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April 6, 2020

BY RESS, EMAIL AND COURIER

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

Dear Ms. Long:

**Re: Enbridge Gas Inc. (Enbridge Gas)¹
Ontario Energy Board File No.: EB-2019-0271
2021 DSM Plans – Enbridge Gas Responses to Interrogatories**

On November 27, 2020, Enbridge Gas Inc. (“Enbridge Gas”) submitted an application with the Ontario Energy Board (“Board” or “OEB”) and Parties intervening in the Post 2020 Natural Gas Demand Side Management Framework Consultation proceeding (EB-2019-0003) for an OEB Order, effective January 1, 2021, approving Enbridge Gas’s 2021 DSM Plans which propose to roll-forward the OEB-approved 2020 DSM Plans, including all programs, scorecards and other parameters (i.e. budgets, targets and performance incentive structure) (the “Application”). Enbridge Gas also requested that the OEB extend the current 2015-2020 DSM Framework (EB-2014-0134) and related Filing Guidelines to the same, into 2021 (to December 31, 2021). Enbridge Gas’s Application explains that Enbridge Gas’s primary concerns are to avoid any interruption of DSM/conservation offerings across Ontario and to allow for the full resources of Enbridge Gas and stakeholders to focus on the development of the Post-2020 DSM Framework (EB-2019-0003).²

In Accordance with the Board’s Procedural Order No. 1 (“PO1”), attached are Enbridge Gas’s responses to interrogatories posed by intervenors. Enbridge Gas’s responses to interrogatories are guided by the Board’s findings in PO1: ³

“The OEB announced that it is undertaking a comprehensive review of the DSM policy framework in a letter dated September 16, 2019. As a result, the OEB does not expect material changes to the programs and no increase to the overall DSM budget to take place during the transition period from the current OEB-approved DSM plans. In light of the on-going policy consultation, parties are expected to focus their participation during this

¹ Enbridge Gas Inc., was formed by the amalgamation of Enbridge Gas Distribution Inc (“EGD”) and Union Gas Limited (“Union”) on January 1, 2019.

² EB-2019-0271, Application, Exhibit A, pp. 3 & 6.

³ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

proceeding on ensuring that the OEB's previously-approved 2020 DSM plans will continue to deliver cost-effective savings in 2021, consistent with the OEB's January 20, 2016 Decision and Order and DSM Mid-Term Report. The OEB expects that submissions from parties should be directed to the best alignment of Enbridge Gas resources and effort available within the existing plan in order to maximize results.

Parties will continue to have the opportunity to provide input and feedback on any new policy objectives, program changes and all other facets of the new DSM framework as part of the ongoing consultation. The OEB is mindful of the costs and resources required to thoroughly review, critique and make material changes to the currently approved DSM plans and agrees with Enbridge Gas that resources are best directed to the policy consultation."

Enbridge Gas's Application simply seeks approval to continue the incentive regulation framework established by the Board in its 2015-2020 DSM Framework, which includes productivity factors that increase targets formulaically and holds overhead costs and budgets without inflationary increases. In its Report on the 2015-2020 DSM Framework the Board stated, "there is no license condition mandating that the gas utilities undertake DSM activities" and put in place a balanced scorecard approach that aligns shareholder interests with ratepayers across several policy objectives.⁴ Enbridge Gas asks that all these balanced scorecard elements be rolled-forward, for all Enbridge Gas rate zones,⁵ such that efforts of Enbridge Gas staff, stakeholders and the Board can be focused on the development of the Post-2020 DSM Framework.

At the time of this submission, Ontario has declared a state of emergency related to the COVID-19 pandemic. Accordingly, Enbridge Gas has taken measures to ensure the safety of its staff, contractors, customers and the general public. By letter to the OEB and parties to this proceeding on March 17, 2020, School Energy Coalition ("SEC") requested that Enbridge Gas provide a summary of COVID-19 impacts:

"...there is certainly the potential that the covid-19 pandemic could have an impact on your program delivery in 2020, and your planning for 2021 and beyond. It would be of assistance to all parties, I think, if you could provide a summary of your current expected impacts, and any plans you have to mitigate those impacts."

Enbridge Gas has treated SEC's request as an incremental interrogatory and has provided a response at Exhibit I.SEC.16, herein, that addressed this issue as well as overarching key assumptions that apply to the entirety of this submission, as discussed below.

⁴ EB-2014-0134 Report of the Board: Demand Side Management Framework for Natural Gas Distributors (2015-2020) (December 22, 2014), Section 5.0, pp. 19-20.

⁵ Enbridge Gas Distribution ("EGD") rate zone and Union Gas ("Union") rate zones (composed of Union North rate zone and Union South rate zone).

Despite the challenges in the current operating environment discussed above and in further detail within the response at Exhibit I.SEC.16, Enbridge Gas has attempted to be as responsive as possible to the large number of intervenors (17) and numerous overlapping interrogatories received, numbering over 220 questions in total, while adhering to the OEB's procedural timeline (established in February 2020). Enbridge Gas's efforts underscore the importance that it places upon maintaining the timelines and focus on development of the Post-2020 DSM Framework. More than ever, Enbridge Gas believes that the approvals sought in this proceeding to extend the 2015-2020 DSM Framework and roll-over the 2020 budget into 2021 is in the best interests of ratepayers and that timely approval of this application is critical. The current environment has enough uncertainties. Customers planning to invest in conservation activities should not question whether they will receive support from their utility programs. Given the current environment, it is even more important now to avoid material changes to programming. Given the Board's direction, Enbridge Gas highlights the following key assumptions that have been made across all interrogatory responses:

2019 Forecasts/Actuals

As 2019 data is still being compiled at the time of this submission, Enbridge Gas has assumed that all metrics will reach a level of 100% based on the audited 2018 results. This assumption is flowed through the target adjustment mechanism ("TAM") with all OEB-approved productivity factors applied so that 2019 targets can be numerically calculated. Enbridge Gas intends to file Pre-Audited 2019 DSM program year results with the OEB by May 29, 2020.⁶

2020 Forecast

Enbridge Gas has assumed that all 2020 metrics will reach a level of 100% and that 2020 metrics are based on achieving 100% 2019 results. This assumption is flowed through the TAM with all OEB-approved productivity factors applied so that 2020 targets can be numerically calculated.

2021 Forecast

Enbridge Gas has assumed that all 2021 metrics will reach a level of 100% and that 2021 metrics are based on achieving 100% 2020 results. This assumption is flowed through the TAM with all OEB-approved productivity factors applied so that 2021 targets can be numerically calculated.

The assumptions set out above are reasonably necessary to respond to the many data intensive interrogatories posed as: (i) the audit outcomes for 2019 results are not currently known; (ii) 2020 actuals are not currently known; and (iii) COVID-19 conditions are fluid and 2020 outcomes cannot be forecast with certainty. Although Enbridge Gas has well over two decades of experience effectively delivering conservation programs in Ontario, the current environment is simply unprecedented.

⁶ EB-2015-0245 OEB Letter: 2019 Draft Demand Side Management Evaluation Reports (April 3, 2020).

Certain parties requested that Enbridge Gas provide information in the form of live excel spreadsheets. Wherever reasonably possible, as guided by the scope of the proceeding established by the OEB in Procedural Order No. 1, Enbridge Gas has provided live excel spreadsheets containing the values sought.

If you have any questions, please contact the undersigned.

Sincerely,

[original signed by]

Adam Stiers
Technical Manager, Regulatory Applications

cc.: Dennis O'Leary (Aird & Berlis)
EB-2019-0271 (Intervenors)

ENBRIDGE GAS INC.

