetime savings (CCM)		***Not available***	***0***	***0***	***0***	***0***	***0***
TRC-Plus Ratio		Not available	1.14 (average)				

References:
2015 budget from Enbridge's Plan: Exhibit B, Tab 1, Schedule 3, Table 10
2015-2020 participants from Enbridge's IRR to BOMA.44, p. 2
2016-2020 budgets from Enbridge's IRR to GEC.11; lifetime savings from Enbridge's IRR to GEC.14
2016-2020 TRC-plus value from Enbridge's undertaking J8.9

Home Rating - *Not Approved*	**2014 (actuals)**	**2015 (proposed)**	**2016**	**2017**	**2018**	**2019**	**2020**
Proposed Budget	$979,337	$1,353,687	$1,100,000	$1,100,000	$1,100,000	$1,100,000	$1,100,000
Approved Budget		***$1,353,687***	***$0***	***$0***	***$0***	***$0***	***$0***
Proposed Participant Target - Ratings Completed	662	4,500	596	808	982	1,128	1,252
Approved Participant Target		***4,500***	***0***	***0***	***0***	***0***	***0***
TRC-Plus Ratio	Not available						

References:
2014 budget from Table 8 of 2014 Annual Report; ratings performed participant metric from Table 3 of 2014 Annual Report

2015 proposed target is based on a 2% rate of increase (rollover year); ratings completed participant metric from Enbridge's Plan: Exhibit B, Tab 1, Schedule 3, Table 9

2016-2020 budgets from Enbridge's IRR to GEC.11

Energy Compass - *Not Approved*	**2014 (actuals)**	**2015 (proposed)**	**2016**	**2017**	**2018**	**2019**	**2020**
Proposed (shared between RA and MT&EM programs)	Not offered	Not offered	$302,197	$400,000	$200,000	$204,000	$208,080
Proposed Budget - RA portion			$252,032	$333,600	$166,800	$170,136	$173,539
Proposed Budget - MTEM portion			$50,165	$66,400	$33,200	$33,864	$34,541
Approved Budgets			***$0***	***$0***	***$0***	***$0***	***$0***
TRC-Plus Ratio			Not applicable				

References:
Enbridge divided the budget for this program between Resource Acquisition (RA) and Market Transformation Energy Management (MT&EM) budget.
2016-2020 budgets from Enbridge's IRR to GEC.11

School Energy Competition	2014 (actuals)	2015 (proposed)	2016	2017	2018	2019	2020
Proposed & Approved Budget	Not offered	Not offered	***$302,197***	***$600,000***	***$500,000***	***$510,000***	***$520,200***
Proposed Participant Target			50	60	70	80	90
Approved Participant Target			***55***	***Formula - see section 9.4***			
TRC-Plus Ratio			Not applicable				

References:
2016-2020 budgets from Enbridge's IRR to GEC.11
Approved 2016 target is explained in section 9.3

Run It Right	2014 (actuals)	2015 (proposed)	2016	2017	2018	2019	2020
Proposed & Approved Budget (shared between RA and MT&EM programs)	$1,488,647	Not available	***$1,510,986***	***$1,720,000***	***$1,900,000***	***$1,941,182***	***$1,983,188***
Proposed & Approved Budget - RA portion			***$1,260,162***	***$1,434,480***	***$1,584,600***	***$1,618,946***	***$1,653,979***
Proposed & Approved Budget - MTEM portion			***$250,824***	***$285,520***	***$315,400***	***$322,236***	***$329,209***
Proposed Participant Target	45 [Not a metric in 2014]	N/A [Not a metric in 2015]	75	86	99	114	131
Approved Participant Target		Not available	***83***	***Formula - see section 9.4***			
Proposed Lifetime savings (CCM)	3,125,440	Not available	303,005	421,124	592,254	768,306	907,297
Approved Lifetime savings (CCM)		Not available	***333,306***	***Formula - see section 9.4***			
TRC-Plus Ratio	0.29	Not available	Not available				

References:
Enbridge divided the budget for this program between Resource Acquisition (RA) and Market Transformation Energy Management (MT&EM) budget.
2014 TRC, budget, participants and lifetime savings from Table 9 and Table 15 of 2014 Annual Report
2015 program did not have a participant target
2016-2020 budgets from Enbridge's IRR to GEC.11; lifetime savings from Enbridge's IRR to GEC.14
Approved 2016 target is explained in section 9.3

Small Commercial & Industrial Behavioural - *Not Approved*	2014 (actuals)	2015 (proposed)	2016	2017	2018	2019	2020
Proposed Budget	Not offered	Not offered	Not available				
Proposed Participants			7,500	Not available			
Approved Budget			***$0***	***$0***	***$0***	***$0***	***$0***
TRC-Plus Ratio			Not available				

References:
2016 participants from Enbridge's Plan: Exhibit B, Tab 2, Schedule 1, p. 90

Comprehensive Energy Management	2014 (actuals)	2015 (proposed)	2016	2017	2018	2019	2020
Proposed & Approved Budget (shared between RA and MT&EM programs)	Not offered	***$370,000***	***$513,735***	***$844,045***	***$1,000,000***	***$1,020,000***	***$1,040,400***
Proposed & Approved Budget - RA portion			***$48,805***	***$80,184***	***$95,000***	***$96,900***	***$98,838***
Proposed & Approved Budget - MTEM portion			***$464,930***	***$763,861***	***$905,000***	***$923,100***	***$941,562***
Proposed Participant Target		Not available	6	9	10	10	10
Approved Participant Target			***7***	***Formula - see section 9.4***			
Proposed Lifetime savings (CCM)		Not available	869,485	1,321,771	897,856	1,075,479	1,709,498
Approved Lifetime savings (CCM)			***956,434***	***Formula - see section 9.4***			
TRC-Plus Ratio		Not applicable	Not applicable				

References:
Enbridge divided the budget for this program between Resource Acquisition (RA) and Market Transformation Energy Management (MT&EM) budget.
2015 budget was part of Enbridge's incremental budget, not Enbridge's 2015 Low-Income budget, see Enbridge's DSM Plan: Exhibit B, Tab 1, Schedule 3, Page 16.
2016-2020 budgets from Enbridge's IRR to GEC.11; lifetime savings from Enbridge's IRR to GEC.14
Approved 2016 target is explained in section 9.3

Energy Literacy	2014 (actuals)	2015 (proposed)	2016	2017	2018	2019	2020
Proposed Budget	Not offered	Not offered	$0	$500,000	$500,000	$510,808	$521,832
Approved Budget			***$0***	***$500,000***	***$500,000***	***$0***	***$0***
TRC-Plus Ratio			Not applicable				

References:
2016-2020 budgets from Enbridge's IRR to GEC.11; lifetime savings from Enbridge's IRR to GEC.14

Enbridge - Scorecard Metrics, Targets & Budgets						
		2012-2014	2015	2016		
Resource Acquisition	**Units**	**Average Actual Target Achievement**	**Target (Proposed)**	**Utility-Proposed Targets**	**Utility-proposed Targets adjusted to OEB Program Decisions**	**OEB Approved Targets (10% increase from Utility-Proposed adjusted for OEB Program Decisions)**
Large Volume Customers Cumulative Natural Gas Savings	CCM	800.4	1011.9	604.2	604.2	**664.6**
Small Volume Customers Cumulative Natural Gas Savings	CCM			290.2	290.2	**319.2**
Residential Deep Savings Participants	Participants	2357	762	7508	7508	**8259**
Budget including program overheads		$17,076,576	$19,175,275	$34,631,993		**$34,336,673**
Low-Income						
Single Family Cumulative Natural Gas Savings	CCM	27.8	24.1	28.9	28.9	**31.8**
Multi-Residential Cumulative Natural Gas Savings	CCM	33.5	68.7	59.0	59.0	**64.9**
Low-Income New Construction Program Participants (metric in 2015 is Proposed and Approved % Part 3 Participants Enrolled)	Project Applications	Not Offered	40% (metric in 2015 only)	5	5	**6**
Budget including program overheads		$6,669,560	$7,632,078	$11,895,411		**$11,945,410**
Market Transformation & Energy Management						
My Home Health Report	CCM	Not Offered	N/A	19.5	0	**N/A**
School's Energy Competition	Schools	Not Offered	Not offered	50	50	**55**
Run it Right	Participants	N/A	N/A	75	75	**83**
Comprehensive Energy Management	Participants	Not Offered	N/A	6	6	**7**
Residential Savings by Design	Builders	18	18	30	30	**33**
	Homes Built	1013	1111	2501	2501	**2751**
Commercial Savings by Design	New Developments	15	18	30	30	**33**
New Construction Commissioning	Enrollments	Not Offered	Not offered	20	0	**N/A**
Home Rating	Ratings	400	596	596	0	**N/A**
Budget including program overheads		$5,136,899	$9,264,587	$13,508,323		**$6,579,034**

Notes:

All targets shown are 100% targets.
2015 budgets include incremental budget items (Low Income new construction, My Home Health Report pilot and Comprehensive Energy Management). Low-income metric for 2015 only is % of Part 3 Participants Enrolled, with a target of 40%.
2012-2014 budget figures are average annual budgets over the 2012 to 2014 period
2015 Proposed Budget does not include amounts from School's Energy Competition or New Construction Commissioning
The 2012-2014 market transformation budget included drain water heat recovery program until 2013.
There was not residential savings by design homes metric until 2013.
2016 budget amounts include program-level overheads but do not include portfolio-level overheads.
Run-it-Right was a program in 2012-2014 but the metric used to measure savings participation changed.
Utility-proposed Targets include the impact of OEB-approved changes to budgets (such as canceling, adding, or augmenting a program's budget), see the program section and appendices for more details on these changes.

References:

2012-2014 budgets from EB-2012-0394, Exhibit B, Tab 1, Schedule 2 pp. 2-3; 2012-2014 targets from ibid., p. 4
2015 budgets from EB-2015-0049, Exhibit B, Tab 1, Schedule 3, p. 5; 2015 targets come from ibid., 14-16, 2015 budgets come from Ibid., p.6.
2016 budget from EB-2015-0049, Exhibit B, Tab 1, Schedule 4, p. 3; 2016 targets come from ibid., pp. 10, 20, 29.
2012-2014 actual budget and targets were taken from annual reports.

Enbridge Gas Distribution Inc. 2016 to 2020 DSM Budget and Targets

Resource Acquisition	2016 Proposed Budget	2016 OEB Approved Budget	2016 Proposed CCM Targets	2016 OEB Approved CCM Targets	2016 Proposed Participant Targets	2016 OEB Approved Participant Targets	2017 Proposed Budget	2017 OEB Approved Budget	2018 Proposed Budget	2018 OEB Approved Budget	2019 Proposed Budget	2019 OEB Approved Budget	2020 Proposed Budget	2020 OEB Approved Budget	Total Proposed Budget (2016-2020)	Total OEB Approved Budget (2016-2020)	Reference for Changes in the Decision (Section)
Home Energy Conservation	$ 12,148,317	$ 12,148,317	102,622,499	112,884,749	7,508	**8,259**	$ 15,180,000	$ 15,180,000	$ 18,000,000	$ 18,000,000	$ 18,360,000	$ 18,360,000	$ 18,727,200	$ 18,727,200	$ 82,415,517	$ 82,415,517	5.2.1
Residential Adaptive Thermostats	$ 876,371	$ 876,371	23,864,839	26,251,323			$ 1,525,000	$ 1,525,000	$ 2,175,000	$ 2,175,000	$ 2,218,500	$ 2,218,500	$ 2,262,870	$ 2,262,870	$ 9,057,741	$ 9,057,741	5.2.2
Commercial & Industrial Prescriptive	$ 2,196,952	$ 2,196,952	133,443,276	146,787,604			$ 2,241,134	$ 2,241,134	$ 2,232,905	$ 2,232,905	$ 2,277,564	$ 2,277,564	$ 2,323,114	$ 2,323,114	$ 11,271,669	$ 11,271,669	5.2.4
Commercial & Industrial Direct Install	$ 4,955,421	$ 4,955,421	60,358,661	66,394,527			$ 5,060,872	$ 5,060,872	$ 4,758,344	$ 4,758,344	$ 4,853,510	$ 4,853,510	$ 4,950,581	$ 4,950,581	$ 24,578,728	$ 24,578,728	5.2.5
Commercial & Industrial Custom	$ 7,020,664	$ 7,020,664	572,893,403	630,182,743			$ 7,157,145	$ 7,157,145	$ 7,361,562	$ 7,361,562	$ 7,508,793	$ 7,508,793	$ 7,658,968	$ 7,658,968	$ 36,707,132	$ 36,707,132	5.2.6
Small Commercial New Construction - ***Revised***	$ 396,933	$ 396,933					$ 1,305,566	$ 1,305,566	$ 2,396,825	$ 1,305,566	$ 2,444,762	$ -	$ 2,493,657	$ -	$ 9,037,743	$ 3,008,065	5.2.7
Energy Leaders (Large & Small C/I) - ***Revised as PILOT***	$ 400,000	$ 400,000					$ 600,000	$ 400,000	$ 800,000	$ 400,000	$ 816,000	$ -	$ 832,320	$ -	$ 3,448,320	$ 1,200,000	5.2.8
Energy Compass (RA portion) **- *Rejected***	$ 252,032	$ -	N/A				$ 333,600	$ -	$ 166,800	$ -	$ 170,136	$ -	$ 173,539	$ -	$ 1,096,107	$ -	5.4.6
Run It Right (RA portion)	$ 1,260,162	$ 1,260,162	303,005	333,306			$ 1,434,480	$ 1,434,480	$ 1,584,600	$ 1,584,600	$ 1,618,946	$ 1,618,946	$ 1,653,979	$ 1,653,979	$ 7,552,167	$ 7,552,167	5.4.10
Comprehensive Energy Management (RA portion)	$ 48,805	$ 48,805	869,485	956,434			$ 80,184	$ 80,184	$ 95,000	$ 95,000	$ 96,900	$ 96,900	$ 98,838	$ 98,838	$ 419,727	$ 419,727	5.4.11
Resource Acquisition Program Budget	$ 29,555,657	$ 29,303,625					$ 34,917,980	$ 34,384,381	$ 39,571,035	$ 37,912,977	$ 40,365,109	$ 36,934,213	$ 41,175,066	$ 37,675,550	$ 185,584,851	$ 176,210,746	
*Resource Acquisition Overhead - **Revised***	*$ 5,076,336*	*$ 5,033,048.21*					*$ 5,183,539*	*$ 5,104,327*	*$ 5,479,056*	*$ 5,249,479*	*$ 5,597,856*	*$ 5,122,057*	*$ 5,719,034*	*$ 5,232,967*	*$ 27,055,821*	$ 25,741,878	
Resource Acquisition Total	$ 34,631,993	**$ 34,336,673**	894,355,168	**983,790,685**			$ 40,101,520	**$ 39,488,708**	$ 45,050,090	**$ 43,162,456**	$ 45,962,966	**$ 42,056,270**	$ 46,894,100	**$ 42,908,517**	$ 212,640,672	**$ 201,952,624**	
Low-Income																	
Home Winterproofing - ***Revised***	$ 5,756,064	$ 5,806,064	28,900,000	31,790,000			$ 6,240,000	$ 6,290,000	$ 6,427,200	$ 6,477,200	$ 6,555,744	$ 6,605,744	$ 6,686,859	$ 6,736,859	$ 31,665,867	$ 31,915,867	5.3.1
Low-Income Multi-Residential - Affordable Housing	$ 3,279,028	$ 3,279,028	59,000,000	64,900,000			$ 3,418,121	$ 3,418,121	$ 3,813,296	$ 3,813,296	$ 3,889,562	$ 3,889,562	$ 3,967,353	$ 3,967,353	$ 18,367,360	$ 18,367,360	5.3.4
Low-Income New Construction	$ 1,116,696	$ 1,116,696			5	**6**	$ 1,200,000	$ 1,200,000	$ 1,400,000	$ 1,400,000	$ 1,428,000	$ 1,428,000	$ 1,456,560	$ 1,456,560	$ 6,601,256	$ 6,601,256	5.3.5
Low-Income Program Budget	$ 10,151,789	$ 10,201,788					$ 10,858,121	$ 10,908,121	$ 11,640,496	$ 11,690,496	$ 11,873,306	$ 11,923,306	$ 12,110,772	$ 12,160,772	$ 56,634,483	$ 56,884,483	
*Low-Income Overhead **- Revised***	*$ 1,743,622*	*$ 1,743,622*					*$ 1,611,877*	*$ 1,619,299*	*$ 1,611,758*	*$ 1,618,681*	*$ 1,646,597*	*$ 1,653,531*	*$ 1,682,133*	*$ 1,689,078*	*$ 8,295,987*	*$ 8,324,211*	
Low-Income Total	$ 11,895,411	**$ 11,945,410**	87,900,000	**96,690,000**			$ 12,469,998	**$ 12,527,420**	$ 13,252,254	**$ 13,309,177**	$ 13,519,903	**$ 13,576,837**	$ 13,792,905	**$ 13,849,850**	$ 64,930,470	**$ 65,208,694**	
Market Transformation & Energy Management																	
Residential Savings by Design	$ 3,250,842	$ 3,250,842			2501 (30)	**2751 (33)**	$ 3,250,000	$ 3,250,000	$ 3,250,000	$ 3,250,000	$ 3,320,443	$ 3,320,443	$ 3,392,296	$ 3,392,296	$ 16,463,581	$ 16,463,581	5.4.1
My Home Health Report - ***Rejected***	$ 3,913,434	$ -	19,500,000	-			$ 6,910,000	$ -	$ 6,910,000	$ -	$ 7,059,774	$ -	$ 7,212,543	$ -	$ 32,005,751	$ -	5.4.2
Commercial Savings by Design	$ 1,345,890	$ 1,345,890			30	**33**	$ 950,000	$ 950,000	$ 1,075,000	$ 1,075,000	$ 1,098,300	$ 1,098,300	$ 1,122,068	$ 1,122,068	$ 5,591,258	$ 5,591,258	5.4.3
New Construction Commissioning **- *Rejected***	$ 850,000	$ -			20		$ 925,000	$ -	$ 1,000,000	$ -	$ 1,020,000	$ -	$ 1,040,400	$ -	$ 4,835,400	$ -	5.4.4
Home Rating - ***Rejected***	$ 1,100,000	$ -			596		$ 1,100,000	$ -	$ 1,100,000	$ -	$ 1,100,000	$ -	$ 1,100,000	$ -	$ 5,500,000	$ -	5.4.5
Energy Compass (MTEM portion) - ***Rejected***	$ 50,165	$ -					$ 66,400	$ -	$ 33,200	$ -	$ 33,864	$ -	$ 34,541	$ -	$ 218,170	$ -	5.4.6
School's Energy Competition	$ 302,197	$ 302,197			50	**55**	$ 600,000	$ 600,000	$ 500,000	$ 500,000	$ 510,000	$ 510,000	$ 520,200	$ 520,200	$ 2,432,397	$ 2,432,397	5.4.7
Small Commercial and Industrial Behavioural **- *Rejected***	N/A						N/A	$ -	N/A	$ -	N/A	$ -	N/A	$ -	N/A	$ -	5.4.8
Run It Right (MTEM portion)	$ 250,824	$ 250,824			75	**83**	$ 285,520	$ 285,520	$ 315,400	$ 315,400	$ 322,236	$ 322,236	$ 329,209	$ 329,209	$ 1,503,189	$ 1,503,189	5.4.10
Comprehensive Energy Management (MTEM portion)	$ 464,930	$ 464,930			6	**7**	$ 763,861	$ 763,861	$ 905,000	$ 905,000	$ 923,100	$ 923,100	$ 941,562	$ 941,562	$ 3,998,453	$ 3,998,453	5.4.11
Market Transformation Program Budget	$ 11,528,281	$ 5,614,683					$ 14,850,781	$ 5,849,381	$ 15,088,600	$ 6,045,400	$ 15,387,718	$ 6,174,079	$ 15,692,818	$ 6,305,335	$ 72,548,199	$ 29,988,878	
*Market Transformation Overhead - **Revised***	*$ 1,980,042*	*$ 964,351*					*$ 2,204,584*	*$ 868,335*	*$ 2,089,187*	*$ 837,054*	*$ 2,133,977*	*$ 856,225*	*$ 2,179,663*	*$ 875,783*	*$ 10,587,453*	$ 4,401,747	
Market Transformation & Energy Management Total	$ 13,508,323	**$ 6,579,034**	19,500,000	**0**			$ 17,055,364	$ 6,717,716	$ 17,177,787	$ 6,882,454	$ 17,521,695	$ 7,030,304	$ 17,872,481	$ 7,181,118	$ 83,135,652	$ 34,390,625	
Total Program Budget without Program Overhead	$ 51,235,727	$ 45,120,096					$ 60,626,882	$ 51,141,883	$ 66,300,131	$ 55,648,873	$ 67,626,133	$ 55,031,598	$ 68,978,656	$ 56,141,657	$ 314,767,529	$ 263,084,107	
Total Program Overhead	*$ 8,800,000*	*$ 7,741,021*					*$ 9,000,000*	*$ 7,591,961*	*$ 9,180,000*	*$ 7,705,214*	*$ 9,378,430*	*$ 7,631,813*	*$ 9,580,829*	*$ 7,797,828*	*$ 45,939,259*	*$ 38,467,837*	
Total Program Budget with Program Overhead	$ 60,035,727	$ 52,861,117					$ 69,626,882	$ 58,733,844	$ 75,480,131	$ 63,354,087	$ 77,004,564	$ 62,663,411	$ 78,559,485	$ 63,939,485	$ 360,706,794	$ 301,551,944	
Portfolio-level Overhead	*$ 3,500,000*	*$ 3,500,000*					*$ 3,700,000*	*$ 3,700,000*	*$ 3,700,000*	*$ 3,700,000*	*$ 3,758,362*	*$ 3,758,362*	*$ 3,817,891*	*$ 3,817,891*	*$ 18,476,253*	*$ 18,476,253*	
Process and program evaluation	*$ 1,500,000*	*$ 1,500,000*					*$ 1,700,000*	*$ 1,700,000*	*$ 1,700,000*	*$ 1,700,000*	*$ 1,736,746*	*$ 1,736,746*	*$ 1,774,228*	*$ 1,774,228*	*$ 8,410,974*	*$ 8,410,974*	
Collaboration and innovation	*$ 1,000,000*	*$ 1,000,000*					*$ 1,000,000*	*$ 1,000,000*	*$ 1,000,000*	*$ 1,000,000*	*$ 1,021,616*	*$ 1,021,616*	*$ 1,043,663*	*$ 1,043,663*	*$ 5,065,279*	*$ 5,065,279*	
DSM IT Chargeback	*$ 1,000,000*	*$ 1,000,000*					*$ 1,000,000*	*$ 1,000,000*	*$ 1,000,000*	*$ 1,000,000*	*$ 1,000,000*	*$ 1,000,000*	*$ 1,000,000*	*$ 1,000,000*	*$ 5,000,000*	*$ 5,000,000*	
Energy Literacy **- *Revised***	$ -						$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 510,808	$ -	$ 521,832	$ -	$ 2,032,640	$ 1,000,000	5.4.9
GRAND TOTAL	$ 63,535,727	**$ 56,361,117**	1,001,755,168	**1,080,480,685**			$ 73,826,882	**$ 62,933,844**	$ 79,680,131	**$ 67,554,087**	$ 81,273,733	**$ 66,421,773**	$ 82,899,208	**$ 67,757,376**	$ 381,215,687	**$ 321,028,197**	