Answer to Interrogatory from
Board Staff (STAFF)

Interrogatory

Reference:

OEB Mid-Term Review Report (EB-2017-0127/0128), pg. 19

Question:

As part of the OEB's conclusions included within the DSM Mid-Term Review Report, the OEB stressed that the utilities "should actively screen potential program participants thoroughly, and actively seek out customers who can most greatly benefit from the programs, therefore ensuring program funds are used as effectively as possible."

- a) Please discuss how Enbridge has enhanced its participant screening process to respond to the OEB's direction in the Mid-Term Report.
- b) Please provide specific examples of how Enbridge has responded to the OEB's direction to "actively seek out customers who can most greatly benefit from the programs".
- c) Please discuss any challenges Enbridge has faced in responding to this direction.

Response

- a) In the Board's Decision & Order on the 2015-2020 DSM Multi-Year Plans, the Board directed:¹

"At the mid-term review, Enbridge and Union will provide evidence to either demonstrate the effectiveness of its screening efforts or identify the barriers to lowering the free rider rate in commercial and industrial custom programs."

As part of their submissions and presentations in the OEB's Mid-Term Review proceeding (EB-2017-0127/0128) the utilities provided updates on progress to date

¹ EB-2015-0029 / EB-2015-0049, OEB Decision and Order (January 20, 2016), p. 21.

and the Board summarized this feedback with respect to the utilities' custom program offers, in its Mid-Term Review Report acknowledging that "Enbridge Gas has focused on education and training, program design and participant screening"² and "Union Gas has enhanced several key program design and implementation practices, including updated program eligibility, and improved documentation and screening."³

Since the issuance of the Mid-Term Review Report, and subsequent amalgamation of the utilities, Enbridge Gas has examined the approaches of the respective utilities with a focus on determining best practices to enhance the participant screening process across the Commercial and Industrial ("C&I") custom as well as prescriptive offerings. Through ongoing internal review of design and delivery practices, improvements identified and implemented to date include: (i) introducing additional parameters on offer eligibility criteria (e.g. eligibility for steam trap replacements requiring completion of a third party steam trap audit); (ii) increased emphasis on reviewing and determining appropriate baselines, thus screening technologies and/or projects that may be deemed standard practice and may have been installed without program intervention such as infrared heaters; and (iii) improving training with Energy Solutions Advisors ("ESAs") coupled with enhancements to project documentation to ensure the full background and customer engagement history for projects is recorded, including clear explanations of vendor involvement to support appropriate participant eligibility.

A few weeks ago, on March 13, 2020, Enbridge Gas received the final reports from the DSM Evaluation Contractor ("EC") on the 2017 and 2018 DSM program year evaluations ("2017 Verification Report" and "2018 Verification Report").⁴ Although results of the 2018 Verification Report indicate an overall improvement in free-ridership values, Enbridge Gas has not had the necessary time to fully review the details. Enbridge Gas intends to respond to recommendations in due course. It should be noted however, that given the manner in which the free-ridership studies were conducted and the high level nature of the recommendations provided, in some cases it is challenging to ascertain from the broad recommendations which specific technologies or segments Enbridge Gas should focus on and/or how to action this high level feedback. The EC cannot provide detailed data from the 2018 Verification Report to Enbridge Gas due to confidentiality, which limits Enbridge Gas's ability to act on potential improvements.

² EB-2017-0127 / EB-2017-0128, Report of the Ontario Energy Board Mid-Term Review of the Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020) (November 29, 2018), p. 30.

³ Ibid

⁴ <https://www.oeb.ca/sites/default/files/2017-DSM-Annual-Verification-Report.pdf>
<https://www.oeb.ca/sites/default/files/2018-DSM-Annual-Verification-Report.pdf>

Of note, the 2018 Verification Report included a recommendation for the completion of a process evaluation on the custom offering. Enbridge Gas had already commenced a process evaluation that will engage an independent third-party evaluator to review processes related to the Custom C&I program offerings, inclusive of participant screening practices. Outcomes of this evaluation are expected to inform further enhancements of the screening process and highlight further considerations reflecting industry best practices. By directly leading the process evaluation effort Enbridge Gas expects the study should provide additional and specific insights that can drive further program improvements.

- b) Enbridge Gas can demonstrate its ongoing focus to actively seek out customers who can most benefit from its programming through the following examples:

Generally, customers with the highest consumption will see the greatest benefit from engaging in energy efficiency and utilizing the support of a conservation program. For this reason, Enbridge Gas continues to provide dedicated technical ESAs to its largest gas users across the C&I sectors. This includes institutions, school boards, municipalities, industrial and agriculture facilities, as well as owners of commercial building portfolios. Enbridge Gas's ESAs develop long-standing relationships with these customers, providing technical and financial support to help them identify and implement projects that achieve long term natural gas savings. In an effort to continually expand the reach of DSM programs to customers who have not previously participated, Enbridge Gas actively calls on these customers to ensure their awareness of its programs, and to determine the best ways to address the particular barriers faced by these customers to acting on energy conservation opportunities.

Small volume commercial and industrial customers represent a significant portion of Enbridge Gas's non-residential customer base. Not specific to the Enbridge Gas experience, participation rates for this group of customers have traditionally been low due to the significant knowledge, financial and resource barriers they face to adopting energy efficient measures. However, Enbridge Gas is working to engage these customers through its Direct Install program offering. The Direct Install program offer is expected to continue to grow in 2020 and 2021 through the addition of a new measure (i.e. dock door seals) and additional delivery agents.

Benchmarking customers' energy use is another method of identifying customers who can benefit most from Enbridge Gas's programs. The intent of benchmarking is to compare a customer's energy intensity against peers within their segment to identify conservation potential relative to "best in class". This in turn identifies the best candidates for targeted programming and can motivate customers who can

most greatly benefit to engage in energy conservation. Enbridge Gas has been increasing efforts in benchmarking-related initiatives with the intent of understanding how this can be leveraged within the current or future programming. For example, Enbridge Gas has participated in two performance-based conservation pilot projects with schools and municipal buildings. These pilot projects leveraged benchmarking as a tool to help identify and motivate high potential customers. Enbridge Gas is currently reviewing the best ways to incorporate benchmarking into its low-cost/no-cost program offers to better target participants who would most benefit from these operational improvements.

- c) Although Enbridge Gas is making efforts to actively screen program participants and seek out customers who can most benefit from the programs, screening program participants must be balanced with ensuring programs are not administratively burdensome to the customer or overly restrictive, thus discouraging participation.

Despite all efforts to screen participants, some level of free ridership exists in all DSM programs that encompass a wide range of potential participants depending upon how interested or sophisticated they may be with respect to energy efficiency.

Consistent with Enbridge Gas's submission for the Union rate zones in the Mid-Term Review (EB-2017-0127) proceeding, one method by which Enbridge Gas can reduce free-ridership within program offerings is by enhancing program design and delivery practices to include new free-ridership mitigation efforts. Enbridge Gas has looked for more timely feedback in this regard and is encouraged by the EC and Board Staff efforts to accelerate the evaluation process where feasible. Enbridge Gas also noted in its June 2019 submission in the Post-2020 DSM Framework consultative, that certain elements of the current 2015-2020 DSM Framework merit a focused review as part of the development of the Post-2020 DSM Framework, including Program Evaluation. Challenges noted included: timely process outcomes, delays in evaluation findings preventing incorporation into program design, lack of clearly defined evaluation and audit protocols, costly litigation in clearances, and inaccuracy and high cost in the assessment approach for impacts of free-ridership and spillover. Enbridge Gas suggested both a terms of reference and DSM evaluation and audit protocols be developed to ensure roles, accountabilities, timelines related to the evaluation process are clear and evaluation issues are handled in a robust, transparent, and cost-effective manner. This is expected to be part of the Post 2020 DSM Framework consultation currently underway with the Board.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Board Staff (STAFF)

Interrogatory

Reference:

OEB Mid-Term Review Report (EB-2017-0127/0128), pg. 26

Question:

The OEB supported the continuation of the Union Gas' efforts to create an Open Bill Access program.