Change

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [A/1/2, p. 3]

Question:

Please explain why Enbridge and Union each have separate counsel and case managers for this proceeding, when they are now part of the same company. In this respect:

a. Please provide the full budget for this proceeding for each of Enbridge and Union, including details of the forecast cost of counsel, any other external costs, and the internal costs allocated to the proceeding.

b. Please provide a breakdown of which components of the budgets for this proceeding are charged to the DSM budgets of Enbridge and Union, if any, and which components of those budgets are charged to the regulatory budgets of Enbridge and Union.

c. Please provide details of the impact, if any, of the costs of this proceeding on the DSMVA for 2016 or any subsequent year.

Response:

a) to c)

EGD and Union's OEB-approved DSM programs were separate and distinct during the 2016 DSM Program year. The utilities' individual 2016 DSM results were verified by the OEB's independent Evaluation Contractor who issued its 2016 Natural Gas Demand Side Management Annual Verification report reflecting the utilities' individual 2016 DSM programs, nearly 2 years following the close of the 2016 DSM program year.

Consistent with historic practice, Union and EGD filed individual 2016 DSM Clearance Applications on November 30, 2018 and December 10, 2018, recognizing: (i) the unique nature of the utilities' OEB-approved 2016 DSM programs, (ii) the EC's subsequent

distinct verification of the utilities' respective results within its Annual Verification report, and (iii) considering the accumulative customer impact of continued delays in the clearance of 2016 DSM deferral account balances. As with the utilities' 2015 DSM Clearance Applications, the 2016 DSM Clearance Applications contained aspects which required the use of separate internal resources and counsel familiar with the utilities' specific and unique DSM programs.

Following submission of their 2016 DSM Clearance Applications, the utilities amalgamated to become Enbridge Gas Inc. ("Enbridge Gas"), effective January 1, 2019. Enbridge Gas has assigned a single Regulatory case manager to this proceeding. No separate budget has been established by Enbridge Gas for the costs associated with the 2016 DSM Clearance applications. Regulatory costs associated with DSM are managed within the overall budget for regulatory proceedings. None of the costs associated with this proceeding are included in Enbridge Gas's 2016 DSMVA balances for either of the EGD rate zone or the Union rate zones.

Given the scope and nature of this proceeding, incremental proceeding-related costs are not expected to be material; however, Enbridge Gas will seek to leverage efficiencies wherever possible going forward.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/1/1, p. 3-5]

Question:

Please confirm that the correct quote from the Board's EB-2015-0049 Decision dealing with "best available information" says as follows (at page 75):

"To calculate next year's targets, the OEB directs the utilities to use the new, updated input assumptions and net-to-gross factors that are the result of the annual evaluation process. The OEB finds it appropriate to use the best available information to determine subsequent targets for prescriptive programs."

Response:

The quote referring to "best available information" from the Board's EB-2015-0049 Decision is found in Section 9.5 'Input Assumption and Net-to-Gross Adjustments'. Section 9.5 begins on page 73 and ends on page 75 with the following paragraphs speaking to "best available information":[1]

> To calculate next year's targets, the OEB directs the utilities to use the new, updated input assumptions and net-to-gross factors that are the result of the annual evaluation process. The OEB finds it appropriate to use the best available information to determine subsequent targets for prescriptive programs.
>
> To calculate lost revenues, the OEB directs the utilities to use the final natural gas savings amounts calculated from the use of the best available information that are the result of the annual evaluation process. It is appropriate to use the best available information when determining lost revenues that are the result of DSM programs as this will provide the best indication of the actual effect of the programs and is needed when comparing this amount with the load reduction amounts included in the gas utilities' load forecast.

[1] EB-2015-0029/0049, Decision and Order, January 20, 2016, p. 75.

The topic of input assumptions and net-to-gross adjustments is again addressed in Section 2.2 'Input Assumptions and Net-to-Gross Adjustments' of the Board's Revised Decision and Order where the Board confirmed the following:

> Union interpreted the OEB's Decision to mean that input assumptions and net-to-gross adjustment factors are finalized for a given year based on the previous year's final DSM audit.
>
> Decision
> The OEB confirms that Union's interpretation is correct.[2]

EGD can be substituted for Union as the Board's confirmation applies to both utilities.

The Revised Decision confirmation cited above was in response to Union's written comments requesting clarity on the Board's treatment of input assumptions and net-to-gross adjustments as follows:

> Consistent with the Board's previous EB-2006-0021 Decision, Union interprets the above to mean that input assumptions and net-to-gross adjustment factors are finalized for a given year based on the previous year's final DSM audit. By way of example, upon the completion of the 2016 audit in June 2017, the **best available input assumptions and net-to-gross adjustment factors** used to determine the 2016 LRAM results will be used to determine the 2017 scorecard targets and the final 2017 savings results for the purpose of determining the 2017 DSM Incentive. This process ensures that targets and achievements are based on the same set of input assumptions and net-to-gross adjustment factors.
>
> Given that the Board's Decision is effective for 2015 and based on the process outlined above, Union's 2015 results for the purpose of determining the 2015 DSM Incentive will be based on the same input assumptions and net-to-gross adjustment factors used for setting Union's 2015 targets. These inputs were finalized in Union's 2014 DSM audit.
>
> Lastly, for the purpose of determining Union's 2016 DSM Incentive, **the 2016 results will use the same input assumptions and net-to-gross adjustment factors that were used to determine Union's 2016 targets**.[3]

[2] EB-2015-0029/0049, Revised Decision and Order, February 24, 2016, p. 3.
[3] EB-2015-0029/0049, Union Gas Limited Written Comments, February 3, 2016, pp. 2-3. [Emphasis added]

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/1/1, p. 5]

Question:

Please confirm that the correct quote from the Board's EB-2015-0029/49 Revised Decision dealing with "Union's interpretation" is as follows (page 3):

"Union interpreted the OEB's Decision to mean that input assumptions and net-to-gross adjustment factors are finalized for a given year based on the previous year's final DSM audit.

Decision: The OEB confirms that Union's interpretation is correct."

Response:

Confirmed.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/1/1, p. 9]

Question:

Please provide details of the change to the August 1 revised scorecard.

Response:

The details of the changes to the August 1 revised scorecard are summarized in the Table below.

"Revised Scorecard" submitted August 1st, 2018	**"Corrected Revised Scorecard"** submitted December 21st, 2018 (Exhibit B, Tab 5, Schedule 1)
The revised custom C/I and RiR NTG factors were applied to original 2016 Resource Acquisition targets which were rounded to the nearest 100,000.	The revised custom C/I and RiR NTG factors were applied to original 2016 Resource Acquisition targets precise to the nearest single m^3.
The recalculation of targets (utilizing the updated NTG factors) was based on a distribution of 2016 targets which was the same at the distribution of 2016 results (as outlined in EGD's 2016 Draft Annual Report, since final audited 2016 results had not yet been determined).	The recalculation of targets (utilizing the updated NTG factors) was more accurately based on a distribution of 2016 targets detailed in the January 20th, 2016 Board Decision (as outlined in the OEB spreadsheet referenced in evidence at Exhibit B, Tab 1, Schedule 1, Footnote 23 and attached to the response at Exhibit C.SEC.EGD.6).
The recalculation applied the Large Custom NTG adjustment factor to the Run it Right portion of the target.	The recalculation correctly applied the updated Run it Right NTG adjustment factor to the Run it Right portion of the target.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/1/1, p. 11]

Question:

Please provide the excel spreadsheet referred to in Footnote 23.

Response:

The Excel spreadsheet referenced has been provided directly to SEC via email. Other parties who wish to obtain the Excel spreadsheet can contact Enbridge Gas directly.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/1/1, p. 12]

Question:

Please confirm it is Enbridge's position that none of the delays in the 2016 program year evaluation were caused by Enbridge or Union. If that is not the case, please provide details of all actions (or failures to act) of either utility that caused any delays.

Response:

The evidence referenced by SEC at Exhibit C.SEC.EGD.7 and at Exhibit C.SEC.Union.22 discussed EGD's and Union's (together the "utilities") concerns with the overall delay of the audit process. SEC's question does not accurately characterize Enbridge Gas's positions, which are threefold:

1. Since the 2015 audit was not completed until late 2017, the process to review the 2016 program year did not commence until early 2018.

2. Efforts have been made to improve the EM&V process in the past 12 months, including the development of a more efficient CPSV process. However, Enbridge Gas remains concerned that the two-year delay between completion of a DSM program year and the subsequent completion of the related EM&V process has not been significantly improved since the OEB assumed control of the process in 2015.[1]

3. A significant, coordinated effort must be made to advance the EM&V process timeline in 2018/2019 so that final 2018 audit results are completed and available by mid-2019.

[1] EB-2018-0300, Exhibit A, Tab 2, pp. 19 – 20; EB-2018-0301, Exhibit B, Tab 1, Schedule 1, pp. 12 – 17.

As an improvement over the 2015 evaluation effort, the utilities requested OEB Staff to instruct the Evaluation Contractor to outline and share a detailed timeline to support a more efficient execution of the 2016 annual evaluation effort.

Both EGD and Union endeavoured to meet the deadlines proposed for the various milestones and deliverables assigned to them as outlined in the work plan/timeline and did so with few exceptions, in which case there may have been minor delays. To the best of the utilities' knowledge, the timing of data delivery did not meaningfully contribute to delays in the 2016 audit.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/1/1, p. 12]

Question:

Please provide details of all adaptations to program delivery or changes to relative program efforts that Enbridge implemented in any of 2011-2014 due to the evaluation results from the immediately preceding year.

Response:

Unlike the OEB-coordinated evaluation, measurement and verification ("EM&V") process which took effect with the 2015 DSM program year; for the 2011 DSM program year EGD and Union co-ordinated separate Evaluation & Audit Committees to oversee evaluation and audit activities. In November 2011, a joint Terms of Reference for Stakeholder Engagement was filed with the Board, taking effect in 2012.[1] The 2012-2014 EM&V process was governed by two separate Audit Committees (one for each of EGD and Union) and one joint Technical Evaluation Committee ("TEC") which included utility representatives working jointly with intervenor representatives and industry experts to address broader evaluation activities. From 2012 to 2014, audit reports routinely included various findings/recommendations. Some recommendations related to improvements to the verification/evaluation effort, some outlined findings or recommendations regarding the utilities' programs themselves.

Examples of changes to EGD's DSM programs in 2011-2014 resulting from prior annual audits/EM&V include:

- 2010 Audit - Recommendation to complete persistence study for Pre-Rinse Spray Valves. Based on research completed in 2011, EGD found removal rates were higher than rates previously tested. The new higher removal rates were applied to 2011 results and the offer was subsequently discontinued.

[1] EB-2011-0295 Terms of Reference for Stakeholder Engagement, Exhibit B, Tab 2, Schedule 9; https://www.oeb.ca/oeb/_Documents/Documents/EGDI_appl_DSM%20plan%202012-2014_20111104.PDF

- 2011 Audit – The auditor recognized EGD for implementing the bag-test procedure for its low flow showerhead offers and for documenting and reporting actual baseline flow rates, suggesting this level of documentation of baseline conditions was beyond that typically expected for this type of measure. The auditor recommended scaling back bag-testing processes for the following year. EGD did so; resulting in more streamlined delivery in 2012. Bag-testing was re-introduced again in 2013.
- 2012 Audit – The auditor recommended EGD refine custom program management to outline clear requirements for equipment installation dates and dates for commissioning completion. In the following year, EGD revised requirements for completion of the various stages of a project claimed to ensure any commissioning requirements were addressed and completed appropriately ahead of evaluation/verification efforts.
- 2013 Audit – The auditor recommended that EGD or an evaluator should survey Run It Right participants prior to any billing regression analysis to better understand exogenous factors affecting gas usage. EGD subsequently surveyed customers during the 2014 audit process. Also, beginning in 2014, in response to evaluation findings, EGD introduced a standardized approach in the building investigation phase of the offer and increased the scope of the investigation agent's involvement to support better identification of factors impacting gas usage.

In addition, the Technical Evaluation Committee was frequently tasked with responding to audit findings or identified evaluation priorities, such as:

- Standardization of CPSV Terms of Reference;
- Formalized Sampling Methodology for Custom offer verification;
- Establishment of a Technical Reference Manual (TRM);
- Consensus agreement of NTG values for Residential Whole Home programs; and
- Reviews and updates to the Measure Life for various offers including the Low Income and Residential home retrofit offers.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/1/1, p. 13]

Question:

Please provide details (date of EAC meeting, or copy of email or other written communication) of the approval by the EC of applying 2015/16 average realization rates for custom projects to the 2017 results. Please provide a copy of the written proposal of Enbridge and Union to apply such average, together with all supporting documents. Please confirm that the EAC has, with the agreement of the EC, determined to proceed with an evaluation of the 2017 and 2018 combined, in order to save time and money.

Response:

The scope of the 2017 Custom Project Savings Verification ("CPSV") evaluation was discussed at the September 12, 2018 Evaluation Advisory Committee ("EAC") meeting. As specified on the agenda sent out by email from Board Staff on September 11, 2018, the topics for discussion included the following:

> 2017 evaluation scope – discussion – we'd like to get EAC input on three options we're considering for the 2017 CPSV evaluation, namely:
> a. status quo – go in-field like the last two years
> b. conduct a two year verification – 2017 & 2018
> c. apply a weighted average of Gross RR from 2015 and 2016 evaluation to 2017 CPSV results, and instead initiate 2018 CPSV as soon as possible (including a new NTG study)

In a follow up email on September 11, 2018 the Evaluation Contractor ("EC") DNV GL, commented on some advantages and disadvantages of the options to be discussed at the September 12, 2018 EAC meeting and indicated that the CPSV results were relatively consistent from 2015 and 2016, and that they did not see any obvious reason why they would change significantly in 2017. They further highlighted that they saw no obvious reason why the ratios for 2017 and 2018 would be expected to be much different from one another given that 2015 and 2016 both saw ratios close to 100% already.

In its Application, EGD commented that being mindful of the continuing concerns with delays, in the case of the Commercial and Industrial custom savings verification, during the September 12, 2018 EAC meeting, EGD proposed that the EC proceed with the application of an average realization rate from the 2015 and 2016 verification studies to the 2017 custom results in order to expedite a more timely 2017 DSM Clearance application and instead initiate 2018 CPSV as soon as possible. This proposal was based on observations made by the EC that pointed to very stable realization rates in 2015 and 2016 that could reasonably be assumed to continue in 2017. As evidenced in the application of a weighted proxy value to the Low Income custom verification in 2017, the EC has agreed that this would be a reasonable approach.[1]

Enbridge Gas does not confirm that the EAC has, with the agreement of the EC, determined to proceed with a combined evaluation for 2017 and 2018 in order to save time and money. Three EAC members submitted different proposals on to how to approach 2017 and 2018 CPSV. The decision to proceed with a combined 2017/2018 CPSV was not made by the EC, but by OEB Staff when it released its 2017/2018 CPSV RFP to tender on December 3, 2018.

Unfortunately, as a consequence of OEB Staff's decision in this regard, final results on the 2017 as well as 2018 program years are not likely to be determined until very late in 2019. Enbridge Gas expects that OEB Staff's determination on how to proceed will ensure that excessive delays in the audit process persist at a minimum for the 2017 DSM program year. Further, Enbridge Gas is concerned that OEB Staff's decision on how to proceed will save neither time nor money relative to the utilities' proposal to apply a weighted average gross realization rate from 2015 and 2016 which would have resolved excessive and persistent audit delays for the 2017 DSM program year audit.

[1] EB-2018-0301, Exhibit B, Tab 1, Schedule 1, p. 13.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/1/1, p. 17]

Question:

Please provide the existing accounting order for the Enbridge DSMVA, and a markup showing the changes from that to the proposed accounting order. For each change, please explain how it responds to the decision of the Board in the Mid-Term Review.

Response:

Please see Attachment 1 for a copy of the proposed DSMVA Accounting Order for the EGD rate zone with a markup outlining the changes from the original DSMVA as approved in EGD's 2018 rate proceeding.

A draft accounting order for the DSMVA was included in this proceeding in response to the Board's instructions in the Report of the Board: Mid-Term Review of the Demand Side Management Framework for Natural Gas Distributors (2015-2020).[1] In the Mid-Term Review, EGD put forward a request for the establishment of a new DSM Participant Incentive Deferral Account to carry forward approved DSM customer incentives for multi-year programs. Customer incentive payments are a component of the annual DSM budget recovered through rates. However, due to the multi-year aspect of several of EGD's programs, incentive amounts recovered in the current year, may not be payable until they become due in future years.

In the Mid-Term Report, the Board did not approve this new deferral account. The Board instead instructed EGD to track future financial commitments of multi-year programs using the existing DSMVA and to submit a draft accounting order within the 2016 DSM Deferral and Variance Account application demonstrating the change.

[1] EB-2017-0127/8, Report of the Ontario Energy Board, Mid-Term Review of the DSM Framework for Natural Gas Distributors (2015-2020), November 29, 2018, p. 22.

The change to the accounting order as a result of the Mid-Term Report can be found in the second paragraph of the draft accounting order. The language included will allow the DSMVA to track the variance between the forecasted customer incentives committed to current and previous program participants. EGD has several multi-year programs with customer incentive payouts eligible for up to 3 or 5 years, respectively. The variance recorded will be the forecasted commitments net of the customer incentive payments made in the current year or the commitments redeemed from prior program participants. Payments that are not redeemed by program participants will be returned at the end of the last potential commitment date or as directed by the OEB.

The two other minor changes noted are intended to provide the Board further clarity and are not related specifically to the DSMVA.

ACCOUNTING TREATMENT FOR A DEMAND SIDE MANAGEMENT VARIANCE ACCOUNT ("DSMVA")

The purpose of the DSMVA is to record the difference between the actual DSM spending for the fiscal year and the budgeted amount included within rates. Amounts determined to be over or under the budget included within Allowed Revenue will be recorded in the DSMVA, subject to the DSMCEIDA. In addition, any further variance in DSM spending and results, beyond the budget included within rates, which ~~occurs~~occur as a result of Board decisions in ongoing or upcoming DSM proceedings, will be included within the DSMVA.

A portion of the variance captured in the DSMVA will reflect forecast commitments in customer incentive payments for future periods. Customer incentive payments are a component of the annual DSM budget recovered through rates. However, due to the multi-year aspect of several of the Company's programs, incentive amounts recovered in the current year, may not be payable until they become due in future years. In accordance with the Report of the Ontario Energy Board: Mid-Term Review of the Demand Side Management (DSM) Framework for Natural Gas Distributors (2015 – 2020), the DSMVA will be used to track and carry forward the forecasted cumulative customer incentive commitments net of payments made (in relation to incentive commitments made in the current year, or in relation to incentives paid that became due in the current year in relation to commitments made in prior years). Each incentive amount not paid out will be returned to ratepayers in the year following its last potential commitment date, or at such other time as directed by the Board.

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 variances in relation to appropriate DSM program costs only:

Debit/Credit:	DSMVA	(Account 179. 06_)
Credit/Debit:	Operating & Maintenance	(Various accounts)

To record the difference between actual and approved Demand Side Management operating expenditures, both debits and credits.

2. Interest accrual:

Debit/Credit:	Interest on DSMVA	(Account 179. 07_)
Credit/Debit:	Interest expense	(Account 323. 000)

To record simple interest on the opening monthly balance of the DSMVA using the Board approved EB-2006-0117 interest rate methodology.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/3/1, p. 6]

Question:

Please explain why recommendation O3A dealing with the utilities databases "should be directed to OEB staff".

Response:

Audit recommendation O3A proposes: Develop, maintain, and use an electronic summary of the TRM, such as an Excel file.

As outlined in the OEB's March 4, 2016 letter regarding the Transition of the Technical Evaluation Committee Activities to the OEB (EB-2015-0245), "The management of the online portion of the TRM has been transitioned to OEB Staff, who will post the final TRM online when it is available."[1] To date no such online electronic summary of the TRM has been made available.

Since the TRM has been transitioned to OEB Staff, OEB Staff is the appropriate party to consider and respond to the EC's recommendation.

[1] EB-2015-0245 Memorandum Re: Transition of Technical Evaluation Committee Activities to the OEB, March 4, 2016, p. 2.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/3/1, p. 16]

Question:

Please confirm that, going forward, the utilities will "report spending in a consistent format and apportion the overhead costs to individual programs".

Response:

Enbridge Gas Distribution Inc. and Union Gas Limited amalgamated effective January 1, 2019. Alignment in the allocation and reporting of DSM costs between the two existing DSM Plans will be considered in due course going forward as appropriate.

Please also see the response at Exhibit C.SEC.EGD.2.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/3/1, p. 21]

Question:

Please comment on the appropriateness of carrying out the CPSV process on a rolling average basis over a period of years (3, 4, or 5) so that the sample is always a multi-year sample, and each year a new year is added for project verifications and the earliest year is dropped off.

Response:

Enbridge Gas is open to discussions at the EAC on alternative options regarding future custom project savings verification ("CPSV") efforts, particularly where such options can provide efficiency gains in terms of time and cost, as well as reduce burden on customers, while also ensuring an appropriately fulsome assessment of program results.

Without carefully and fully understanding the specifics and mechanics of executing SEC's proposed CPSV process on a rolling average basis over a period of years, including an assessment of the successes/shortcomings and learnings of any similar approach employed in other jurisdictions, Enbridge Gas is not in a position to provide comment on the merits of this proposed approach.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/3/1, p. 22]

Question:

Please explain why future potential "changes in operating conditions" are not reflected in CCM forecasts over the full measure life. Please comment on whether measurement of actual results over multiple years could be used to ensure that only real savings are credited to the utilities.

Response:

Generally speaking, industry practice for evaluating natural gas custom projects is to review original engineering calculations that use the best available information, including operating conditions, available at the time of the original claim. This best available information is verified and updated, if required, by an independent third party verifier during the CPSV process to capture changes, including updated inputs and operating conditions. Updated inputs and operating conditions are then used to recalculate verified savings claims, which are reflected in CCM savings over the full measure lives of the projects being evaluated.

The Evaluation Contractor reported that EGD and Union generally produced solid ex ante engineering estimates of savings that were not systematically biased.

As discussed in EGD's DSM Mid-Term Review Submission (EB-2017-0128), measurement of gas savings through metered gas consumption analysis over multiple years could add logistical and administrative challenges and, depending on metering requirements, could potentially result in significant additional cost.

Measurement of savings based on metered consumption analysis over multiple years might be used as an alternative to the current approach in some cases where the meter data reliably reflects the project in question. However, verification should consider both the relative materiality of potential outcomes versus the cost and resource burden to the EAC, the audit and customers. Enbridge Gas is open to discussions at the EAC on

alternative approaches but cannot comment on the merits of SEC's proposal without carefully understanding the specifics.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/3/1, p. 24]

Question:

Please describe in detail the process currently used by Enbridge to screen out projects that would otherwise be free riders.

Response:

Enbridge screens out projects for free riders in its Custom offering through the following actions:

Ongoing Customer Engagement, Technical Support and Education – Free riders are reduced through educating potential participants about energy efficiency programs in advance of customers considering enhancement/changes to systems and processes. Enbridge's Energy Solutions Consultants ("ESC"s) work with customers and Business Partners (contractors, engineers and installers) to understand customer needs and come up with efficiency recommendations that best meet those needs. Part of this process may include helping customers identify efficiency opportunities through site-walkthroughs or funding third party audits. It may also include educating customers and Business Partners on the benefits associated with implementing efficiency measures through hosting workshops and webinars or calculating energy savings, cost avoidance and GHG reduction estimates. In addition to technical support, financial incentives are provided as a means of helping reduce the upfront costs associated with investing in efficiency upgrades.

Participant Screening and Agreements – Free riders are screened through agreements with applicants. Enbridge program managers and ESCs ensure that the applicant is engaged with Enbridge prior to the decision being made to implement an energy efficient measure or practice. Additionally, applicants are screened by way of specific terms and conditions for enrollment in the program. These terms and conditions, contained in the incentive application and communications materials, include language prohibiting free riders from participating in programs.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/3/1, p. 28]

Question:

Please describe in detail the differences between the current CPSV process and the past, utility-controlled CPSV process that have resulted in "onerous time requirements and/or specific data requests made of customers may not have been considered reasonable and/or compromised customer privacy or safety policies".

Response:

The reference cited by SEC above addresses EGD's response to EC Recommendation VF10. This recommendation was provided to the utilities in the 2015 Annual Verification Report and again repeated in the 2016 report.

In response to both the 2015 and 2016 finding, EGD proposed that based on feedback received from customers sampled in the 2015 and 2016 custom verification efforts, some customers shared concerns regarding a number of details with the process, including the examples listed below.

EGD cannot provide a detailed comparison of the customer experience in the current CPSV process vs. the earlier CPSV project verification conducted prior to the 2015 DSM program year, as the current process is managed by a third party consultant utilizing a sub-contractor and involves limited utility involvement.

EGD's response emphasizes that although EGD encourages its customers to comply, cooperate and participate with all EM&V activities, it is important to also recognize the impact such requests have on a customer's time, which is understandably focused on running their business. Given that the EC noted in 2016 that the CPSV study had a customer response rate of 63%, in light of some of the observations listed below, addressing some of these concerns (listed below) could improve customer participation in EM&V activities going forward.

2015/2016 CPSV customer feedback included:

- Given the delay in conducting project verifications relative to project completion, requests made of customers for project data from more than two years prior was burdensome.
- Site visits in some instances well exceeded the time requirement initially communicated by verification consultants, some taking over 3 hours.
- Site auditors were sometimes ill-prepared for site audits and not clear on what equipment they wanted to see or what information was relevant to the project.
- Site auditors sometimes took photographs of parts of the facility/equipment that had no relation to the project being reviewed raising potential privacy concerns and taking time unnecessarily.
- One particular customer deemed a specific production data request made by the auditor to be significantly confidential/proprietary such that a lengthy escalated internal customer review transpired ultimately requiring that an additional non-disclosure agreement be completed by verifiers.
- On some occasions customers were frustrated with multiple requests for their input/time, i.e., beyond meeting with a verifier during a lengthy site visit, follow up phone calls or requests for information were made by verifiers requiring more of the customer's time.
- In some cases, site auditors focused time asking safety questions regarding the facility unrelated to the energy efficiency project, for example "what precautions are taken to ensure the safety of the workers"?

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/3/1, p. 40]

Question:

Please describe in detail the current Enbridge QA/QC process a) at the initial project approval stage, b) at the project completion and payment stage, and c) at the verification stage.

Response:

a) and b)

EGD does not differentiate between a distinctive QA/QC process at time of initial project approval and the time of project completion and payment. At various stages, depending on the complexity of the project, EGD employs a review process of custom projects that involves Energy Solutions consultants, program delivery management representatives and technical review engineers to draw on expertise from multiple points of assessment.

The QA/QC review includes: (i) an assessment of the customer and/or project specific details; (ii) consideration of any assumptions and inputs included in the determination; and (iii) confirms the calculation of savings based on information available or deemed appropriate at the time the project is installed/undertaken.

This includes a review/assessment of:

- base case assumptions;
- energy efficiency equipment/project assumptions if/where applicable;
- project costs/incremental costs;
- operating inputs (e.g., hours/set points etc.); and
- any other factors that might be expected to affect gas usage (e.g., customer production levels).

c) With regard to EGD's QA/QC role in support of the verification stage, EGD strives to ensure that each project file is clear and complete, including that all supporting documentation is appropriately ready for verifiers. In addition, EGD's technical reviewers (along with the evaluation team) review the draft site reports submitted by the verification consultants for each of the verified projects to ensure there are no errors, misunderstandings, or oversights, and to ensure the final audited assessment of savings is as accurate as possible. Any discrepancies or concerns are provided by EGD through the comment process open to all members of the EAC.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/3/1, p. 48]

Question:

Please advise the date the Measure Life Study was provided to Enbridge. Please provide details of all actions Enbridge took in 2017 in response to the Measure Life Study.

Response:

EGD took no action during 2017 in response to the Measure Life Study, as it was not initiated until January 2018 and not provided to EAC members (including EGD) until May 15, 2018.

However, a decision point was established at the EAC that outlined that the updated findings of the Measure Life Study should be applied to both the targets and results of 2017 custom projects as the Measure Life Study was undertaken as part of the 2016 evaluation effort.

This action item/decision point was communicated to the EAC in an email from Board Staff on June 6, 2018. Specifically, Board Staff confirmed:

> Results of Michaels' Custom Measure Life Study will apply to 2017 shareholder incentive and LRAM calculations. 2017 targets will also reflect changes to the custom measure life study because the DSM Decision notes "to calculate next year's targets, the OEB directs the utilities to use the new, updated input assumptions and net-to-gross factors that are the result of the annual evaluation process.", and the Custom Measure Life study is part of the 2016 evaluation process (as long as there are no very significant discrepancies). It is noted that not all EAC members agreed with this Decision point.[1]

As a result, EGD went back and made adjustments to both 2017 targets and 2017 results to reflect updated values in the Measure Life Study.