- a) Please provide a status update of the Union Gas Open Bill Access program. Within your response, please address the consistency of the Union Gas program to the Enbridge Gas program. If the program is still not complete, please discuss why.

Response

The Union rate zones Open Bill Access program ("OBA") launched the week of March 30, 2020, via a program webpage linked from the Union rate zones website.¹ Subsequent marketing of the program to potential billers will take place in partnership with the Heating Refrigeration and Air Conditioning Institute of Canada ("HRAI"). Enbridge Gas's current expectation is that interested billers will be enrolled in the program in Q2 2020 and that billing on behalf of those enrolled in the program will commence in Q3 2020.

The eligible equipment/service list differs between the EGD rate zone and Union rate zones OBA programs, as Enbridge Gas was directed by the OEB to focus the Union rate zones program upon energy efficiency/conservation-related equipment and services.² However, Enbridge Gas has endeavoured to ensure that all other aspects of the respective programs are consistent wherever possible. Further, where a current OBA biller (one that is utilizing the EGD rate zone OBA program) chooses to also enroll in the Union rate zones' OBA program, the additional registration fee for that biller will be waived.

¹ <https://www.uniongas.com/openbill>

² EB-2015-0029 / EB-2015-0049, OEB Decision and Order (January 20, 2016), p. 55.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Board Staff (STAFF)

Interrogatory

Reference:

OEB Mid-Term Review Report (EB-2017-0127/0128), pg. 30

Question:

The OEB encouraged Union Gas to explore other opportunities for new mass-market programs for residential customers.

- a) Please discuss the progress that has been made in researching and/or developing a new mass market program for residential customers throughout Ontario.
- b) If little to no progress has been made, please discuss the challenges Enbridge has faced

Response

- a) Since the Board issued its Mid-Term Review Report, Enbridge Gas has continued to research and develop new opportunities for mass market programs.

Enbridge Gas conducts ongoing research to identify new market opportunities through jurisdictional scans as well as committee participation in many industry associations, such as: the Consortium for Energy Efficiency ("CEE"), the Energy Solutions Centre ("ESC") and the Association of Energy Services Professionals ("AESP"). CEE has just launched an Integrated Home Initiative focused on researching the DSM opportunities associated with smart home technology.

Beyond efforts focused on optimizing and aligning the current in-market Home Efficiency Rebate and Adaptive Thermostats offers to achieve consistent Residential program delivery across all Enbridge Gas rate zones (please see the responses at Exhibit I.Staff.4 and at Exhibit I.OSEA.1 for discussion of integration and alignment of DSM), Enbridge Gas continues to lead and participate in a number of pilot projects to inform future mass market program development. A number of technology pilots are currently underway with Enbridge Gas acting either as lead or

as a participant, including: Air Source Heat Pumps (“ASHP”); and Smart HVAC Controls.

In Q1 2020, an Air Sealing Pilot was initiated whereby Enbridge Gas customers receive free air sealing upgrades in their home delivered by a professional contractor. The communities of focus include Windsor, London, Toronto, Ottawa, or nearby areas. Enbridge Gas is assessing this opportunity as a potential stand-alone offering.

Enbridge Gas has also been exploring a Virtual Energy Audit Pilot for Residential and Low-Income sectors as it relates to whole home energy retrofits. The concept of developing and testing a virtual energy audit tool (an online tool that aims to provide similar benefits and outcomes as a traditional home energy audit) will help Enbridge Gas understand how best to utilize virtual platforms to quantify gas savings for participants. The objective is to broaden participation among residential ratepayers and extend opportunities to educate customers about what upgrades would provide the greatest benefits in their homes. The effort is also focused on assessing how a virtual audit could be leveraged instead of a traditional in-home audit to provide a reasonable assessment of energy savings for a given project. If successful, this virtual audit approach could help Enbridge Gas expand its reach to more remote residential communities that are currently underserved.

- b) Although Enbridge Gas has made good progress in the research and development of new mass market program opportunities, as outlined in the response at part a) above, Enbridge Gas acknowledges that in some cases, opportunities to support new emerging technologies are still in early stages, given that these technologies are not yet commercially market-ready. Also, at the current time, it is apparent that some of these technologies would not yet be cost-effective given incremental costs, relative energy costs and based on screening approaches applied under the 2015-2020 DSM Framework.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Board Staff (STAFF)

Interrogatory

Reference:

OEB Mid-Term Review Report (EB-2017-0127/0128), pg. 30

Question:

The OEB encouraged the utilities to continue to identify areas of optimization related to administrative costs.

- a) Please discuss how Enbridge is optimizing administrative costs. Within your response, please provide an indication for how Enbridge plans to optimize its administrative costs during the transition period and into the future.

Response

Enbridge Gas received several overlapping interrogatories related to optimization of program administration and overhead costs.¹ In order to be helpful to the Board and intervenors, Enbridge Gas has addressed the topic of integration-related program and administration impacts comprehensively in this response and has referred other related responses here. Enbridge Gas has attempted to be as responsive as reasonably possible, focusing appropriately on activities to date and anticipated through 2020 and into 2021, while providing more general responses for activities expected to occur in the period beyond 2021, as its future actions in this regard are largely reliant upon the development and issuance of the Post-2020 DSM Framework.

Enbridge Gas has already taken several actions to optimize administrative costs including:

- I. Integration of the EGD rate zone and Union rate zones' DSM organizational structures
- II. Alignment of Program Offerings
- III. Consolidation of Marketing and Advertising

¹ EB-2019-0271, Interrogatories as listed: Exhibit I.CCC.4, Exhibit I.CME.1, Exhibit I.OSEA.1, Exhibit I.PP.5, Exhibit I.SEC.5, Exhibit I.VECC.5, and Exhibit I.VECC.8.

I. Integration of Organizational Structures:

Enbridge Gas has integrated the organizational structure across the entire DSM portfolio (see Figure 1 below). The integration was completed in 2019 and is expected to remain through 2021.

Figure 1
Energy Conservation and Marketing Organizational Structure



NOTES:

Numbers in Figure 1 represent headcount which can and will vary compared with Full Time Equivalent ("FTE") numbers due to partially effective headcount in normal course of business such as vacancy lags, maternity leave, etc. Please see Attachment 1 for numeric FTE information by rate zone.

As seen in Attachment 1, there has been a permanent reduction of greater than 20 FTE across the Union and EGD rates zones. Reductions are concentrated in management roles, as most front-line roles are required to manage the delivery, tracking and reporting of OEB-approved 2015-2020 DSM Plans until a new DSM Framework and corresponding multi-year plan is approved. As a result of amalgamation, Enbridge Gas has and will continue over the short term to actively manage DSM staff turnover with contractors or contract roles where reasonable. This will likely continue until further insight on the Post-2020 DSM Framework is known.

Enbridge Gas has re-allocated and expects to continue to re-allocate existing resources in 2021 from efficiencies achieved towards conservation-related activities that have emerged since the Board approved the 2015-2020 DSM Framework and 2015-2020 DSM Plans. As discussed in the response at Exhibit I.PP.4, resources have been increasingly engaged in Municipal Energy Plans, as numerous Municipalities have declared Climate Change Emergencies and have requested utility support in relation to both data collection on energy use and for technical and policy support (supporting task forces and/or advisory panels) to help drive energy conservation. Additionally, the federal government has made several announcements, as noted by some intervenors, related to energy conservation as part of the government's climate initiatives. Accordingly, resources have been re-allocated to promote synergies and alignment in energy conservation programming aimed at optimizing customer participation in

incentive programs. These resource draws were not originally in the 2015-2020 DSM Plans, but do fit within the broader objectives of the DSM Framework and are consistent with the Board's objective to promote energy conservation and energy efficiency. The varied nature and early stages of these activities gives little basis for forecasting the specific costs, but it is expected the incremental efforts required will be absorbed within the existing DSM budget and resources in 2021.