[1] Email from Josh Wasylyk (OEB Staff) to the EAC, June 6th, 2018.

ENBRIDGE GAS INC.
(Operating as Enbridge Gas Distribution)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/2/1, p. 131]

Question:

For each line in Table 10.1 in which the spending was greater or less than budget by at least 10%, please provide a detailed variance analysis. Also, please provide details of the $2.4 million underspend in overhead costs, and a forecast of the extent, if any, to which that underspend is expected to continue in subsequent years.

Response:

Table 10.1 is reproduced below with notes to provide variance explanations as requested.

Program	Offer	OEB Approved Budget (Built Into Rates)	2016 Spending	Variance	Variance %	Variance >10%?	See Note # Below
Resource Acquisition		**$34,336,673**	**$38,867,717**	**$4,531,044**	13.20%	Yes	
	Home Energy Conservation	*$12,148,317*	*$22,057,458*	*$9,909,141*	81.57%	Yes	1
	Residential Adaptive Thermostats	*$876,371*	*$1,666,753*	*$790,382*	90.19%	Yes	2
	Commercial & Industrial Prescriptive	*$2,196,952*	*$1,001,671*	*-$1,195,281*	-54.41%	Yes	3
	Commercial & Industrial Custom	*$7,020,664*	*$6,746,119*	*-$274,545*	-3.91%	No	
	Commercial & Industrial Direct Install	*$4,955,421*	*$2,390,902*	*-$2,564,519*	-51.75%	Yes	4
	Small Commercial New Construction	*$396,933*	*$0*	*-$396,933*	-100.00%	Yes	5
	Energy Leaders (Large & Small C/I)	*$400,000*	*$73,775*	*-$326,225*	-81.56%	Yes	6
	Run it Right (RA)	*$1,260,162*	*$300,962*	*-$959,200*	-76.12%	Yes	7
	Comprehensive Energy Management (RA)	*$48,805*	*$0*	*-$48,805*	-100.00%	Yes	8
	Overheads	*$5,033,048*	*$4,630,077*	*-$402,971*	-8.01%	No	
Low Income		**$11,945,410**	**$8,732,572**	**-$3,212,838**	-26.90%	Yes	
	Home Winterproofing	*$5,806,064*	*$4,543,350*	*-$1,262,714*	-21.75%	Yes	9
	Low-Income Multi-Res Affordable Housing	*$3,279,028*	*$2,326,325*	*-$952,703*	-29.05%	Yes	10
	Low-Income New Construction	*$1,116,696*	*$258,877*	*-$857,819*	-76.82%	Yes	11
	Overheads	*$1,743,622*	*$1,604,019*	*-$139,603*	-8.01%	No	
Market Transformation		**$6,579,034**	**$6,377,381**	**-$201,653**	-3.07%	No	
	Residential Savings by Design	*$3,250,842*	*$3,469,121*	*$218,279*	6.71%	No	
	Commercial Savings by Design	*$1,345,890*	*$1,398,940*	*$53,050*	3.94%	No	
	School's Energy Competition	*$302,197*	*$289,555*	*-$12,642*	-4.18%	No	
	Run it Right (MT)	*$250,824*	*$225,819*	*-$25,005*	-9.97%	No	
	Comprehensive Energy Management (MT)	*$464,930*	*$106,806*	*-$358,124*	-77.03%	Yes	12
	Overheads	*$964,351*	*$887,140*	*-$77,211*	-8.01%	No	
Program Cost Subtotal		**$45,120,096**	**$46,856,434**	**$1,736,338**	3.85%	No	
Overhead Subtotal		**$7,741,021**	**$7,121,236**	**-$619,785**	-8.01%	No	
Porfolio Overheads		**$3,500,000**	**$1,670,616**	**-$1,829,384**	-52.27%	Yes	13
Total		**$56,361,117**	**$55,648,285**	**-$712,832**	-1.26%	No	

1. Higher program spend in the Home Energy Conservation program was primarily driven by incentive spending as a result of program results that significantly exceeded targets.

2. Higher program spend in the Residential Adaptive Thermostats program was primarily driven by incentive spending as a result of program results that significantly exceeded targets as well as a higher incentive rate than originally planned, as outlined in Enbridge's 2016 DSM Annual Report.[1]

3. Lower program spend in the Commercial & Industrial (CI) Prescriptive program resulted from lower program participation than target.

4. Lower program spend in the CI Direct Install resulted from deployment of more cost effective technology.

[1] EB-2018-0301, Exhibit B, Tab 2, Schedule 1, pp. 44-45.

5. The Small Commercial New Construction program was not offered – there was no spending related to this offer.

6. The Energy Leaders initiative has had only modest uptake, resulting in lower spend.

7. Lower program spend in the Run it Right program was a result of a large number of less complex participants in 2016 and a much lower cost per participant than is typical.

8. 2016 was the first year in market for the Comprehensive Energy Management (CEM) program – the focus at the outset was therefore on enrolling participants. No projects which generated m^3 savings were realized in the first year and therefore all spending for CEM came from the Market Transformation budget and not the Resource Acquisition budget.

9. Lower program spend in the Home Winterproofing program resulted from lower program participants than target.

10. The lower program spend in Low-Income Multi-Res Affordable Housing is attributed to a combination of a measure mix that resulted in lower average cost per participant than typical and less need for fixed costs to drive projects due to strong results.

11. 2016 was the first year for the Low-Income New Construction program, so the spending was much lower as there were no incentives for units built and the use of a deferral account to defer incentive spending was not yet approved. Incorporating deferred spending would have increased the reported spend significantly.

12. The lower program spend in CEM primarily resulted from lower spend per participant than originally planned. The main driver for lower spend is that the participant mix includes customers that have less complex energy systems, requiring fewer meters and correspondingly less complex and costly Energy Management Information Systems.

13. Discussed separately below.

	OEB Approved Budget (Built Into Rates)	2016 Spending	Variance
Program Cost Subtotal	**$45,120,096**	**$46,856,434**	**$1,736,338**
Overhead Subtotal	**$7,741,021**	**$7,121,236**	**-$619,785**
Porfolio Overheads	**$3,500,000**	**$1,670,616**	**-$1,829,384**
Total	**$56,361,117**	**$55,648,285**	**-$712,832**

With regard to the request to address the $2.4 million underspend in overhead costs, there are two unique sub-total amounts included in the table as copied above: (i) Overhead; and (ii) Portfolio Overheads. Most of the underspend was realized in the Portfolio Overheads.

Overhead includes spending related to all other DSM overhead costs (exclusive of the categories addressed above) incurred to execute on the 2016 DSM program. In 2016 there was an underspend of $619,785. In subsequent years it is expected that spending comes close to budgets.

Portfolio Overheads include the following:

	Budget	Spending	Variance
1) Process and Program Evaluation	$1,500,000	$1,322,516	-$177,484
2) Collaboration & Innovation	$1,000,000	$248,279	-$751,721
3) DSMIT	$1,000,000	$99,821	-$900,179

With regard to “Process and Program Evaluation” spending in future (subsequent) years, Enbridge Gas is unable to forecast this amount since this will depend to a large extent on verification/audit spending managed by OEB Staff. Beginning with the 2015 audit and evaluation, it is the Board (OEB Staff) that manages spending on these activities without input from the utility.

Spending related to collaboration and innovation activities is expected to increase in future/subsequent years. Therefore, related underspends are not expected to continue.

The underspend related to the DSMIT budget will most certainly not continue in future years. As outlined in the EGD’s 2016 DSM Annual Report, when discussing the development and implementation of a new IT application, “[i]t is understood that Enbridge may underspend in some years but overspend in other years.”[2]

[2] EB-2018-0301, Exhibit B, Tab 2, Schedule 1, pp. 143.

Enbridge Gas Inc.
(Operating as Union Gas)
EB-2018-0300

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
Board Staff ("STAFF")

Reference: Exhibit A, Tab 2, Page 8-9 of 24

Question: Union Gas has requested approval of audit-adjusted 2016 targets and makes reference to a number of OEB documents to support its position.

a) Please provide a direct reference to an OEB statement indicating that the approved 2016 targets would be subject to any adjustments.

Response:

Please see the response at Exhibit C.STAFF.EGD.1.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
Board Staff ("STAFF")

Reference: Exhibit B, Tab 1, Table 11, Page 131 of 140

Question: As part of its 2016 DSM Annual Report Union Gas has provided details of its approved DSM spending and actual DSM spending.

a) Please provide "Table 11.0 – Summary of 2016 Budget and Spending" in a live Excel format. In addition to the live Table 11, please provide clear details on where program funding was shifted from one program to another. Further, where a program budget changed, please explain the reasonableness for increasing that program budget with reference to need, program performance and timing of when the budget increases were required.

Response:

In the process of preparing the response to this interrogatory, Enbridge Gas identified typographical errors in the 'Budget Transfers' column (column D) of Table 11.0 included at Exhibit B, Tab 1, p. 131. These errors have been corrected and "black-lined" in Attachment 1 and in the live Excel version provided to OEB Staff. These errors do not impact the overall "Programs Sub-total" of Budget Transfers included in the original Table 11.0.

Union's approach to the Budget Transfers column in Table 11.0 was to shift overhead dollars (i.e., Evaluation and Administration dollars) between various programs and the portfolio to ensure that Evaluation costs were not funded from the DSMVA. The only program where program funding was increased through transfers was the Residential Program, where higher program performance resulted in higher than budgeted evaluation costs.

Throughout 2016, Union forecasted that it would achieve results in excess of target for the Residential program, and planned to access overspend in order to ensure conservation opportunities in this program were maximized.

Table 11.0 - Summary of 2016 Budget and Spending

	2016 Spend	2016 Budget	Variance	Budget Transfers	DSMVA
	A	B	C=A-B	D	E=C-D
Program Budget					
Resource Acquisition Scorecard					
Residential Program	$ 10,199,498	$ 8,052,657	$ 2,146,841		$ 2,146,841
Residential Evaluation	$ 1,001,900	$ 559,000	$ 442,900	$ 442,900	$ (0)
Commercial/Industrial Program	$ 16,263,967	$19,127,176	$ (2,863,209)		$ (2,863,209)
Commercial/Industrial Evaluation	$ 120,578	$ 189,000	$ (68,422)	$ (68,422)	$ (0)
Low-Income Scorecard					
Low-Income Program	$ 10,238,880	$11,187,342	$ (948,462)		$ (948,462)
Low-Income Evaluation	$ 161,733	$ 220,128	$ (58,395)	$ (58,395)	$ (0)
Large Volume Scorecard					
Large Volume Program	$ 2,951,494	$ 3,937,000	$ (985,506)		$ (985,506)
Large Volume Evaluation	$ 37,682	$ 63,000	$ (25,318)	$ (25,318)	$ (0)
Market Transformation Scorecard					
Market Transformation Program	$ 996,760	$ 1,676,250	$ (679,490)		$ (679,490)
Market Transformation Evaluation	$ 7,933	$ 26,820	$ (18,887)	$ (18,887)	$ 0
Performance-Based Scorecard					
Performance-Based Program	$ 274,203	$ 513,000	$ (238,797)		$ (238,797)
Performance-Based Evaluation	$ 401	$ 35,000	$ (34,599)	$ (34,599)	$ (0)
Programs Sub-total	$ 42,255,026	$45,586,373	$ (3,331,347)	$ 237,279	$ (3,568,626)
Portfolio Budget					
Research	$ 517,567	$ 1,500,000	$ (982,433)		$ (982,433)
Evaluation	$ 168,121	$ 1,300,000	$ (1,131,879)	$ (237,279)	$ (894,600)
Administration	$ 2,364,580	$ 2,935,000	$ (570,420)		$ (570,420)
Pilots	$ 183,200	$ 500,000	$ (316,800)		$ (316,800)
DSM Tracking and Reporting System Upgrades	$ 2,041,209	$ 5,000,000	$ (2,958,791)		$ (2,958,791)
Portfolio Sub-total	$ 5,274,676	$11,235,000	$ (5,960,324)	$ (237,279)	$ (5,723,045)
Incremental DSM Projects 2016 Budget Spend					
Achievable Potential Study	$ 267,199		$ 267,199		$ 267,199
Future Infrastructure Planning Study	$ 46,946		$ 46,946		$ 46,946
Total 2016 DSM Budget (before Adjustments)	$ 47,843,847	$56,821,373	$ (8,977,526)	$ -	$ (8,977,526)
Adjustments[1]					
DSM Tracking and Reporting System Upgrades 2016 Variance - to be spent in 2017 and 2018	$ (2,041,209)	$ (5,000,000)	$ (2,958,791)		$ (2,958,791)
Remaining DSM Tracking and Reporting System Upgrades spend in 2017 and 2018	$ (2,821,803)	$ (2,958,791)	$ 136,988		$ 136,988
Total 2016 DSMVA					$ (6,155,723)

[1]Given the timing of the finalization of 2016 audit, the DSMVA has been adjusted to reflect best available information with regards to tracking and reporting system upgrades.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
Board Staff ("STAFF")

Reference:

Question: As part of the OEB's Report related to the Mid-Term Review of the 2015-2020 DSM Framework (EB-2017-0127/EB-2017-0128), it instructed Enbridge to file a draft accounting order as part of its 2016 DSM DVA application. The draft accounting order would revise the DSMVA to allow for Enbridge to track future financial commitments for programs with deferred customer incentives, both within the 2015-2020 framework period as well as outside of current term.

a) Please indicate if Union may be required to access some of its 2015-2020 approved DSM program spending in a different year than that which it was approved. Further, please indicate if Union may be required to access some of its approved 2015-2020 DSM spending outside of the current term. In the event that there is a possibility that Union may be required to access program funding outside of the current term due to deferred customer incentives, please provide a draft accounting order that revises the description of the current DSMVA.

Response:

At this time, as it relates to the remainder of Union's 2015-2020 DSM Plan, Enbridge Gas does not anticipate requiring access to OEB-approved program funds in a different year than what was approved by the OEB for the Union rate zone. However, Enbridge Gas may be required to access program funding outside of the current term for the Union rate zones due to deferred customer incentives for which it is obligated beyond 2020.

Consistent with the Report of the Board related to the Mid-Term Review of the 2015-2020 DSM Framework, Union has provided a revised DSMVA accounting order for OEB approval. The proposed accounting order revises the description of the current DSMVA (please see Attachment 1) for the Union rate zones to match the proposed amendments to the DSMVA for the EGD rate zone (please see EB-2018-0301, Exhibit B, Tab 6,

Schedule 2), other than to distinguish that the Union rate zone DSMVA “may” reflect forecast commitments in customer incentive payments for future periods.

UNION RATE ZONES

Accounting Entries for
Demand Side Management Variance Account
Deferral Account No. 179-111

Account numbers are from the Uniform System of Accounts for Gas Utilities, Class A prescribed under the Ontario Energy Board Act.

Debit	-	Account No. 179-111 Demand Side Management Variance Account
Credit	-	Account No. 728 General Expense

To record as a debit (credit) in Deferral Account No. 179-111, the difference between actual and the approved direct DSM expenditure budget currently approved for recovery in rates, provided that any excess over the approved direct DSM expenditure budget does not exceed 15% of the direct DSM expenditure budget. Any excess over the approved direct DSM expenditure budget for the year must be for incremental DSM volume savings that are cost effective as determined by the Total Resource Cost Test.

A portion of the variance captured in the DSMVA may reflect forecast commitments in customer incentive payments for future periods. Customer incentive payments are a component of the annual DSM budget recovered through rates. However, due to the multi-year aspect of several of the Company's programs, incentive amounts recovered in the current year may not be payable until they become due in future years. In accordance with the Report of the Ontario Energy Board: Mid-Term Review of Demand Side Management ("DSM") Framework for Natural Gas Distributors (2015-2020), the DSMVA may be used to track and carry forward the forecasted cumulative customer incentive commitments net of payments made (in relation to incentive commitments made in the current year, or in relation to incentive paid that became due in the current year in relation to commitments made in prior years). Each incentive amount not paid out will be returned to ratepayers in the year following its last potential commitment date, or at such other time as directed by the Board.

Debit	-	Account No.179-111 Other Deferred Charges – Demand Side Management Variance Account
Credit	-	Account No. 323 Other Interest Expense

To record, as a debit (credit) in Deferral Account No. 179-111, interest expense on the balance in Deferral Account No. 179-111. Simple interest will be computed monthly upon finalization of the year-end balance in the said account in accordance with the methodology approved by the Board in EB-2006-0117.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Reference: Exhibit A, Tab 3, page 9 of 16

Preamble: Union states that: "Union's preliminary estimates included costs of $1.0 million in 2015 and $5.0 million in 2016 to complete these system upgrades. Following the establishment of Union's final project scope and schedule, Union determined that development of the upgraded DSM tracking and reporting system would continue through 2017 and be implemented in January 2018."

Question:

a) What change(s) in design or scope caused the scheduled system upgrades to continue development through 2017 and into 2018, as opposed to the original 2016 completion date?

Response:

As Union undertook detailed system development work with the software vendor (EnergyOrbit), it became apparent that the original planned timeline would need to be extended to ensure successful implementation of a system that met the intended business needs. Throughout system development, scope was monitored closely with a focus on the core requirements, including the functionality set out in Union's 2015-2020 DSM Plan:[1]

- Packaged Customer Relationship Management ("CRM") tool to manage DSM related contacts, customer activities, leads and opportunities;
- Core DSM tracking system to replace the existing systems. The primary functionality is to support all of the key DSM processes, including the ability to interface with Union's billing systems and financial software; and
- Analytics and reporting to support the new DSM Framework requirements.