II. Alignment of Program Offerings:

Enbridge Gas has approached program offering alignment from both a customer facing point of view and from a program delivery and execution point of view. In the case of Resource Acquisition program offers, Enbridge Gas has largely aligned the customer facing elements of the program offerings throughout the DSM portfolio. Market Transformation program offers were designed with differing objectives and metrics, so it is not appropriate to align these offerings for a single roll-over year. Full alignment of programming will be accomplished following the development of the Post-2020 DSM Framework (EB-2019-0003). Enbridge Gas is not proposing any changes to 2020 OEB-approved scorecards or targets for 2021. For further details regarding programming alignment please see the response at Exhibit I.OSEA.1.

III. Consolidation of Marketing and Advertising:

Enbridge Gas reviewed all DSM Program Marketing/Promotional elements, tradeshow and sponsorships and looked for opportunities to harmonize these activities in the last half of 2019 to drive cost efficiencies, while still maintaining broad program reach and a positive customer experience.

- Enbridge Gas was not able to harmonize all marketing and promotional elements, due to differences in program design, maintenance of two utility websites and the requirement to co-brand Enbridge Gas materials with the Union Gas logo in the Union rate zones through a re-branding period in 2019. Enbridge Gas was able to harmonize creative development and production, as well as agency account management resulting in savings of approximately \$500,000 (on a go forward full year effective basis).

Tradeshows and Sponsorship Efficiencies:

- Tradeshows and sponsorships were also reviewed. Savings of approximately \$250,000² were realized attributable to the elimination of duplicate sponsorships and attendance at tradeshows

² Integration of organizational structure was not completed until half-way through the year; thus, tradeshow and sponsorship harmonization were performed throughout 2019 and estimated savings reflect full year effective efficiencies.

In 2021, Enbridge Gas expects that there will be further program harmonization through development of an integrated website, and the gradual termination of co-branding in the Union rate zones. These factors will result in additional cost efficiencies in creative development and production, as well as agency account management.

In 2021, Enbridge Gas expects that administrative costs associated with implementing a Post-2020 DSM Framework and development of a corresponding post-2021 multi-year DSM plan application will increase. At this time, the nature of consultation and timing of issuance of the Post-2020 DSM Framework as well as the degree of changes required to the subsequent post-2020 multi-year DSM plan, are all unknown. However, Enbridge Gas expects that the incremental efforts required for these activities will be absorbed within the existing DSM budget and resources in 2021.

Detailed planning for further action with respect to optimization and integration efficiencies during the roll-over period is in-part dependent on gaining an understanding of the Post-2020 DSM Framework that is currently under development (EB-2019-0003), beginning with the establishment of related goals, objectives and principles. Further, Enbridge Gas expects to glean insights into potential changes to the current 2015-2020 DSM Framework from its participation in working groups that could result in further optimization and efficiencies. Following issuance of the Post-2020 DSM Framework, and potentially sooner, as additional information about the framework becomes available, Enbridge Gas expects to plan, propose and execute further integration and optimization.

The current 2015-2020 DSM Framework and OEB-approved DSM Plans do not allow for the shareholder to benefit from cost efficiencies, rather, net cost efficiencies will be dealt with through the DSMVA or redirected to support program funding. Please see the response at Exhibit I.CME.2 c), for detailed discussion regarding the treatment of DSM costs through the DSMVA. It is therefore reasonable for the 2021 budgets to be set at 2020 OEB-approved levels, as the various unknown puts and takes related to 2021 costs can be appropriately dealt with through the DSMVA.

Line No.	Particulars	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2019 Actual	2020 Forecast	2021 Proposed
1	<u>Union Rate Zones</u>							
2	FTE	88.2	92.7	97.4	92.3	80.8	82.9	82.9
3	DSM Compensation Actual/Forecast	\$ 7,020,951	\$ 8,269,211	\$ 9,809,128	\$ 9,768,623	\$ 8,737,116	\$ 8,821,664	\$ 9,086,314
4	Average cost/FTE	\$ 79,603	\$ 89,204	\$ 100,710	\$ 105,836	\$ 108,133	\$ 106,413	\$ 109,606
5	<u>EGD Rate Zone</u>							
6	FTE	67	70	81	88	69	76.3	76.3
7	DSM Compensation Actual/Forecast	\$ 7,068,550	\$ 7,054,258	\$ 7,162,408	\$ 7,456,297	\$ 6,683,478	\$ 7,169,272	\$ 7,384,350
8	Average cost/FTE	\$ 105,501	\$ 100,775	\$ 88,425	\$ 84,731	\$ 96,862	\$ 93,962	\$ 96,780

ENBRIDGE GAS INC.

Answer to Interrogatory from
Board Staff (STAFF)

Interrogatory

Reference:

2017 and 2018 Natural Gas DSM Annual Verification Reports, Section 5.1 – Overall Annual Verification Recommendations 2017-2018 Natural Gas DSM Custom Savings Verification Report, Section 5.3 – Documentation and Support Recommendations School Energy Coalition, IR.13

Question:

The OEB's Evaluation Contractor provided a number of findings and recommendations related to the utilities' programs.

- a) In addition to the response to SEC.IR.13, please provide a similar response for all recommendations made since the 2015 Annual Verification, including: the evaluator's recommendation, the utility's response to the recommendation, and the status of any planned changes in response to the recommendation.
- b) Among the recommendations in the 2017 and 2018 Annual Verification Reports the EC indicated that the utilities should implement an electronic data tracking system that archives all materials, includes site-level information for all measures, delivers tracking data in a single flat file and increases explicit documentation for all program stages, specifically for non-savings metrics. In addition to the general response to each recommendation requested in (a) above, please address each data management recommendation in the 2018 Annual Verification report explicitly and discuss more broadly how Enbridge has developed its tracking database to respond to the evaluator's data tracking and documentation management recommendations. Within your response please provide expected dates for data tracking system improvements and outline any challenges in responding to the evaluator's recommendations.

Response

- a) The Evaluation Contractor's ("EC") 2015 recommendations, the utilities' original responses to these recommendations filed as part of their 2015 DSM Deferral and

Variance Account Clearance applications (EB-2017-0323/0324), and the status of any changes in response to the 2015 recommendations, are set out in Attachment 1.

The EC's 2016 recommendations, the utilities' original responses to these recommendations filed as part of their 2016 DSM Deferral and Variance Account Clearance applications (EB-2018-0300/0301), and the status of any changes in response to the 2016 recommendations, are set out in Attachment 2.

The EC submitted its final 2017 and 2018 Natural Gas Demand Side Management Annual Verification reports ("Audit Reports") to the Evaluation Advisory Committee ("EAC") on March 13, 2020. Accordingly, Enbridge Gas has not yet had the opportunity to comprehensively review and assess the findings and recommendations contained within the Audit Reports. Enbridge Gas will provide responses to these findings and recommendations as part of its 2017/2018 DSM Deferral and Variance Account Clearance application (to be filed at a future date). For further discussion of the recommendations included in the EC's Audit Reports please see the response at Exhibit I.SEC 13.

- b) As per the response at part a) above, Enbridge Gas is currently reviewing the findings and recommendations within the final 2017 and 2018 Audit Reports and will provide responses to the findings and recommendations as part of its 2017/2018 DSM Deferral and Variance Account Clearance application.

Most of the items Board Staff has noted are identical (or substantially similar) to EC findings that were made in the most recent verification cycle prior to 2017/2018 (i.e. the 2016 verification cycle). The utilities' original/past responses, and status updates to these items are set out in Attachment 2. A list of the items OEB Staff has noted and their corresponding reference within Attachment 2 are set out in Table 1 below, for ease of reference:

Table 1

Similar EC Findings & Recommendations	Attachment 2 Reference
The utilities should implement an electronic data tracking system that archives all materials	EC Finding DS12
Include site-level information for all measures	EC Finding O1
Deliver tracking data in a single flat file	EC Finding O2
Increase explicit documentation for all program stages, specifically for non-savings metrics	EC Finding O6
2018 data management recommendation (Table 5-7 and Section 5.2.4 in 2018 Auditor Report) Finding 20	EC Finding DM 26
2018 data management recommendation (Table 5-7 and Section 5.2.4 in 2018 Auditor Report) Finding 21	EC Finding DM 27

In the past, both utilities outlined the need for improved DSM tracking and reporting systems. The Board approved this request in its Decision and Order on the 2015-2020 DSM Multi-Year Plans. For the Union rate zones, this system was rolled out during the 2018 program year. For the EGD rate zone, this system was rolled out during the 2019 program year.

The updated systems include many upgrades and make providing data to the EC for annual savings verification more streamlined. Furthermore, starting with the 2019 program year, Enbridge Gas is aligning, where possible, the tracking files it provides to the EC for all rate zones, and will be leveraging best practices from each. This includes providing data to the EC in a single flat file, as requested by the EC.

Enbridge Gas notes that the EC's use of the words "finding" and "recommendation" do not imply non-compliance, but rather improvements to consider moving forward. One challenge in addressing the EC's recommendations is that no clear prioritization is provided. With respect to data management initiatives including IT systems, trade-offs exist between complexity, functionality and resources/costs. While Enbridge Gas incorporates each EC finding and recommendation into its internal decision making processes, not all ideas can be reasonably implemented.

2015 Annual Verification recommendations, original utility response, and status update of any planned changes in response to the recommendation

The Evaluation Contractor ("EC") submitted its 2015 Natural Gas Demand Side Management Annual Verification report to the Evaluation Advisory Committee ("EAC") on October 16, 2017. The report included findings and recommendations addressed to the Union Rate Zones, the EGD Rate Zone, and on future evaluation work.

Findings, recommendations and outcomes are provided below as reported in Section 5 of the EC's report, along with:

- The original responses from the Union Rate Zones and the EGD Rate Zone, which were filed as part of the 2015 clearance of account applications (EB-2017-0323 / EB-2017-0324). These are identified below as "Union Rate Zones response" and "EGD Rate Zone response"
- A status update on the original responses

2015 Annual Verification Recommendations

#	Overall Annual Verification Recommendation	Applies to		
		Union	Enbridge	Evaluation
O1A	Consider investing in a relational program tracking database.	✓	✓	
O1B	Enbridge should include site-level information for all measures installed through the program.		✓	
O2A	Deliver tracking data in a single flat file.	✓	✓	
O2B	Consider investing in a relational program tracking database.	✓	✓	
O3A	Develop and maintain an electronic summary of the TRM.	✓	✓	✓
O3B	Track prescriptive savings using unique measure descriptions that map to electronic TRM.	✓	✓	✓

01. Finding: The Enbridge tracking database does not currently include information that allows the evaluator to identify all the projects installed by a single customer. Without this information, the EC could not identify projects installed across customers to determine whether interactive effects may have reduced energy savings. Some prescriptive measures in the Enbridge data did not have site-level information at all, only a summary of the energy savings for that technology across all sites.

Recommendation A: Both utilities should strongly consider investing in relational program tracking databases. Relational program tracking databases and customer relationship management (CRM) systems allow for multiple measures and projects to be associated with a single customer and/or customer site. The incremental cost of implementation is low if it is part of the initial database design, populated as projects are started, and updated once they are complete.

Outcome: Reduced burden on utility staff and reduced evaluation costs. A relational database would streamline aggregation of program data for scorecards and make providing data simpler for

annual savings evaluation and verification.

UNION RATE ZONES RESPONSE: As detailed in its 2015-2020 DSM Plan, Union outlined the need for a DSM tracking and reporting system upgrade. The Board approved this request in its January 20th, 2016 Decision. This system upgrade is expected to be rolled out in 2018.

EGD RATE ZONE RESPONSE: As detailed in its 2015-2020 Multi-Year Plan, Enbridge outlined the need for a DSM IT system replacement. The Board approved this request in its January 20th, 2016 Decision. As a result, Enbridge DSM is currently undergoing a system upgrade that will include improved tracking & reporting and CRM components. This system upgrade is expected to be rolled out in 2018.

STATUS UPDATE: Updated DSM tracking and reporting systems were rolled out for the 2018 program year for the Union Rate Zones and for the 2019 program year for the EGD Rate Zone. These systems include many upgrades and make providing data simpler for annual savings evaluation and verification.

Starting with the 2019 program year, Enbridge Gas is aligning the tracking files for the EGD Rate Zone and the Union Rate Zones as best as possible and drawing best practices from each. This includes providing requested data in a single flat file.

Recommendation B: Enbridge should include site-level information for every measure installed in the program.

Outcome: Confirmation that each installation is unique.

UNION RATE ZONES RESPONSE: This recommendation was directed to Enbridge only.

EGD RATE ZONE RESPONSE: Though the summary tracking information initially provided to the EC for quasi-prescriptive measures, in some cases, did not include all site-level information, upon request Enbridge provided the EC with all the detailed information maintained in back up documentation for each project. Enbridge will endeavour to include comprehensive information for every measure in its summary tracking data moving forward. Given the timing of the receipt of the 2015 Annual Verification Recommendations, in Q3 of 2017, after the completion of the 2016 program year, efforts to make significant changes to tracking for the already completed 2016 program year will be limited, however Enbridge will work to ensure all of the information requested is included in the tracking data summarized to the EC.

STATUS UPDATE: EGD Rate Zone's projects are designated with a unique project ID and a unique site ID that connects all projects completed at a given site. However, EGD Rate Zone's account

structure does not assign a unique ID that connects multiple sites to a single customer. Although a unique customer ID is not available, customers with multiple sites can be identified using customer contact info that is provided to the EC each year for the purposes of custom project verification.

O2. Finding: Both utilities invested significant effort in developing Excel-based tracking workbooks that summarized data and calculated DSMSI based on utility-reported results. Union's workbook included a feature that was designed to allow evaluators to enter adjustment factors in a single location and automatically update DSMSI and LRAM calculations. Neither workbook was well suited for evaluation efforts.

Recommendation A: Deliver to evaluators a single, flat file of tracking data.¹ Each record should have measure-level information which includes the information listed below.

- Program identification information, such as scorecard, and program name
- Customer identification information, such as a unique customer ID, rate class, and location
- Measure identification information, such as measure description, unique measure identification, measure group, measure life, free rider rate, and savings per unit for prescriptive measures
- Savings information, such as annual gross and net savings, cumulative gross and net savings, and non-gas savings
- Additional information as needed to allow the evaluator to verify LRAM and cost-effectiveness

The Union tracking data most closely followed this recommendation, but both utilities invested in workbook features that did not enhance evaluation efficiency.

Outcome: Reduced burden on program staff, more flexibility for evaluators.

UNION RATE ZONES RESPONSE: All of the measure-level information indicated above was included in Union's tracking database.

Union's 2015 tracking database provided to the EC included live calculations that connected measure-level inputs to the calculation of energy savings, scorecard achievements, LRAM values and cost effectiveness values found in Union's draft Annual Report. This is consistent with Union's approach to the audits conducted during the 2012-2014 DSM Framework.

Union's tracking database has continually evolved over the course of all previous audits to the point

¹ In this context, a flat file is a table with one record per line and no summary information.

where it has reached full transparency. Union's auditors and Audit Committees for the 2012-2014 audit expected Union's tracking database to have this level of full transparency. The EC's current recommendation to provide a single flat file without any summary information appears to be a step backwards in transparency and accountability. Given that this EC will remain in place for 2016, Union will accommodate its request. However, Union will continue to maintain an internal tracking database with all active calculations that can be provided to the EC upon request.