[1] EB-2015-0029, Exhibit A, Tab 2, pp. 35-36.

This focus enabled the project to be completed and in-service for the commencement of 2018 DSM program year, and at an overall cost $0.923 million under the OEB-approved budget.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Reference: Exhibit A, Tab 3, page 11 of 16

Preamble: Union states: "The overspend on the Residential Program portion of the Resource Acquisition scorecard was largely offset by underspend across all other program and portfolio level costs."

CME would like to better understand the causes of the general underspend across other program and portfolio level costs.

Question:

a) To the extent that it is not already part of the record, please breakout the drivers responsible for Union's underspending on DSM programs and portfolios.

Response:

Please see the response at Exhibit C.SEC.Union.39.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Reference: Exhibit A, Tab 3, page 14 of 16, Table 7
Exhibit B, Tab 1, page 101 of 140

Preamble: Union's scorecard offers a target of 890,890,721 m^3 and demonstrates an achievement of 79,848,302 m^3.

Union provides the following explanation regarding their achieved saving result: "Union's 2016 large volume cumulative natural gas savings achievement was smaller relative to the prior three years. This can be attributed to a few main drivers, including: changes in the contracts of the power producers from base load to peaking plants, lack of funding for capital projects due to economic constraints, and modifying the eligibility requirements for routine maintenance projects in 2016."

Question:

CME wishes to better understand Union's achieved savings in this category.

a) What sort of economic constraints did potential participants cite as reasons why they would/could not participate in 2016?

b) Please outline what modifications were made to the eligibility requirements for routine maintenance projects in 2016.

c) Is it Union's view that the Large Volume Program's result in 2016 was anomalous?

Response:

a) Restrained capital investment among potential participants in 2016 was driven by several factors, including discretionary spending reductions driven by lower commodity prices, and decisions to reallocate available capital for other purposes. DSM activity was also impacted by program changes as outlined in the response to part b) below.

b) Beginning in 2016, Union stopped providing incentives in its Large Volume program for routine maintenance steam leak repairs. Also, Union made a change to its requirements related to steam trap repairs; in order for customers to receive an incentive for steam trap repairs in 2016, they were required to have completed a steam trap audit that was funded by Union.

   Despite these changes to the eligibility of routine maintenance projects Union continues to provide information and education to its customers regarding the benefits of performing such projects.

c) Union's Large Volume results from 2012-2017 are provided in the Table below, as well as the free rider rate applied to them.

Program year	Net Cumulative Gas Savings (m^3)	Free rider rate
2012	1,392,931,990	54%
2013	1,844,554,921	54%
2014	870,195,452	54%
2015	779,427,613	54%
2016	79,848,302	91% (average)
2017 (pre-audit)	84,986,654	91% (pre-audit, average)

The decrease in net cumulative gas savings seen in 2016 can be attributed in-part to the factors described in the responses to parts a) and b) above, and more significantly to the application of the 2015 NTG Study free rider rate of 91%.

If the Large Volume program continues to have a 91% free rider rate, the results of the 2016 program will not be anomalous. Union maintains that applying a free rider rate to its Large Volume program is not appropriate and leads to savings that underrepresent the value of services provided by Union to this rate segment. Union's Large Volume Direct Access program provides customers access to their own (rate funded) money for eligible projects. If a customer chooses to not access their own funding, the funds will go to another customer in the rate class to use on a "first-come, first-served" basis. This program design is entirely incompatible with the application of a Free Rider rate. While Union can attempt to influence a customer by providing incentives and identifying/quantifying opportunities to save energy, the customer prioritizes projects depending on its own needs. If a project meets the eligibility criteria of the program, Union will not refuse a customer access to its own money, thus impeding the possibility for Union to affect the associated NTG value.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
Canadian Manufacturers & Exporters ("CME")

Reference: Exhibit A, Tab 4, page 3 of 4

Preamble: Union states: "For general service Rate M1, Rate M2, Rate 01 and Rate 10 customers, Union proposes to dispose of the net 2016 DSM deferral and variance account balances prospectively over a six-month period beginning the first available QRAM after receiving OEB approval. For purposes of calculating bill impacts, Union assumes implementation with the April 1, 2019 QRAM.

For in-franchise contract rate classes, Union is proposing to dispose of the net 2016 DSM deferral and variance account balances as a one-time adjustment with the first available QRAM after receiving OEB approval."

Question:

a) Did Union consider any other disposition periods other than those proposed?

b) If the answer to (a) is yes, what other periods were considered and why were the two disposition periods noted above chosen?

c) If the answer to (a) is no, why were no other disposition periods considered?

Response:

a) No. Union did not consider other disposition periods.

b) Please see the response to part a) above.

c) Union's past practice has been to set the disposition to coincide with the QRAM following the OEB Decision for each respective deferral proceeding. At the time of the application, Union assumed approval of the 2016 DSM Deferral and Variance Account Application would occur prior to April 1, 2019. If approval is not received in time to implement with the April 1, 2019 QRAM, Enbridge Gas will adjust the disposition accordingly as part of the final rate order. Enbridge Gas has provided the disposition unit rates and bill impacts for general service customers in the Union

rate zones based on an alternate disposition period from July 1, 2019 to December 31, 2019 at Exhibit C.LPMA.Union.2.Attachment 1.

Union proposed a six-month disposition period for general service customers and a one – time adjustment for in-franchise contract class customers as these disposition periods are consistent with Union's past practice to dispose of DSM and non-commodity deferral and variance accounts.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Question:

Enbridge and Union have highlighted in the 2016 Clearance applications that there is a dispute between the utilities, OEB Staff and some other parties regarding interpretation of past OEB guidance with respect to whether the 2015 Custom Program NTG adjustments should be used to revise the 2016 target (as well as to estimate 2016 actual results for comparison to the target). Putting aside the interpretation of that guidance, do the companies believe, as a matter of policy (whether currently or in the future), that it is appropriate for NTG adjustments used to estimate actual savings from Custom C&I projects in a given year also be used to adjust savings targets for such Custom C&I projects in future years? If so, please explain the policy rationale for doing so.

Response:

Please see the response at Exhibit C.GEC.EGD.1A.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Question:

A/2 p. 21: Union states that the 2017 EM&V process contains "incremental scope" related to C&I prescriptive measure installation verification for four key measures, as well as NTG studies for the same measures. Please explain Union's understanding of the schedule for the 2017 annual savings review and how the "incremental scope" associated with the C&I prescriptive measure review would be expected to extend the likely conclusion of the 2017 annual savings review.

Response:

The 2016 audit was launched with a request from the Evaluation Contractor ("EC") for Union's tracking database on August 7, 2017. The 2016 audit plan, including a detailed schedule of activities, was released in draft on November 10, 2017 and finalized on February 6, 2018. The final audit report was then issued October 30, 2018, resulting in a total audit timeline of approximately 15 months.

To date, the EC has yet to request Union's 2017 tracking database and has not provided a detailed schedule of activities.[1] While OEB Staff have suggested that the 2017 audit could be completed by December 2019, this appears to be unachievable based on the most recent 2016 audit timeline of 15 months. A 15-month audit process places completion of the 2017 audit into May/June 2020, further exacerbating persistent annual audit delays. As Enbridge Gas has no credible reason to expect that the 2016 audit timeline will be improved for the 2017 audit, it is concerned that the 2017 audit will not meet OEB Staff's projected deadline.

The 2017 audit also includes CI Prescriptive verification and NTG studies launched in April 2018. These combined studies are expected to be completed in April 2019. These CI Prescriptive verification and NTG studies are fully incremental to the audit activities completed in 2016. To date, the CI Prescriptive studies are the only two 2017 activities "in field" and are not being fielded in tandem with any other 2017 audit

[1] To date, Enbridge Gas has not been notified that the EC and the CPSV Contractors required for the 2017 audit have been retained.

activities such as the 2017 CPSV. As such, it can reasonably be inferred that this incremental scope will extend the conclusion of the 2017 audit.

Please also see the response at Exhibit C.OSEA.EGD.2.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Question:

Please calculate the requested clearance values assuming that 2016 targets are adjusted for the updated NTG values only for truly custom programs (i.e. for custom programs that are not simply a program where customers choose from a menu of prescriptive measure options with minimal utility staff involvement).

Response:

Two updates were made to the target inputs that went into calculating Union's requested audit-adjusted clearance amounts.

The first change to target inputs was to update certain prescriptive measures to match the December 2015 Input Assumption Filing used to calculate audited 2016 Resource Acquisition and Low-Income scorecard results. This was done to be consistent with the Board's decision which stated that "to calculate next year's targets, the OEB directs the utilities to use the new, updated input assumptions and net-to-gross factors that are the result of the annual evaluation process. The OEB finds it appropriate to use the best available information to determine subsequent targets for prescriptive programs."[1]

The second change was to update custom CI program NTG values used in Resource Acquisition scorecard target setting to match findings of the custom CI/LV 2015 NTG Study. This was done to be consistent with the Board's decision which stated that "in 2016, the free rider rates [for CI custom programs] will be updated based on the results of the net-to-gross study and the annual evaluation process."[2] Union's custom CI program involves Union staff working with customers on customer-specific projects that require site-specific inputs and assumptions. It would fit GEC's description of a custom program that is not simply a program where customers choose from a menu of prescriptive measure options with minimal utility staff involvement.

Requested clearance values adjusted to include only the update to custom NTG values (and not the December 2015 Input Assumption Filing updates) total $(1.502) million as

[1] EB-2015-0029, Decision and Order, January 20, 2016, p. 75.
[2] EB-2015-0029, Decision and Order, January 20, 2016, p. 21.

presented in the table below. The DSM incentive amount presented in this response is slightly higher than the audit-adjusted amount requested for clearance by Union.

($ millions)	**Audited**	**Audit-Adjusted**	**Response to Exhibit C.GEC.Union.2A**
LRAM Variance Account	$0.488	$0.488	$0.488
DSM Variance Account	$(6.156)	$(6.156)	$(6.156)
DSM Incentive Deferral Account	$3.886	$4.121	$4.166
Total 2016 DSM Account Balances	$(1.782)	$(1.547)	$(1.502)

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Question:

Please provide all Schedules in A/2/Appendix B in Excel format with all formulae intact.

Response:

Please see the response at Exhibit C.SEC.Union.20.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
Green Energy Coalition ("GEC")

Question:

Given that there may be new NTG results available for the 2017 and 2018 program periods, what vintage of NTG values does the company propose be used for the custom targets for those years that will be used to calculate DSM account clearances?

Response:

Please see the response at Exhibit C.GEC.EGD.3.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit A, Tab 4, page 2

Question: The evidence states that the allocation of 2016 DSM deferral and variance account balances to rate classes is "consistent" with the allocation methodologies approved by the OEB in Union's 2015 Disposition of DSM Deferral and Variance Accounts proceeding (EB-2017-0323). Please confirm that "consistent" means the same allocation methodologies approved in EB-2017-0323 have been used in the current allocations. If this is not the case explain any difference in the allocation methodologies used.

Response:

Confirmed.

The allocation methodologies are consistent with Union's 2015 Disposition of DSM Deferral and Variance Accounts proceeding (EB-2017-0323), with the exception of the pooling of Rate M4, Rate M5 and Rate M7 DSMVA balances for disposition, which began in 2016.

The OEB approved Union's proposal to pool DSM costs for Rate M4, Rate M5 and Rate M7 for both ratemaking purposes and DSMVA disposition for 2016 to 2018 as part of the 2015-2020 DSM Plan Decision.[1] Union pooled the DSM budget costs for Rate M4, Rate M5 and Rate M7 starting in 2016 to address the rate class eligibility changes approved in Union's 2013 Cost of Service proceeding (EB-2011-0210).

[1] EB-2015-0029, Decision and Order, January 20, 2016, p. 91.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit A, Tab 4, page 3 & Exhibit A, Tab 4, Appendix A, Schedules 2 & 3

Question:

a) If implementation is delayed from the April 1, 2019 QRAM to the July 1, 2019 QRAM, does Union still propose to use a six-month disposal period? If not, what period does Union propose to use?

b) Please provide a version of Exhibit A, Tab 4, Appendix A, Schedules 2 & 3 to reflect a recovery period beginning July 1, 2019.

Response:

a) Yes.

Enbridge Gas will continue to propose a six-month disposition period for general service rate classes in the Union rate zones if the implementation is delayed to the July 1, 2019 QRAM.

b) Please see Attachment 1.

ENBRIDGE GAS INC.
Union Rate Zones
General Service Unit Rates for Prospective Recovery/(Refund) - Delivery
DSM Deferral Account Disposition
2016 - Audit Adjusted

Line No.	Particulars	Rate Class	Deferral Balance for Disposition ($000's) (1) (a)	Forecast Volume (10^3m^3) (2) (b)	Unit Rate for Prospective Recovery/(Refund) (cents/m^3) (c) = (a / b) * 100
	Union North				
1	Small Volume General Service	01	(2,887)	365,669	(0.7894)
2	Large Volume General Service	10	(1,281)	143,988	(0.8899)
	Union South				
3	Small Volume General Service	M1	4,616	1,146,436	0.4026
4	Large Volume General Service	M2	(2,170)	501,203	(0.4329)
5	Total General Service		(1,722)		

Notes:
(1) Exhibit A, Tab 4, Appendix A, Schedule 1.
(2) Forecast volume for the period July 1, 2019 to December 31, 2019.

ENBRIDGE GAS INC.
Union Rate Zones
General Service Bill Impacts
2016 - Audit Adjusted

Line No.	Particulars	Rate Component	Unit Rate for Prospective Recovery/(Refund) (cents/m^3) (1)	Volume (m^3) (2)	Bill Impact ($)
			(a)	(b)	(c) = (a x b) / 100
1	Rate 01	Delivery	(0.7894)	702	(5.54)
2		Commodity	-	702	-
3		Transportation	-	702	-
4			(0.7894)		(5.54)
5	Sales Service				(5.54)
6	Direct Purchase Bundled T				(5.54)
7	Rate 10	Delivery	(0.8899)	38,833	(345.58)
8		Commodity	-	38,833	-
9		Transportation	-	38,833	-
10			(0.8899)		(345.58)
11	Sales Service				(345.58)
12	Direct Purchase Bundled T				(345.58)
13	Rate M1	Delivery	0.4026	702	2.83
14		Commodity	-	702	-
15			0.4026		2.83
16	Sales Service				2.83
17	Direct Purchase				2.83
18	Rate M2	Delivery	(0.4329)	23,871	(103.34)
19		Commodity	-	23,871	-
20			(0.4329)		(103.34)
21	Sales Service				(103.34)
22	Direct Purchase				(103.34)

Notes:
(1) Exhibit C.LPMA.Union.2, Attachment 1, p.1, column (c).
(2) Average consumption, per customer, for the period July 1, 2019 to December 31, 2019.
Rate 01 volume based on annual consumption of 2,200 m^3.
Rate 10 volume based on annual consumption of 93,000 m^3.
Rate M1 volume based on annual consumption of 2,200 m^3.
Rate M2 volume based on annual consumption of 73,000 m^3.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit A, Tab 4, page 2

Question: Are the allocation methodologies used by Union for the allocation of the 2016 DSM deferral and variance account balances to rate classes generally consistent with the allocation methodologies used by Enbridge Gas Distribution? If not, please explain any significant differences.

Response:

Please see the response at Exhibit C.LPMA.EGD.1.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit A, Tab 3, pages 9-10

Question:

a) Please explain how much of the $5.077 million total cost of Union's DSM tracking and reporting system upgrades has been capitalized and how much has been expensed. If nothing has been capitalized, please explain why not and include details of the expenditures at a granular level to show why each item should not be considered a capital expenditure.

b) Does Table 3 include carrying costs associated with the balances in each year? For example, does the $2.959 million credit in the 2016 balance reflect any interest credit for ratepayers in the proposal Union is putting forward?

c) If Table 3 does not include carrying costs associated with the credit to ratepayers at the end of 2016, please add a column or columns to Table 3 to reflect the addition of interest credit to ratepayers through to the end of 2018.

Response:

a) Union did not capitalize any amount of the $5.077 million total cost of its DSM Tracking and Reporting System upgrades. Please see the response at Exhibit C.SEC.Union.28.

b) Table 3 does not include carrying costs associated with the balances in each year.

c) As noted in the response at Exhibit C.SEC.Union.26, interest has accrued on the underspent balance since January 2017 at OEB-prescribed interest rates. Enbridge Gas proposes that the accumulated interest credit be returned to ratepayers through this proceeding. As noted in the Table below, $0.020 million has been accrued up to December 31, 2018.

DSM Tracking and Reporting System Budget and Spending by Year ($ million)

Year (a)	**Actual Spend** (b)	**Approved Budget** (c)	**Budget Rolled-Forward from Prior Year** (d)	**Budget Rolled-Forward to Future Year** (e)	**Amount Included in DSMVA** (b) – [(c) + (d) + (e)] = (f)	**Interest Accrued on Rolled-Forward Amount from Prior Year** (g)
2015	$0.214	$1.0	-	-	$0.214 [(1)]	
2016	$2.041	$5.0	-	$(2.822)	$(0.137)	
2017	$2.614	-	$2.822	$(0.208)	-	($0.017)
2018	$0.208	-	$0.208	-	-	($0.003)
Total	$5.077	$6.0				($0.020)

Notes:
(1) As the budgeted amount of $1.0 million was not included in 2015 rates, the 2015 DSMVA balance represented the Actual Spend in 2015.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
London Property Management Association ("LPMA")

Reference: Exhibit A, Tab 3, page 11

Preamble: The evidence states that Union utilized the DSMVA mechanism to overspend on the Residential Program contained within the Resource Acquisition scorecard as this scorecard achieved pre-audit results above the weighted scorecard targets required for the 15% overspend to be accessed.

Question:

a) Was the Resource Acquisition scorecard the only one where the 15% overspend could have been accessed based on pre-audit results?

b) How did Union determine that the overspend should be focused on the Residential Program within the Resource Acquisition scorecard rather than another component?

c) Despite the overspend allocated to the residential program, Union's DSM spending was 42.5% below the costs built into rates for Rate 01 (Exhibit A, Tab 3, Appendix A, Schedule 3) while the spending in the M1 rate class as 13.0% over that built into rates. Please explain why Union did not spend more of the additional budget in the north.

Response:

a) No. The Low-Income and Performance Based scorecards would have been eligible to access the 15% overspend, given they both achieved pre-audit results in excess of overall weighted scorecard targets. In both of these programs, additional spending was not required from the DSMVA in order to achieve the reported results.

b) During its regular review of program results and budget requirements, Union determined that the Residential Program could achieve further results if supported with additional funding. Utilizing the overspend allowed Union to realize these results and strive towards maximizing the reported levels of natural gas savings and participation rates in 2016, which significantly exceeded the scorecard target.

c) Please see the response at Exhibit C.SEC.Union.30.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
Ontario Greenhouse Vegetable Growers ("OGVG")

Reference: Exhibit A Tab 4 Pages 3-4

Preamble: For in-franchise contract rate classes, Union is proposing to dispose of the net 2016 DSM-related deferral and variance account balances as a one-time adjustment with the first available QRAM after Board approval.

The disposition approach for general service and contract customers is consistent with how Union disposed of 2015 DSM deferral and variance account balances in the 2015 Disposition of DSM Deferral and Variance Accounts proceeding (EB-2017-0323).

Question:

a) Please provide a table (or tables) that show the following information (for ease of reference a similar IR was asked and answered in EB-2017-0323 at Exhibit B.OGVG.1):

i. the number of customers within each in-franchise contract class that Union forecasts it will charge a one-time adjustment relating to the 2014 LRAM, DSMVA and DSMIDA accounts if this application is approved;
ii. the number of customers within each in-franchise contract class that have not been a participant in a Union DSM program targeting those rate classes; If there are customers that had not been a participant in a Union DSM program targeting the in-franchise contract classes to the end of 2016 but who were participants in years subsequent to 2016 please include that information; please (separate from any table or tables provided) describe any efforts by Union going forward to specifically target and include customers that have yet to be included as participants in a Union DSM program as participants in Union DSM programs in the future;
iii. for each in-franchise contract class please provide the minimum, maximum, average, and median one-time adjustments Union forecasts it will charge if this application is approved on the basis Union's "Audit Adjusted" balances, along with the related % distribution and total bill impact for each representative charge

(namely the % impact of the one time charge in relation to the annual distribution and total bill for the relevant customer);

iv. for each in-franchise contract class please provide the minimum, maximum, average, and median one-time adjustments Union forecasts it will charge if this application is approved on the basis Union's "Audited" balances, along with the related % distribution and total bill impact for each representative charge (namely the % impact of the one time charge in relation to the annual distribution and total bill for the relevant customer);

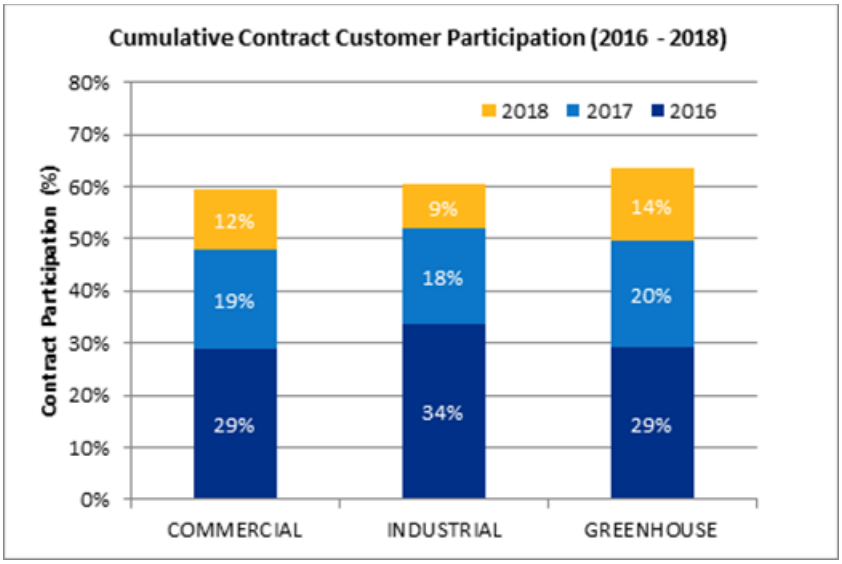
b) Please confirm that in-franchise contract class customers continue to have the option of paying the approved one-time adjustment over time; if so confirmed please provide the process by which customers seeking to make their payment over time may arrange to do so, and explain how the maximum time period available to customers for such payments is determined. If not confirmed, please explain why this option is no longer available to in franchise contract customers.

Response:

a)

i. Please see Attachment 1. Enbridge Gas has answered this interrogatory based on its proposed audit-adjusted 2016 DSM deferral and variance account balances (rather than 2014 as stated in the question).

ii. Please see the graph below for the percentage of Union's in-franchise contract rate customers who participated in a DSM program for the years 2016 to 2018.



Year-over-year participation in Union's DSM programs has varied amongst contract rate customers. Union has catered mostly custom energy efficiency solutions to its contract rate customers, focused on project, study and sub-metering incentives, as well as the Strategic Energy Management ("SEM") program. Delivery of these solutions is through a direct sales approach with an Energy Conservation Advisor assigned to each contract rate customer. The Energy Conservation Advisors work directly with each contract rate customer to identify natural gas savings opportunities relevant to their operation on a forward-looking basis, also working with them to document and complete DSM applications on their behalf. The Energy Conservation Advisors are focused on understanding each customer's unique situation through its sales process. Tracking non-participants is also aided by the implementation of a Customer Relationship Management system in 2018. These actions enable Union's Energy Conservation Advisors to improve program participation with non-participating customers.

iii. Please see Attachment 1, p. 1.

iv. Please see Attachment 1, p. 2.

b) Confirmed.

In-franchise contract class customers' one-time adjustment invoice is payable when the invoice is due and late payment charges will apply for unpaid amounts. Customers may contact their Account Manager to request alternative payment arrangements, for a maximum period of 6 months. These requests will be considered depending on the customers unique circumstances on a case by case basis.

UNION RATE ZONES
Bill Impact of 2016 DSM Deferral Account Disposition
Audit Adjusted One-Time Adjustment for Contract Customers

Line No.	Particulars	Number of Customers	2016 DSM One-Time Adjustment ($)	Percent of Delivery Bill	Percent of Total Sales Bill (1)
		(a)	(b)	(c)	(d)
	Union South				
1	Rate M4	199			
2	Minimum		117	1.9%	0.9%
3	Maximum		27,628	10.3%	1.5%
4	Average		5,859	6.7%	1.4%
5	Median		4,487	4.7%	1.3%
6	Rate M5	87			
7	Minimum		753	1.9%	1.1%
8	Maximum		42,563	14.1%	2.2%
9	Average		7,828	10.5%	2.1%
10	Median		5,997	9.6%	2.0%
11	Rate M7	32			
12	Minimum		1,334	0.4%	0.3%
13	Maximum		109,946	10.0%	1.4%
14	Average		33,251	9.7%	1.4%
15	Median		28,057	11.5%	1.5%
16	Rate T1	38			
17	Minimum		(1,099)	(1.1%)	(0.2%)
18	Maximum		(12,840)	(2.2%)	(0.3%)
19	Average		(4,625)	(1.7%)	(0.2%)
20	Median		(3,833)	(2.0%)	(0.3%)
21	Rate T2	23			
22	Minimum		(14)	(0.0%)	(0.0%)
23	Maximum		(1,852)	(0.0%)	(0.0%)
24	Average		(550)	(0.0%)	(0.0%)
25	Median		(291)	(0.0%)	(0.0%)
	Union North				
26	Rate 20	56			
27	Minimum		(1,511)	(2.2%)	(0.8%)
28	Maximum		(313,783)	(11.3%)	(1.1%)
29	Average		(18,368)	(7.6%)	(1.1%)
30	Median		(9,335)	(1.4%)	(0.7%)
31	Rate 100	15			
32	Minimum		(2,867)	(1.3%)	(0.4%)
33	Maximum		(496,035)	(13.8%)	(0.6%)
34	Average		(101,276)	(12.0%)	(0.6%)
35	Median		(71,789)	(14.2%)	(0.6%)

Notes:
(1) Sales bills were estimated based on the customer's delivery bill and their consumption multiplied by Union's average gas supply charges in 2016.

UNION RATE ZONES
Bill Impact of 2016 DSM Deferral Account Disposition
Audited One-Time Adjustment for Contract Customers

Line No.	Particulars	Number of Customers	2016 DSM One-Time Adjustment ($)	Percent of Delivery Bill	Percent of Total Sales Bill (1)
		(a)	(b)	(c)	(d)
	Union South				
1	Rate M4	199			
2	Minimum		113	1.9%	0.9%
3	Maximum		26,834	10.0%	1.5%
4	Average		5,691	6.5%	1.4%
5	Median		4,358	4.6%	1.3%
6	Rate M5	87			
7	Minimum		732	1.8%	1.1%
8	Maximum		41,338	13.7%	2.1%
9	Average		7,603	10.2%	2.0%
10	Median		5,825	9.3%	2.0%
11	Rate M7	32			
12	Minimum		1,290	0.4%	0.3%
13	Maximum		106,312	9.7%	1.4%
14	Average		32,152	9.3%	1.4%
15	Median		27,130	11.1%	1.4%
16	Rate T1	38			
17	Minimum		(1,172)	(1.2%)	(0.2%)
18	Maximum		(13,689)	(2.4%)	(0.3%)
19	Average		(4,931)	(1.8%)	(0.3%)
20	Median		(4,086)	(2.2%)	(0.3%)
21	Rate T2	23			
22	Minimum		(14)	(0.0%)	(0.0%)
23	Maximum		(1,852)	(0.0%)	(0.0%)
24	Average		(550)	(0.0%)	(0.0%)
25	Median		(291)	(0.0%)	(0.0%)
	Union North				
26	Rate 20	56			
27	Minimum		(1,518)	(2.3%)	(0.8%)
28	Maximum		(315,335)	(11.3%)	(1.2%)
29	Average		(18,459)	(7.7%)	(1.1%)
30	Median		(9,381)	(1.4%)	(0.7%)
31	Rate 100	15			
32	Minimum		(2,866)	(1.3%)	(0.4%)
33	Maximum		(495,817)	(13.8%)	(0.6%)
34	Average		(101,232)	(12.0%)	(0.6%)
35	Median		(71,758)	(14.2%)	(0.6%)

Notes:
(1) Sales bills were estimated based on the customer's delivery bill and their consumption multiplied by Union's average gas supply charges in 2016.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
Ontario Sustainable Energy Association ("OSEA")

Reference: Exhibit A, Tab 1 Appendix B, Page 3 of 5

Question:

a) What are the sources of the input assumptions used in the Technical Resource Manual?

b) What is the number and proportion of input assumptions based on Canadian data?

c) What is the number and proportion of input assumptions based on Canadian data for natural gas utilities?

d) What is the number and proportion of input assumptions based on US data?

e) What is the number and proportion of input assumptions based on US electrical utilities' data?

f) What is the number and proportion of input assumptions based on US natural gas utilities' data?

g) What is the number and proportion of input assumptions based on US in comparable climates as Ontario data?

h) What is the number and proportion of input assumptions based on US natural gas utilities' data that are in US States where the heating load is less than ¼ of the total natural gas load?

Response:

a) – h)

Please see the response at Exhibit C.OSEA.EGD.1.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
Ontario Sustainable Energy Association ("OSEA")

Reference: Exhibit A, Tab 2, Page 18 of 24

Question:

a) Has Union or Enbridge developed any estimates of how long it will be before the EM&V schedule and timing will be closer to the standard that Union/Enbridge instituted.

b) For each of the program years between 2008-2016, please provide the total cost of the EM&V process.

Response:

a) Please see the response at Exhibit C.OSEA.EGD.2 and the response at Exhibit C.GEC.Union.1B.

b) The total cost of the EM&V process between 2008 and 2016 is shown below. The amounts shown reflect all evaluation spending that occurred during the calendar year. Given the timing of audit and evaluation projects, this could include current program year activities as well as audit related expenses from the previous program year (i.e., 2015 evaluation spend includes EM&V related to program year 2015 as well as the majority of audit expenses related to 2014 program year).

Fiscal Year	Evaluation Spend ($ million)
2008	$0.564
2009	$0.382
2010	$0.494
2011	$0.573
2012	$0.827
2013	$0.905
2014	$1.028
2015	$1.342
2016	$1.498

The accuracy of recorded amounts is influenced by accounting accruals made at year end. The accrual accounting method adheres to Generally Accepted Accounting Principles ("GAAP") and ensures costs are reported in the period that they are incurred (versus paid). Year-end accruals assign costs in one fiscal year and create an offset so that the payment of the actual invoices does not impact the following year's budget, except where estimates were inaccurate.

When the evaluation governance fully transitioned to an OEB-led process starting with the 2015 audit, Union lost the ability to accurately forecast, accrue and track all EM&V related costs as well as to reconcile accrued amounts to invoices received. Sufficient detail is not provided in invoicing to support this and information provided by OEB Staff has been, at times, unreliable. Insufficient information to confirm accrual amounts at the time they are recorded and a lack of supporting documentation to then reconcile accruals to invoices received can impact the reporting of financial results. These same issues have continued to be problematic in 2017 and 2018.

Further, Enbridge Gas continues to believe that full transparency in budgets and spend is necessary so that the EAC, in its advisory role, can effectively provide guidance on the proposed cost of audit and work deliverables, the prioritization of other evaluation activities and studies, and cost/benefit improvements for the following year's audit.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
Ontario Sustainable Energy Association ("OSEA")

Reference: Exhibit B, Tab 2, Page 19 of 45

Preamble: In the 2016 DSM Annual Verification Report to the EAC, the Evaluation Contractor made a recommendation that Enbridge consider creating a policy to define rules for energy savings calculations and baselines for fuel switching and district heating/cooling measures. This same recommendation was made in the 2015 DSM Annual Verification Report.

In EB-2017-0323, Union in Exhibit B.OSEA.2 indicated the 2015-2020 DSM Framework did not provide any direction about supporting technologies related to fuel switching or district heating/cooling. In EB-2018-0301, Union stated it "is expected to adhere to DSM policies and guiding principles as defined by the Board in the 2015-2020 DSM Framework and Guidelines."

Question:

a) Please explain what steps Union is taking to implement this recommendation given that it is Union's position that there are no policies in the 2015-2020 DSM Framework relating to fuel switching or district heating/cooling.

b) Please advise what steps Union is taking to develop a policy for fuel switching and district heating that can be incorporated into the next DSM Framework beyond 2020.

Response:

Please see the response at Exhibit C.OSEA.EGD.4.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [Ex. A/2, p. 11-16, A/2/App. A, p. 3]

Question:

The table below sets out the Union 2016 Resource Acquisition Scorecard approved by the Board on January 20, 2016, in EB-2015-0029. Union claims that new targets should be applied:

a) Please confirm the accuracy of the table below.

b) Please provide (in Excel and pdf formats) all calculations used to go from the Board-approved scorecard to the new proposed scorecard in A/2/App. A, including all assumptions used and all calculations carried out as part of those assumptions.

c) For each change, please indicate Union's authority for the change, either from a Decision, policy, or other Board source.

Please ensure that the calculations are sufficiently granular that they can be completely understood by the Board and the parties. By way of example, and without limiting the generality of the foregoing, if a change was made to the C/I Custom Program component of the target due to a change in NTG, please show the original component that went into the Board's approved numbers, with all underlying assumptions and calculations, identify the changed inputs that Union is proposing, and show the new component, with all underlying assumptions and calculations.

Union 2016 Resource Acquisition Scorecard					
Programs	***Metrics***	***Metric Target***			***Weight***
		Lower Band	***Target***	***Upper Band***	
Home Reno Rebate Commercial & Industrial Custom Commercial & Industrial Prescriptive Commercial & Industrial Direct Install	CCM	910,578,270	1,214,104,360	1,821,156,541	75%
Home Reno Rebate	Home Reno Rebate Participants (Homes)	2,475	3,300	4,950	25%

Response:

a) Confirmed.

b) The calculation of the original and proposed targets were included in pre-filed evidence at Exhibit A, Tab 2, Appendix B. Excel spreadsheets of Exhibit A, Tab 2, Appendix B with all calculations have been provided directly to SEC and GEC via email. Other parties who wish to obtain the Excel spreadsheets can contact Enbridge Gas directly.

c) Two updates were made to the inputs that went into calculating Union's 2016 Resource Acquisition scorecard cumulative gas savings metric.