EGD RATE ZONE RESPONSE: With the exception of some quasi-prescriptive measures, project related measure-level information was included in the original tracking database provided by Enbridge to the EC for the 2015 Verification (all requested information was ultimately provided to the EC). Consistent with Enbridge's presentation of results during the 2012-2014 DSM Framework, the Enbridge tracking and reporting summary provided to the EC included dynamic calculation tools that linked measure level inputs to the energy savings calculations, cost-effectiveness calculations, scorecard achievements, and shareholder incentive calculations, as well as LRAM impacts for the 2015 program year. In line with the EC comment in this finding, like Union's workbook, Enbridge's workbook included a feature that was designed to allow evaluators to enter adjustment factors in a single location and automatically update DSMSI and LRAM calculations, Enbridge's tracking summary has evolved and improved through the review of previous audits to a comprehensive and transparent tool. Prior auditors and Audit Committees expected Enbridge's tracking database to have this level of transparency to fully illustrate the determination of scorecard achievements. Given the timing of the receipt of the 2015 Annual Verification Recommendations, after the completion of the 2016 program year, efforts to make significant changes to the tracking tool for the already completed 2016 program year are challenging, however Enbridge is making every effort to ensure the 2016 tracking summary clearly provides the information requested.

STATUS UPDATE: See status update to recommendation O1A.

Recommendation B: See recommendation O1A. The utilities should consider investing in a new database.

Outcome: Reduced burden on utility staff and reduced evaluation costs.

UNION RATE ZONES RESPONSE: See Union's response to recommendation O1A.

EGD RATE ZONE RESPONSE: See Enbridge Response O1A.

STATUS UPDATE: See status update to recommendation O1A.

O3. Finding: Neither Union nor Enbridge tracking databases currently use prescriptive measure descriptions that map directly to the approved energy savings spreadsheet (TRM). The EC often

struggled to align tracking measures to the correct TRM measure, which resulted in repeated back-and-forth between evaluation and the utilities for clarification. During this process, the EC found that some Enbridge measures were assigned to the wrong sub-category by capacity or other size measure. The EC also found that some Enbridge measures were assigned outdated savings values from previously-approved TRMs.

Recommendation A: Develop and maintain an electronic summary of the TRM, such as an Excel file. Each measure (identified as a unique savings value) should have an assigned measure ID number, and new ID numbers should be assigned when a measure is updated with a new savings value. This allows for a historical record of the changes in the TRM and allows the evaluation to identify outdated values.

UNION RATE ZONES RESPONSE: OEB Staff now coordinates the TRM update process.² This recommendation should be directed to OEB Staff.

EGD RATE ZONE RESPONSE: Board staff now coordinates the TRM update process.

STATUS UPDATE: These recommendations should be directed to OEB Staff for follow-up. A direct one-to-one naming of measures from the TRM to the tracking databases is not possible in certain cases. For example, a measure offered within two different programs that have different incentive structures (e.g. CI Prescriptive and Low-Income Prescriptive) might refer to the same substantiation document, but would require two different names within a database. Enbridge has and will continue to work with the EC to identify how to map prescriptive measures to the appropriate substantiation document using the information provided in the utility tracking databases.

Recommendation B: Track prescriptive savings using unique measure descriptions that clearly map to the electronic TRM.

Outcome: Reduced burden on utility staff and reduced evaluation costs. Fewer errors in the tracking data.

UNION RATE ZONES RESPONSE: In 2015, the EC found no errors in Union's tracking database related to prescriptive measures and TRM inputs. For 2016, Union agrees to provide the EC with a mapping that more clearly connects prescriptive measure descriptions in its tracking database to TRM measure descriptions.

² The online portion of the TRM has been transitioned to OEB Staff as outlined in the OEB's March 4 letter regarding the transition of Technical Evaluation Committee Activities.

EGD RATE ZONE RESPONSE: Enbridge will work to provide the EC with a clearer mapping of prescriptive measure descriptions in its tracking database to measure descriptions outlined in the TRM.

STATUS UPDATE: In 2016 both utilities provided the EC with a detailed electronic mapping of prescriptive measures. This mapping connected measure names in the utility's respective tracking database with the correct substantiation document and noted which input assumption filing the substantiation documents can be found, including the page number. See also status update to recommendation O3A.

RunitRight savings recommendations

Table 5-2 from Evaluation Contractor's 2015 Natural Gas DSM Annual Verification

#	RunitRight Recommendation	Applies to		
		Union	Enbridge	Evaluation
RR1	Consider adding independent variables to the regression to account for school breaks.		✓	
RR2A	Consider including the date when each activity was implemented.		✓	
RR2B	Provide information on both the baseline and installed case.		✓	
RR2C	Increase the level of documentation when a single change results in a significant portion of savings.		✓	
RR3A	Consider including a basic description of all end-use equipment served by the gas meter.		✓	
RR3B	Consider using engineering calculations to estimate electricity savings.		✓	
RR3C	Consider reviewing the process for selecting the HDD reference temperature.		✓	

RR1. Finding: Not all the RunitRight regression models provided a strong fit for the consumption data. In particular, school buildings, which have widely inconsistent occupancy throughout the year, show low R- squared values.

Recommendation: Consider including additional independent variables for schools to account for break periods, which may improve the regression fit.

Outcome: More confidence in the reported savings estimates.

EGD RATE ZONE RESPONSE: Where the consideration of baseline period is required to facilitate a regression model, to address the unique occupancy of school buildings, moving forward the selected baseline period for school projects is September to August and adjusted as appropriate depending on the date of implementation and data availability.

UNION RATE ZONES RESPONSE: RunitRight is an Enbridge program. This recommendation was directed to Enbridge only.

STATUS UPDATE: Regression analysis is performed based on EMIS access date to better correlate with the monitoring period. The standard of $R^2 > 0.8$ remains a key criteria for claiming the savings.

RR2. Finding: The RunitRight documentation includes a description of the activities at each site, which are documented in the calculation workbook and annual site report. The same level of documentation is included for all activities, regardless of the percentage of savings contributed by that activity.

Recommendation A: Consider including the date when each activity was implemented.

EGD RATE ZONE RESPONSE: Given the timing of the receipt of the 2015 Annual Verification Recommendations, in Q3 of 2017, beginning with the 2018 program year Enbridge will work to include the implementation date for each activity in the project documentation.

UNION RATE ZONES RESPONSE: RunitRight is an Enbridge program. This recommendation was directed to Enbridge only.

STATUS UPDATE: The EGD Rate Zone now adds the implementation date as an input field to the individual participant's Implementation Report.

Recommendation B: Provide information on both the baseline and installed case. For example, when a schedule is reset, provide the pre- and post-installation schedule.

EGD RATE ZONE RESPONSE: Given the timing of the receipt of the 2015 Annual Verification

Recommendations, in Q3 of 2017, beginning with the 2018 program year Enbridge will look at how to supplement the project file to include additional information and details on both the baseline and installed case.

UNION RATE ZONES RESPONSE: RunitRight is an Enbridge program. This recommendation was directed to Enbridge only.

STATUS UPDATE: The savings for RunItRight are based on a regression analysis of actual consumption of the facilities pre and post implementation. The EGD Rate Zone has added description of operational adjustments to the participant's implementation report since 2018 program year.

Recommendation C: Increase the level of documentation on end use equipment when a change to that equipment results in a significant reduction in consumption.

EGD RATE ZONE RESPONSE: The Run it Right offer is focused on achieving gas savings through the optimization of existing building systems and equipment through the implementation of low cost/no cost improvements to a building's operation as identified through the offer's investigation process and monitored through the support of an EMIS. Gas savings are determined based on a holistic comparison, where savings are determined through a regression analysis of the consumption data impacted by the combination of all measures implemented and not attributed to any specific measure.