The first change was to update certain prescriptive measures to match the December 2015 Input Assumption Filing used to calculate audited 2016 Resource Acquisition scorecard results. This was done to be consistent with the Board's guidance that "to calculate next year's targets, the OEB directs the utilities to use the new, updated input assumptions and net-to-gross factors that are the result of the annual evaluation process. The OEB finds it appropriate to use the best available information to determine subsequent targets for prescriptive programs."[1]

The second change to targets was to update custom program NTG values to match findings of the custom CI/LV 2015 NTG Study. This was done to be consistent with the Board's guidance which stated "In 2016, the free rider rates [for CI custom programs] will be updated based on the results of the net-to-gross study and the annual evaluation process."[2]

[1] EB-2015-0029, Decision and Order, January 20, 2016, p. 75.
[2] EB-2015-0029, Decision and Order, January 20, 2016, p. 21.

Changes to inputs are discussed in detail in Union's pre-filed evidence at Exhibit A, Tab 2, pp. 3 - 8 and 11 - 13. All inputs that were changed as a result of these two updates were included within Union's Application at Exhibit A, Tab 2, Appendix B, Schedule 3. Impacted inputs were identified with gray highlighting.

Please also see the response at Exhibit C.STAFF.EGD.1.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [A/1/2, p. 3]

Question:

Please explain why Enbridge and Union each have separate counsel and case managers for this proceeding, when they are now part of the same company. In this respect:

a. Please provide the full budget for this proceeding for each of Enbridge and Union, including details of the forecast cost of counsel, any other external costs, and the internal costs allocated to the proceeding.

b. Please provide a breakdown of which components of the budgets for this proceeding are charged to the DSM budgets of Enbridge and Union, if any, and which components of those budgets are charged to the regulatory budgets of Enbridge and Union.

c. Please provide details of the impact, if any, of the costs of this proceeding on the DSMVA for 2016 or any subsequent year.

Response:

Please see the response at Exhibit C.SEC.EGD.2.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [A/2, p. 18]

Question:

Please confirm it is Union's position that none of the delays in the 2016 program year evaluation were caused by Enbridge or Union. If that is not the case, please provide details of all actions (or failures to act) of either utility that caused any delays.

Response:

Please see the response at Exhibit C.SEC.EGD.7.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [A/2, p. 19]

Question:

Please provide details of all adaptations to program delivery strategy that Union implemented in any of 2011-2014 due to the evaluation results from the immediately preceding year.

Response:

From 2011 to 2014, there were different evaluation and audit processes in place. In 2011, each utility had an Evaluation & Audit Committee to oversee evaluation and audit activities. There was only one audit recommendation in 2011 applicable to a Union measure delivered within the DSM offering, which was an update to the annual electricity savings rate for Condensing Make-up Air Units. This recommendation was implemented.

In November 2011, a joint Terms of Reference for Stakeholder Engagement was filed with the Board, taking effect in 2012.[1] This new process separated the scope of EM&V work into two streams to allow the audit process to not be impeded by the typically more lengthy evaluation project timeframes. The 2012-2014 EM&V process was governed by two separate Audit Committees (one for each of EGD and Union) and one joint Technical Evaluation Committee ("TEC") which included utility representatives working jointly with intervenor representatives and industry experts to address broader evaluation activities. From 2012 to 2014, audit reports routinely included various findings/recommendations. Some recommendations related to improvements to the verification/evaluation effort, some outlined findings or recommendations regarding the utilities' programs themselves. An interface between audit and evaluation was included as part of this EM&V process, to ensure that any audit recommendations would be appropriately considered.

[1] EB-2011-0327 Terms of Reference for Stakeholder Engagement, https://www.oeb.ca/documents/TEC/Committee%20Guiding%20Documents/Stakeholder%20Engagement%20ToR.pdf.

As a result of this 2012-2014 EM&V process, the TEC prioritized the following work:

I) Creation of a Proposal Evaluation Framework;
II) Creation of a standardized CPSV Terms of Reference (reviewed and updated based on annual review of Audit recommendations);
III) The TRM Project;
IV) Revising the sampling methodology relating to the CPSV process;
V) A CI boiler baseline study for space heating boilers over 300MBh for Ontario;
VI) Creating the RFP for a new NTG study for Union & Enbridge Custom Programs; and
VII) Annual review of audit recommendations from each utility.

Program specific changes that resulted from the previous EM&V process as documented in the TEC quarterly reports included:

- Consensus approval of new prescriptive Demand Control Ventilation substantiation document;
- Consensus agreement of a 15% free ridership value on savings claimed through Enbridge's Community Energy Retrofit (CER) offering and Union's Home Reno Rebate (HRR) offering;
- Addition of Exposed Floor Insulation as a major measure for Enbridge's CER offering and Union's HRR offering;
- Update to Measure Life applied to the utilities' respective Low Income Weatherization offerings – 25 years;
- Update to Measure Life for Enbridge's CER and Union's HRR: Installations including a high efficiency furnace – 15 year;
- Update to Measure Life for Enbridge's CER and Union's HRR: Installations excluding a high efficiency furnace – 25 years;
- Consensus approval of new prescriptive High Efficiency Water Heater substantiation document;
- Review approval for a Prescriptive Free Ridership value for Demand Control Ventilation;
- Consensus approval of new Residential Condensing Furnace (New Construction/Time of Natural Replacement); and
- Consensus approval of new Adaptive Thermostats.

These changes were all implemented by Union.

Additional changes were also made to the Custom Program that took audit recommendations into consideration, along with other continuous improvement items identified internally to Union. The Custom Program is a complex process that is built on relationships between utility staff and customers, so changes carefully consider the potential impact to those customer relationships and are precipitated with an awareness building period before implementation.

The following changes were implemented in the Custom Program in response to EM&V recommendations:

Date	Source	Recommendation	Program activity
June 15, 2012	2011 Audit, ECONorthwest	To improve the information available for Commercial Custom projects, the Audit Team makes the following recommendations: • Collect pre-project documentation of whether the project involves an expansion of production capacity. • Collect pre-project utility history for the facility or meter where the project will be affected. • Record baseline conditions (operating hours, operating usage, baseline equipment configuration, etc.). • Collect post-project documentation of what equipment and operating changes were made. • Record upgraded condition (operating hours, operating parameters, upgraded equipment configuration, etc.).	Union replaced its existing Custom Project Checklist with an enhanced Project Application Summary Sheet ("PAS") in 2012. The PAS attempted to ensure projects address the documentation recommendations, and it continues to be enhanced annually based on audit recommendations.
August 29, 2013	2012 Audit, EnerNOC Inc	Union should not use vendor's energy savings calculations for rebates unless independently verified. Vendor calculators include spreadsheets or other packaged calculators that take a few inputs and output expected savings. The source code and calculation methods are often not transparent; their purpose is to sell a particular product, not to accurately determine energy savings and thus they are often wildly optimistic. Union developed eight custom calculators for use in assessing savings. The Auditor briefly reviewed the calculators by following the code and found that the calculators are acceptable tools.	In 2014, Union expanded its library of “open code" custom calculators for common technologies that would otherwise have relied on vendor calculators.

Date	Source	Recommendation	Program activity
October 2, 2014	2013 Audit, Evergreen Economics	Savings from projects that are obvious safety hazards (e.g., gas leaks or very large steam leaks) or are otherwise obviously free riders should not be eligible for Union Gas incentives. Discussions as to whether other broad classes of maintenance or behavioral projects (e.g., steam traps tests and repairs, pipe insulation) should be eligible for the program should be determined at the policy level prior to the beginning of the program year. And, If a free ridership rate is being applied, savings from individual projects that appear to be free riders should not be zeroed out in the custom impact analysis sample as the free ridership has already been accounted for in the adjustment factor. Note that this does not apply to obvious safety and performance issues as discussed in Recommendation #8 (above).	Beginning in 2015 Union Gas began adjusting steam leak and steam trap project savings based on feedback gathered from customers to avoid claiming any projects that would be considered free riders. Customers were asked how much of the work was completed because it posed a safety hazards, and those projects were documented but not included in Union's DSM claim.
October 29, 2015	2014 Audit, Evergreen Economics	Some customers' work orders for steam leaks showed very high leak rates, and notes indicated that repairs were urgent; however, the savings for the repairs were included in the claimed savings. These repairs likely would have been made for safety or severity reasons regardless of program availability. O&M measures of specific types should be considered for exclusion from program incentives. In particular, steam leaks, steam trap repairs, and condensate leaks fall into this category, each often resulting in paybacks of less than one year. In addition, any condition that results in a safety or ecological hazard or has the capability of causing significant damage to equipment should need no incentive to induce its repair in a timely manner and therefore should not be attributed to the program.	As of 2016, Union no longer incented projects classified as routine O&M Repair for CI Custom. Routine O&M repair projects are those in which a customer has completed a repair (i.e. maintenance) to improve energy performance, as opposed to continuing to operate less efficiently. The most common types of projects would be steam leak and steam trap repairs. It would also encompass descaling and heat exchanger cleaning projects.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [A/2, p. 20, 24]

Question:

Please provide a copy of the written proposal of Enbridge and Union to apply the average 2015/16 realization rate to 2017, together with all supporting documents. Please confirm that the EAC has, with the agreement of the EC, determined to proceed with an evaluation of the 2017 and 2018 combined, in order to save time and money.

Response:

Union submitted two written proposals to apply 2015/2016 custom project savings verification realization rates to 2017. The first written proposal was submitted to the EAC via email on September 19, 2018. OEB Staff requested these comments as input into its decision on how to proceed with 2017 CPSV.

Union's first written proposal suggested the following:

- A 2015/2016 average be applied to 2017 CPSV. This effectively meant that no additional data for the 2017 CPSV process would have to be collected.
- A joint 2017/2018 CPSV be conducted but be applied to the 2018 program year only.
- This approach would allow the 2017 audit to be accelerated but also ensure that both 2017 and 2018 program years undergo CPSV.

Union's second written proposal suggested the following:

- To close 2017 EM&V once the prescriptive work is done by adopting 2016 CPSV results, and then study 2017 as part of the 2018 Scope of Work.
- This approach would effectively allow the program to be reviewed and the results applied to the 2018 year.

Enbridge Gas does not confirm that the EAC has, with the agreement of the EC, determined to proceed with a combined evaluation for 2017 and 2018 in order to save time and money. Three EAC members submitted different proposals on to how to

approach 2017 and 2018 CPSV. OEB Staff did not provide information to the EAC as to what degree, if any, OEB Staff considered these proposals. The decision to proceed with a combined 2017/2018 CPSV was not made by the EC, but by OEB Staff when it released its 2017/2018 CPSV RFP to tender on December 3, 2018.

Please also see the response at Exhibit C.SEC.EGD.9.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [A/2, p. 23]

Question:

Please describe what action Union seeks from the Board with respect to its objection to applying NTG to self-direct, self-access programs.

Response:

Enbridge Gas is requesting that the OEB consider removing NTG for Union's Large Volume program as part of its decision in this proceeding or as part of the upcoming development of the next DSM Framework.

As noted in Union's 2015 DSM Deferrals Disposition proceeding at Exhibit B.EP.9, Union's Large Volume Direct Access program provides customers access to their own (rate funded) money for eligible projects. If a customer chooses to not access their own funding, the funds will go to another customer in the rate class to use on a "first-come, first-served" basis. This program design is entirely incompatible with the application of a Free Rider rate. While Union can attempt to influence a customer by providing incentives and identifying/quantifying opportunities to save energy, the customer prioritizes projects depending on its own needs. If a project meets the eligibility criteria of the program, Union will not refuse a customer access to its own money, thus impeding the possibility for Union to affect the associated NTG value.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [A/3, p. 7]

Question:

Please confirm that Union is seeking to retain $2.822 million of underspending in 2016 that it plans to spend in 2018. Please advise what interest arrangements it proposes with respect to that retention.

Response:

Not confirmed.

Enbridge Gas proposes to roll-forward $2.822 million of Union's underspending in 2016, relating to spending that ultimately occurred in 2017 ($2.614 million) and 2018 ($0.208 million). This spending is detailed in Union's Application at Exhibit A, Tab 3, p. 10, Table 3.

Consistent with other deferral account balances, Enbridge Gas will propose to refund the accumulated interest on the underspent balance, accrued since January 2017 at OEB-prescribed interest rates, as part of its Draft Rate Order which will be filed following the OEB's Decision in this proceeding.

Please also see the response at Exhibit C.LPMA.Union.4.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [A/3, p. 7]

Question:

Please provide a reference for the Board authority to spend money for the two studies and recover it through the DSMVA.

Response:

The OEB directed the utilities to undertake these studies in Sections 1.3 and 13.0 of its 2015-2020 Natural Gas DSM Framework (EB-2014-0134).

Accordingly, Union's 2015-2020 DSM Plan application (EB-2015-0029) included "incremental budget" in 2015 for these studies.[1] The OEB subsequently approved Union's proposed 2015 DSM budget as filed.[2]

While no costs were incurred for either study during 2015, Enbridge Gas is seeking recovery of the 2016 costs incurred through the DSMVA in this proceeding. In its decision on EB-2015-0029, Section 16, the OEB endorsed the DSMVA as the appropriate mechanism to track variances from budgeted expenditures for these types of costs.

As noted at Exhibit A, Tab 3, p. 8, spending continued on the IRP Study in 2017 and Enbridge Gas expects to seek recovery of these costs through the DSMVA as part of its 2017 Disposition of DSM Deferral and Variance Account Balances proceeding.

[1] EB-2015-0029, Exhibit A, Tab 2, pp. 6-7.
[2] EB-2015-0029/0049, Decision and Order, January 20, 2016, pp. 56-57.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [A/3, p. 9-10]

Question:

Please confirm that the tracking and reporting system is a capital asset. Please provide details of the annual depreciation, cost of capital, and income tax impacts of that asset for each of the years 2016-2022, assuming that it is closed to rate base in 2018. Please explain why this is not being charged to customers in rates consistent with its capital nature.

Response:

The DSM Tracking and Reporting system upgrades that Union undertook are not considered capital in nature. Union entered into a Software-as-a-Service (SAAS) agreement with a software vendor (EnergyOrbit) that owns and hosts the software solution that Union adopted (i.e., a cloud-based system).

Given the spend on system upgrades is not considered capital, there are no annual depreciation, cost of capital or income tax timing impacts to attribute to ratepayers.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [A/3, p. 14]

Question:

Please confirm that, without the proposed changes to the 2016 targets, Union only achieved 67% of the CCM metric in Table 6, and as a result its weighted average achievement was 100.25%.

Response:

Confirmed.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [A/3/App. A/Sched 3 and A/4/App. A/Sched. 2 and 3]

Question:

With respect to the actual spending on DSM in 2016:

a) Please explain underspending of 62.2% of annual DSM costs between budget and actual for customers of all classes in the North region. Please describe in detail any organizational or other barriers that prevent Union from achieving more DSM success in the North region.

b) Please divide the spending allocated to class M1 between residential and non-residential customers. Please explain why non-residential customers should be required to pay for DSM programs that are only available for residential customers.

c) Please confirm that the proposal to recover M1 overspending on a volumetric basis exacerbates that issue by requiring larger volume non-residential customers in M1 to bear proportionately more of the costs associated with overspending that was directed primarily at residential customers.

Response:

a) As noted in Union's application at Exhibit A, Tab 3, p. 8, Union allocated DSM customer incentive costs based on the amount spent within each rate class. All other DSM program costs are allocated by customer class and assigned by rate class based on the percentage allocation of customer incentive costs. Therefore, DSM participation by customers in their respective rate class drives the magnitude of costs attributed to each rate class.

   The underspend identified is a direct result of lower DSM participation in the Union North rate zone relative to higher DSM participation in the Union South rate zone in 2016.

Union did experience several challenges with respect to offering DSM to the North region in 2016. They are described below by major program category:

Residential

- Eligibility - The Home Reno Rebate offering was launched across Union's franchise area in April 2016. Prior to this date it was available in Central and Southwestern Ontario. From its launch in 2012, Union expanded the geographic coverage of the offering in a step-wise manner as it expanded Service Organization coverage.
- Building Awareness – Given the step-wise manner in which the program was launched, southern regions have had a longer timeframe to build awareness, and marketing promotion has targeted the southern regions for a longer period of time. Additionally, referrals from past participants are lower in the North region given the program's recent expansion to that region.
- Wait Times and Mileage Costs for Energy Assessments – These prove to be deterrents for homeowners due to the remoteness of many communities in Union's North rate zone and the reduced availability of certified energy advisors ("CEAs") to perform assessments. Union launched the remote community strategy to address these barriers in 2017 to improve wait times, cap assessment costs and ensure the program design is reasonably consistent and fair from the perspective of the homeowner, regardless of where they live.

Commercial/Industrial

- Removal of Routine Maintenance – Customer incentives were no longer available for these types of projects, which were typically more popular in the Union North rate zone vs. the Union South rate zone.
- Customer Resource Constraints – Many industrial customers in the Union North rate zone (particularly in the mining and pulp and paper sectors) were constrained from undertaking energy efficiency opportunities, due to financial and other resource constraints.

Large Volume

- Decline in Customers and Contract Demand – Less customers in the R100 rate class and an overall decline in total firm contract demand and throughput compared to the prior DSM Framework, due to economic factors, such as lower power demands in the Union North rate zone.
- Customer Resource Constraints - Similar to Commercial/Industrial constraint described above.

b) Please see the Table below for the breakdown of spending allocated to class M1 between residential and non-residential customers.