UNION RATE ZONES RESPONSE: RunitRight is an Enbridge program. This recommendation was directed to Enbridge only.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

Outcome: More confidence in the reported savings estimates.

RR3. Finding: The evaluator observed a number of opportunities to improve the savings estimates associated with the RunitRight program, including savings at the electric meter. Some sites had base loads that were unexpectedly sensitive to the reference temperature.

Recommendation A: Consider including a basic description of the end-use equipment served by the gas meter, such as DHW, heating, or cooking. This will help the reviewer better assess the consumption patterns occurring over time and the magnitude of base load and weather-sensitive savings estimated.

EGD RATE ZONE RESPONSE: Given the timing of the receipt of the 2015 Annual Verification

Recommendations, in Q3 of 2017, Enbridge will work to incorporate this recommendation beginning in 2018.

UNION RATE ZONES RESPONSE: RunitRight is an Enbridge program. This recommendation was directed to Enbridge only.

STATUS UPDATE: The savings for RunItRight are based on a regression analysis of actual consumption of the facilities pre and post implementation. It is a holistic comparison, not measure-based.

Recommendation B: Consider using engineering calculations to estimate electric energy savings to capture the full value of the program.

EGD RATE ZONE RESPONSE: Though Enbridge recognizes that capturing electric savings would demonstrate additional value from the offer, the Run it Right offer will continue to focus on the determination of low cost/no cost gas savings that are identified through building optimization recommendations.

UNION RATE ZONES RESPONSE: RunitRight is an Enbridge program. This recommendation was directed to Enbridge only.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

Recommendation C: Consider reviewing the process for selecting the HDD reference temperature to reduce baseload sensitivity.

Outcome: More accurate savings estimates.

EGD RATE ZONE RESPONSE: Given the timing of the receipt of the 2015 Annual Verification Recommendations, in Q3 of 2017, Enbridge will investigate the process for selecting the HDD reference temperature beginning in 2018.

UNION RATE ZONES RESPONSE: RunitRight is an Enbridge program. This recommendation was directed to Enbridge only.

STATUS UPDATE: Enbridge Gas has reviewed the process and the HDD reference temperature is selected based on optimal R^2 value for the data, which provides better statistical confidence.

Simulation modeling recommendations

Table 5-3 from Evaluation Contractor's 2015 Natural Gas DSM Annual Verification Report

#	Simulation Modeling Recommendation	Applies to		
		Union	Enbridge	Evaluation
SM1	Provide simulation file and output to the evaluation team.	✓	✓	
SM2	Provide more explicit support for major measure installations.	✓	✓	
SM3	Consider reviewing and modifying program processes to avoid data entry or outdated simulation result errors.	✓	✓	
SM4	Consider funding a study to verify the models produced by the utility agents.			✓

SM1. Finding: Both utilities use building simulation modeling to estimate energy savings for their home retrofit programs, including Home Energy Conservation, Home Reno Rebate, Winterproofing, and the Home Weatherization Program. HOT2000 is the most common program used for those simulations, which is a program developed and released by NRCAN for certified energy advisors. Because of the restrictions on the program, the evaluator could not consistently run the simulation files and produce the same result reported by the program.

Recommendation: Provide both the building simulation file and the program output to the evaluation team. By delivering both, the evaluation team would not have to follow up with the utility to obtain output for models that could not be run, but could still verify the output for models that can be run.

Outcome: Reduced burden on utility staff and reduced evaluation costs.

UNION RATE ZONES RESPONSE: In 2015, Union provided the EC with documentation as per the EC's original and subsequent follow-up requests. Union will continue to do so for the 2016 audit and will provide both the building simulation file and the program output to the evaluation team.

EGD RATE ZONE RESPONSE: In the 2015 Verification, Enbridge provided the HOT2000 files to the EC as per the EC's request. When the EC subsequently indicated to Enbridge that they were

experiencing some difficulty opening these files, Enbridge offered to provide excel files which provided an extract of data contained in the EnerGuide HOT2000 files. Enbridge would be pleased to provide both the HOT2000 files and the excel file containing the HOT2000 file outputs in any future request.

STATUS UPDATE: In 2016 for EGD Rate Zone's Residential Home Energy Conservation offer, all program output files were provided to the EC along with the HSE building simulation file and full supporting documentation for all requested projects included in the EC's verification sample. A TSV can only be generated where the EnerGuide mode of NRCAN's HOT2000 software is used.

As permitted in EGD Rate Zone's Home Weatherization offer, not all projects include building simulation models completed in the EnerGuide Rating application mode of HOT2000. In scenarios where the building simulation model ("HSE") for the project was completed in "general" mode, the software does not provide for the generation of a TSV program output file. In these cases, to be of assistance, Enbridge Gas proactively provided the EC with a PDF document clearly illustrating the values in the HSE file referenced to support the calculation of the project energy savings. This PDF document provided an explanation on how the building simulation was utilized to confirm the gas savings claimed and included a breakout of the gas savings calculations accompanied with screenshots from the building simulation file to verify the data used in the calculations.

SM2. Finding: Both utilities have market-rate scorecard metrics that rely on a definition of deep savings that is related to the number of "major" measures installed at a site. Both utilities also collect and deliver photographs to support many of the changes made at a home retrofit site. However, the evaluator could not consistently confirm the number or type of major measures installed based on the photographs or other documentation provided.

Recommendation: Consider providing more explicit support for each major measure to eliminate uncertainty around the number of deep savings program participants.

Outcome: Greater certainty around scorecard achievements.

UNION RATE ZONES RESPONSE: Union endeavours to provide all available supporting information to the EC as requested. The type of supporting information gathered is consistent with what Natural Resources Canada ("NRCAN") requires certified Energy Advisors to collect for use of HOT2000 software.

Union requests that the EC provide more information on what additional support it would find useful. In certain cases, confirming measures after they have been installed is difficult. For example, upgraded wall insulation is sometimes covered up by paint or other material making a post-installation photo impossible. In such scenarios an invoice confirms that work was complete.

Union agrees to continue to work with the EC to ensure that it has all information available to facilitate the confirmation of measures installed in a home undergoing review.

EGD RATE ZONE RESPONSE: Enbridge endeavours to provide all available supporting information to the EC as requested. The Home Energy Conservation (HEC) offer is modelled after NRCan's Residential ecoENERGY Retrofit program which ran until March 2012. Supporting information gathered for measures installed through the HEC offer is consistent with what NRCan continues to require of all certified Energy Advisors for use of NRCan's licensed HOT2000 energy modelling software in EnerGuide mode, for example invoices or receipts to support upgrades and supporting photographs. Enbridge commits to continue to work to ensure the EC has the available information to facilitate the confirmation of the number or type of major measures installed in a home undergoing review.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

SM3. Finding: The evaluator identified a number of inaccurate savings entries due to data entry errors or outdated Union home retrofit simulation results. Many of these errors could be avoided through changes in program processes.

Recommendation: Consider reviewing and modifying program processes to avoid similar errors in the future.

Outcome: Reduced burden on utility staff and reduced evaluation costs.

UNION RATE ZONES RESPONSE: Union's program delivery model has certified Energy Advisors run HOT2000 in accordance with the requirements of Union's program. Energy Advisors are independent consultants and are not under contract with Union. In support of Union's program, they do run model scenarios with inputs different than what is required by NRCan for use of its licensed HOT2000 software. For example, advisors would upgrade the in-situ furnace efficiency to reflect the Home Reno Rebate baseline requirement of a 90% efficient furnace.

Union operates under a culture of continuous improvement. Since 2015, efforts have been made to improve upon the process it uses to collect data from its Energy Advisors. Union will continue with similar efforts going forward.