Rate Class Category	Actual 2016 DSM Costs ($)
M1 Residential	18,103,538
M1 Non-Residential	3,213,395
M1 Total	21,316,933

As per Exhibit A, Tab 3, p. 8, Union applied the OEB approved-methodology for allocating actual DSM costs and determining the DSMVA balance. This methodology prescribes that all ratepayers in a rate class are subject to the DSM costs allocated to that rate class. The cost attributed to any one rate class can originate from a single program offering or several program offerings for which customers in the rate class are eligible to participate.

c) Union's proposal to recover DSM costs associated with general service rate classes (M1, M2, 01, 10) on a volumetric basis is consistent with past practice as approved by the OEB.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/2, p. 6]

Question:

Please explain why recommendation O3A dealing with the utilities databases "should be directed to OEB staff".

Response:

Please see the response at Exhibit C.SEC.EGD.11.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/2, p. 11]

Question:

Please explain the role of Energy Advisors in the Union DSM process, and how their role differs from the role played in those same projects by employees of Union.

Response:

Employees administering Union's DSM programs are not NRCan Certified Energy Advisors ("CEA"s) and do not complete the same work done by these advisors. For its Home Reno Rebate offering in the Union rate zones, Enbridge Gas relies on a network of service organizations, which in turn employ CEAs for on-site work with residential customers. This work includes performing energy assessments, recommending eligible upgrades to customers, and submitting all required paperwork to Enbridge Gas on behalf of the customer. As part of this work, CEAs use NRCan's HOT2000 model in accordance with the requirement of NRCan's protocols.

Unlike custom projects, which are developed by Enbridge Gas's employees on a case-by-case basis, Enbridge Gas's role within its Home Reno Rebate offering does not involve direct interaction with customers. Enbridge Gas's role is focused on program design, marketing, management of service organizations, collection of documentation, data entry into Enbridge Gas's tracking database, and support with audit activities during the EC's verification of Home Reno Rebate offering Results. Enbridge Gas employees do not perform the work of, nor do they accompany, CEAs during on-site work.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/2, p. 14]

Question:

Please confirm that, going forward, the utilities will "report spending in a consistent format and apportion the overhead costs to individual programs".

Response:

Please see the response at Exhibit C.SEC.EGD.12.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/2, p. 18]

Question:

Please comment on the appropriateness of carrying out the CPSV process on a rolling average basis over a period of years (3, 4, or 5) so that the sample is always a multi-year sample, and each year a new year is added for project verifications and the earliest year is dropped off.

Response:

Please see the response at Exhibit C.SEC.EGD.13.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/2, p. 19]

Question:

Please explain why future potential "changes in operating conditions" are not reflected in CCM forecasts over the full measure life. Please comment on whether measurement of actual results over multiple years could be used to ensure that only real savings are credited to the utilities.

Response:

Please see the response at Exhibit C.SEC.EGD.14.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/2, p. 20]

Question:

Please describe in detail the process currently used by Union to screen out projects that would otherwise be free riders.

Response:

Union has enhanced several key program design and implementation practices within the Commercial/Industrial Custom offering in order to reduce free-rider participation. These enhancements are not exclusive to the 2016 DSM program year but rather reflect improvements made up to the filing of Union's October 2, 2017 submission in the Mid-Term Review of the 2015-2020 DSM Framework for Natural Gas Distributors (EB-2017-0127). Enhancements include updated project eligibility requirements, improved project documentation and screening practices, the exclusion of routine maintenance projects, and the addition of terms and conditions to marketing materials. These enhancements are explained in further detail below.

Updated Project Eligibility Requirements

In an effort to reduce free-ridership in Union's Commercial/Industrial Custom offering, Union has updated its custom project eligibility requirements to ensure they exceed industry standard practices. An example of an industry standard practice used is one inch-thick (1") insulation for buried pipes within Union's greenhouse market. By updating its project eligibility requirements to exceed industry standard practice, buried pipes within Union's greenhouse market must now exceed one inch-thick insulation in order to qualify to receive a financial incentive through Union's Commercial/Industrial Custom offering. While not all customers will follow industry standard practice within their respective facilities, the likelihood a customer will do so without being provided a financial incentive is considered high. Therefore, by updating project eligibility requirements to exceed industry standard practices, free-ridership within the custom offering is expected to decrease. Union will continue to assess market and industry

standard practices and will update project eligibility requirements as appropriate to ensure they continue to exceed industry standard practices.

Improved Project Documentation and Project Screening Practices

In an effort to reduce free-ridership, Union has enhanced its custom project documentation form to capture more detailed information about each custom project in order to identify and screen out projects with high free-ridership attributes. Specifically, the custom project documentation form now solicits information related to compliance requirements and manufacturer warranties. Projects that are considered compliance requirements (such as for safety or emissions purposes) or are eligible for manufacturer warranty should be completed by the customer without financial incentive. Improving the documentation form to capture more targeted and relevant information from participating customers allows Union to more effectively identify and screen-out projects with high free-ridership attributes.

Exclusion of Routine Maintenance Projects

In an effort to reduce free-ridership, beginning in 2016, Union stopped providing incentives for routine maintenance projects such as steam trap repairs, steam leak repairs and combustion tune ups. In an effort to reduce free-rider participation, routine maintenance projects such as steam trap repairs are no longer eligible for financial incentives within Union's Commercial/Industrial Custom offering, and savings from routine maintenance projects are not claimed towards the offering's results. To ensure customers are aware of the benefits of performing routine maintenance activities, Union continues to provide information and education about routine maintenance projects as part of the offering.

Addition of Terms and Conditions to Marketing Material

In an effort to reduce free-ridership, Union's marketing material for the Commercial/Industrial Custom offering now includes a Terms and Conditions section that informs program participants that the eligibility of all projects are subject to verification by Union. The additional information is intended to inform customers that certain projects with high free-ridership attributes will not be accepted by Union. Union believes this helps limit the number of projects with high free-ridership elements from entering the project screening process.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/2, p. 23]

Question:

Please describe in detail the differences between the current CPSV process and the past, utility-controlled CPSV process that have results in "onerous time requirements and/or specific data requests made of customers may not have been considered reasonable and/or compromised customer privacy or safety policies".

Response:

Enbridge Gas assumes that SEC is referring to EC Recommendation VF10. Recommendation VF10 was first provided by the EC in the 2015 audit and then again in 2016. Union provided a response in 2015 and for the sake of completeness, provided a similar response in 2016 with some modifications.

Union's response to VF10 in 2016 states "[t]he EC notes that in some cases, verifiers were unable to obtain access to all the equipment or participants did not provide all requested data. There are many aspects that can impede third party verification access to equipment, including safety concerns, perceived reasonableness of the request, customer privacy and time lag from measure installation."

The quote SEC references does not appear in Union's Summary Responses to the 2016 Natural Gas Demand Side Management Annual Verification Recommendations.

Union's response to VF10 notes that specific data requests made of customers were not reasonable considering the two year time lag between projects implemented in 2016 and verification activities conducted in 2018, as this time lag has the potential to increase the burden of data extraction for customers. This is in contrast to the utility-controlled CPSV process, where data was requested in the year immediately following the relevant DSM program year, increasing the likelihood of data being readily available.

Union's response notes that customers expressed concerns that the 2015 CPSV process might have compromised customer privacy or safety policies as verifiers booked site visits with very short notice. This is in contrast to the utility-controlled CPSV process, where Union was more involved in setting up site visit times. Union ensured site visits were set up with sufficient notice to ensure that safety policies and site privacy issues could be managed as effectively as possible.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/2, p. 34]

Question:

Please describe in detail the current Union QA/QC process a) at the initial project approval stage, b) at the project completion and payment stage, and c) at the verification stage.

Response:

a) and b)

Union has not maintained distinct QA/QC processes at the initial project stage and at the project completion/payment stage. Rather, Union has applied a continual QA/QC process throughout the development of a project that leverages the expertise of project managers, account managers and the Commercial/Industrial Energy Efficiency Programs ("CIEEP") team. Each of these roles and their connection to QA/QC in 2016 is described below.

Account Managers

Union employs an account management strategy for dealing with its approximately 500 larger contract-sized commercial and industrial customers. The Account Manager assigned to each of these customers is responsible for providing and administering the full range of applicable services within the Union service portfolio, including DSM offerings. The Account Manager's role is to work with assigned customers to gain in-depth knowledge of their business, particularly with respect to their energy use and needs. Account Managers typically interact with multiple departments within the customer's organization (e.g., purchasing/procurement, plant operations, technical/engineering functions); they are uniquely positioned to leverage their customer-specific relationship to identify opportunity and assess potential DSM projects. This helps ensure project opportunities meet the definition of DSM and satisfy eligibility criteria.

Project Managers

Account Managers engage Union's Project Managers with specific customers as needed to assist customers in recognizing, identifying and developing specific energy efficient natural gas based solutions to customer business problems. Union's eight Project Managers are all engineers with a Professional Engineering designation (in Ontario) and have many years of engineering experience. The Project Manager works together with the Account Manager as well as third party engineers, equipment manufacturers and service providers as necessary to complete the DSM application and confirm the appropriate base case, high efficiency option and effective useful life ("EUL") for the project. Union's experienced staff supports these customers in identifying best-practice energy conservation solutions that meet their requirements. They also support customers as required throughout the project implementation process.

CIEEP Team

The CIEEP team is the central resource in charge of final QA/QC.

Each custom project undergoes internal project QA/QC review and verification by engineers within Union's CIEEP team prior to the external verification and audit. The CIEEP team reviews and confirms the calculated savings through evaluation of project and customer-specific factors, including:

- Reasonableness of base case assumptions;
- Confirmation of high-efficiency case assumptions;
- Reasonableness of project life assumptions;
- Confirmation of other factors affecting gas demand (e.g., production and weather); and
- Confirmation of customer project costs.

Project savings calculations are based on the best information available at the time of review. The CIEEP team works directly with Project Managers and Account Managers to clarify assumptions and confirm/revise calculated savings as required. Projects submitted that are not deemed eligible for an incentive are rejected by the CIEEP team.

Beginning in 2017, Technical Account Managers assumed the role that was previously completed by Account Managers and Project Managers in relation to the QA/QC process.

c) Union has two roles related to QA/QC during the independent third party CPSV process.

The first role is to ensure that the project information provided to the verifier is thorough, accurate and sufficient to allow the verifier to complete verification. This includes providing complete project documentation up front as well as ensuring that any responses to subsequent verifier questions are prompt and accurate.

The second role is to review the verifier's draft findings in order to reach a common understanding of best available information. The objective of this review is to reach an assessment of savings that is as accurate as possible. When CIEEP engineers identify errors in the verification findings or interpret project details differently than verifiers, these items are raised for discussion collectively within the EAC for broader discussion. This ensures that any subsequent changes to verification findings are explored and considered in a transparent manner. The EC noted in its final 2016 Audit Report that: "both utilities chose to retain engineers with strong understanding of their customers' building and process systems and showed a commitment to finding accurate savings estimates. On several occasions, both on the phone and in writing, the evaluation team suggested a value that would have increased savings in a way that the utility program engineer did not think was valid. When this happened, neither utility was shy in suggesting that we may want to make a more conservative choice."[1]

[1] 2016 Natural Gas Demand-Side Management Annual Verification, October 30, 2018, p. 49, https://www.oeb.ca/sites/default/files/OEB-2016-Natural-Gas-DSM-Annual-Verification-Report-20181030-2.pdf.

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/1, p. 131]

Question:

For each line in Table 11 in which the spending was greater or less than budget by at least 10%, please provide a detailed variance analysis. Also, please provide details of the total underspend in overhead costs, and a forecast of the extent, if any, to which that underspend is expected to continue in subsequent years.

Response:

Please see Attachment 1 for the explanations of each variance greater than 10%, as well as a summary of the underspending on overhead costs.

Spending on overhead costs has increased in the subsequent 2017 and 2018 DSM program years compared to the 2016 DSM program year to be more in-line with OEB approved budgets.

	2016 Spend	2016 Budget	Variance	Variance %	Variance Explanation
	A	B	C=A-B	C/B	
Program Budget					
Resource Acquisition Scorecard					
Residential Program	$10,199,498	$8,052,657	$2,146,841	27%	Higher program spend in Residential Program driven by spend on incentives - consistent with performance significantly higher than target.
Residential Evaluation	$1,001,900	$559,000	$442,900	79%	Higher evaluation spend in Residential Evaluation driven by higher volume of homes completed compared to target.
Commercial/Industrial Program	$16,263,967	$19,127,176	$(2,863,209)	-15%	Lower program spend in Commercial/Industrial Program driven by later than expected OEB approval of DSM Plan.
Commercial/Industrial Evaluation	$120,578	$189,000	$(68,422)	-36%	Fewer Commercial/Industrial Evaluation activities performed on program in 2016 than what was anticipated in OEB approved budget.
Low-Income Scorecard					
Low-Income Program	$10,238,880	$11,187,342	$(948,462)	-8%	Variance <10%.
Low-Income Evaluation	$161,733	$220,128	$(58,395)	-27%	Fewer Low-Income Evaluation activities performed on program in 2016 than what was anticipated in OEB approved budget.
Large Volume Scorecard					
Large Volume Program	$2,951,494	$3,937,000	$(985,506)	-25%	Lower Large Volume Program spend driven by lower participation amongst Large Volume customers - please see Exhibit B, Tab 1, p.101 for description of drivers.
Large Volume Evaluation	$37,682	$63,000	$(25,318)	-40%	Fewer Large Volume Evaluation activities performed on program in 2016 than what was anticipated in OEB approved budget.
Market Transformation Scorecard					
Market Transformation Program	$996,760	$1,676,250	$(679,490)	-41%	Mostly driven by lower spend on Commericial/Industrial Savings by Design offering - which was not anticipated to be offered by Union until the OEB decision on Union's 2015-2020 DSM Plan was received in January 2016 - please see Exhibit B, Tab 1, pp.107 - 108 for further information.
Market Transformation Evaluation	$7,933	$26,820	$(18,887)	-70%	Fewer Market Transformation Evaluation activities performed on program in 2016 than what was anticipated in OEB approved budget.
Performance-Based Scorecard					
Performance-Based Program	$274,203	$513,000	$(238,797)	-47%	Due to the later than expected OEB decision on Union's 2015-2020 DSM Plan, Strategic Energy Management (SEM) Participants were not able to install their integrated energy management system (IEMS) and sub-metering in 2016. This issue led to lower in-kind consultant services and incentives than anticipated in OEB approved budget.
Performance-Based Evaluation	$401	$35,000	$(34,599)	-99%	Fewer Performance-Based Evaluation activities performed on program in 2016 than what was anticipated in OEB approved budget.
Programs Sub-total	$42,255,026	$45,586,373	$(3,331,347)		
Portfolio Budget					
Research	$517,567	$1,500,000	$(982,433)	-65%	Fewer Research activities undertaken in 2016 than anticipated in OEB approved budget.
Evaluation	$168,121	$1,300,000	$(1,131,879)	-87%	Fewer Evaluation activities performed on programs in 2016 than what was anticipated in OEB approved budget.
Administration	$2,364,580	$2,935,000	$(570,420)	-19%	Lower portfolio Administration spend driven by later than expected OEB decision on Union's 2015-2020 DSM Plan.
Pilots	$183,200	$500,000	$(316,800)	-63%	Lower Pilot spend undertaken, mostly driven by later than expected OEB decision on Union's 2015-2020 DSM Plan.
DSM Tracking and Reporting System Upgrades	$2,041,209	$5,000,000	$(2,958,791)	-59%	Actual spend reflects spending on DSM Tracking and Reporting System Upgrades incurred in 2016 - future spend detailed in Exhibit A, Tab 3, pp. 9-10.
Portfolio Sub-total	$5,274,676	$11,235,000	$(5,960,324)		
Incremental DSM Projects 2016 Budget Spend					
Achievable Potential Study	$267,199		$267,199	N/A	Reflects actual costs incurred on OEB-initiated Achievable Potential Study.
Future Infrastructure Planning Study	$46,946		$46,946	N/A	Reflects actual costs incurred on OEB-initiated Future Infrastructure Planning Study.
Total 2016 DSM Budget (before Adjustments)	$47,843,847	$56,821,373	$(8,977,526)		

Overhead Summary					
Program Evaluation Costs	$1,330,225	$1,092,948	$237,277	22%	See explanations above for each program area.
Program Administration Costs	$6,005,334	$7,654,425	$(1,649,091)	-22%	Later than expected OEB decision on Union's 2015-2020 DSM Plan drove delayed spending decisions (e.g. recruitment of incremental roles).
Total Program Overhead Costs	$7,335,560	$8,747,373	$(1,411,813)		
Portfolio-level Overhead Costs	$5,274,676	$11,235,000	$(5,960,324)	-53%	See 'Portfolio Budget' section above.
Total Overhead Costs	$12,610,236	$19,982,373	$(7,372,137)		

ENBRIDGE GAS INC.
(Operating as Union Gas)

Answer to Interrogatory from
School Energy Coalition ("SEC")

Reference: [B/2, p. 45]

Question:

Please explain why it is appropriate to apply a practice (prescriptive measure lives) that is appropriate for prescriptive measures, to measures that are custom in nature, and therefore have their savings calculated on a custom basis.

Response:

While custom project savings are based on site-specific information, Union uses prescriptive measure lives for a list of common technologies. Although the savings for these technologies will vary according to the facility in which they are installed, the lifespan of the technology typically will not. This is consistent with the OEB Staff-coordinated EM&V review of measure lives, and the way measure lives are treated through the EM&V process for custom projects. Consistent measure lives for the technologies listed is the default approach, and any variance from that based on the facility is a rare exception.