EGD RATE ZONE RESPONSE: Enbridge understands it had minimal inaccurate savings entries due to data entry errors or outdated simulation results, however in line with the utility's objective of continuous improvement, Enbridge will carry on working to increase accuracy wherever possible. Notwithstanding the EC's recommendations, in each of the 2016 and 2017 program years, Enbridge

has expanded tracking and reporting including a deeper analysis of EnerGuide data exports to identify data entry errors.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

SM4. Finding: The energy savings from the home retrofit programs rely exclusively on the simulations provided by the delivery agents. Those simulations likely rely on a number of assumptions or standard modeling practices which may or may not follow industry standards. A detailed review of the models was outside the scope of the annual audit.

Recommendation: Consider funding a study to verify the models produced by the utility agents to ensure they conform to standard industry practice.

Outcome: Greater certainty around savings estimates.

UNION RATE ZONES RESPONSE: This recommendation was not directed to Union but for clarity, simulations are completed by Energy Advisors certified by NRCan for use of NRCan's HOT2000 modeling software. This certification trains advisors to use NRCan industry standard inputs and modeling practices. Simulation results are then provided to NRCan and are subject to NRCan's QA procedure.

Union considers having NRCan-certified Energy Advisors use NRCan standard inputs and modeling practices appropriate to ensure that industry standard practices are followed.

EGD RATE ZONE RESPONSE: This recommendation was not directed to Enbridge but for clarity, HOT2000 is developed and managed by the Office of Energy Efficiency at Natural Resources Canada (NRCan). HOT2000 simulations in EnerGuide mode can only be completed by Energy Advisors who have been certified by NRCan to use NRCan's HOT2000 modelling software. Periodically, NRCan updates the software to reflect learnings and implement improvements. Most recently in 2017, NRCan released the newest version, HOT2000 V. 11.3 and EnerGuide Rating System (ERS) V. 15.1. In order to deliver services and perform energy audits using this version, NRCan expects energy advisor candidates to demonstrate proficiency by passing the Foundation Level exam; passing the Energy Advisor exam, and be affiliated with a service organization; and they must complete probationary HOT2000 files to the satisfaction of the service organization to show competence with energy simulation modeling and field work in addition to training on current NRCan industry standard inputs and modeling practices. All HOT2000 simulation files, once completed by certified energy advisors for HEC, are provided by the service organizations to NRCan and are subject to NRCan's QA procedure.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

Cost-effectiveness recommendations

Table 5-4 from Evaluation Contractor's 2015 Natural Gas DSM Annual Verification Report

#	Cost-effectiveness Recommendation	Applies to		
		Union	Enbridge	Evaluation
CE1	Allocate "sector"-level administrative costs and overhead to each individual program and report program-level cost-effectiveness results.	✓	✓	
CE2	Use a consistent real discount rate of 4% when using real streams of benefits and costs.	✓	✓	
CE3	Explore the possibility of better defining water avoided costs.	✓	✓	✓
CE4	Work towards better uniformity in methods and assumptions.	✓	✓	✓

CE1. Finding: In some cases, the Union program costs were grouped together for several programs.

To get program- or sector-level cost-effectiveness results, the EC prorated costs to programs based on natural gas savings.

Recommendation: Allocate "sector"-level administrative costs and overhead to each individual program and report program-level cost-effectiveness results.

Outcome: Greater certainty around program-level achievements.

UNION RATE ZONES RESPONSE: Union agrees with the EC that program-level cost-effectiveness results should be reported but disagrees with the EC's definition of a program.

As per the 2015-2020 DSM Guidelines, for a program to be deemed cost-effective, it must achieve

a TRC-Plus screening threshold benefit/cost ratio of 1.0 or greater or 0.7 for Low-Income. Union's 2015 programs are defined within its 2015-2020 DSM Plan as Residential, Commercial/Industrial, Low-Income and Large Volume. Union's 2015 program costs were reported to the EC separately for each of these programs.

The EC's reference to 'programs' actually refers to 'offerings' within these programs. One example of an offering is the Home Reno Rebate offering within the Residential program. The EC's reference to 'sector' refers to programs as defined in Union's 2015-2020 DSM Plan. Further, the EC's approach to prorating program costs proportionally to offerings within it based on the offerings' energy savings is not a realistic estimate of where expenditures occur. Cost effectiveness with costs prorated in this manner would be neither accurate nor informative with respect to program design.

Union will continue reporting its costs on a program-level basis consistent with the programs as defined within its 2015-2020 DSM Plan.

EGD RATE ZONE RESPONSE: Enbridge will continue to work to appropriately allocate DSM costs, practically and reasonably, in line with direction provided in the Board's Guidelines, including for the purpose of conducting cost-effectiveness screening. As outlined in section 9.1.2 of the Guidelines:

"For the purpose of the TRC-Plus test, the Program Costs relate [sic] to DSM program [sic] include the following components:

- i. Development and Start-up;
- ii. Promotion;
- iii. Delivery;
- iv. Evaluation, Measurement and Verification ("EM&V") and Monitoring; and
- v. Administration.

Of the above costs, only Start-up, Promotion, Delivery, some Evaluation and Verification are applicable to individual programs. Other costs related to the design and delivery of DSM programs, are appropriately considered at the DSM portfolio level. These include Development, some Evaluation costs, and Monitoring, Tracking and Administration costs." ³

The Guidelines further specify, "for practical purposes, if certain administrative costs cannot be

³ Filing Guidelines to the 2015-2020 DSM Framework, EB-2014-0134, page 28.

assigned to individual programs these costs should be accounted at the portfolio level.”⁴

STATUS UPDATE: The original utility responses have addressed the recommendation. Enbridge Gas believes that the way it categorizes costs does not create any issue for determining cost-effectiveness at the appropriate levels (i.e. program and portfolio levels, as per the OEB's direction). Should there be a fundamental change in the way costs are allocated for the purpose of determining cost-effectiveness, such a change should occur at the time of the next DSM Framework.

CE2. Finding: Enbridge uses a real discount rate of 4% and applies it to streams of current (nominal) values. However, the real discount rate should only be applied to real (inflation-adjusted) streams of benefits and costs. Nominal discount rates should be applied to streams of current (nominal) values.

Recommendation: Use a consistent real discount rate of 4% for both Enbridge and Union when using “real” (inflation-adjusted) streams of benefits and costs.

Outcome: More accurate cost-effectiveness results.

UNION RATE ZONES RESPONSE: Union agrees with the EC's findings. Union will convert the real 4% discount rate recommended by the Board into a nominal discount rate and apply it to its stream of nominal TRC-Plus benefits.

EGD RATE ZONE RESPONSE: Enbridge agrees it is appropriate to apply the real discount rate of 4% to real (inflation-adjusted) streams of benefits and costs. Enbridge further agrees it is appropriate to apply nominal discount rates to streams of current (nominal) values.

STATUS UPDATE: This change has been made.

CE3. Finding: Water rates are currently used as a proxy for the water avoided costs. Water avoided costs should only include the marginal impact from reduced consumption. Using the full rate as the avoided cost may be appropriate in some jurisdictions with a completely variable rate structure. However, those with high fixed costs (which, in our experience, can represent 75% to 80% of water costs) should use a true avoided cost.

Recommendation: Explore the possibility of better defining water avoided costs.

Outcome: More accurate cost-effectiveness results.

⁴ Ibid. page 29

UNION RATE ZONES RESPONSE: Union agrees with the EC that water avoided costs should only include the marginal impact from reduced consumption. As part of the 2015 audit, the EC recommended a 75% reduction to Union's avoided water costs (which are based on average water retail costs across its service territory) as a means to better estimate avoided water costs. Union agrees to continue using the EC's approach for 2016.

EGD RATE ZONE RESPONSE: Enbridge agrees that water avoided costs should include only the marginal impact from reduced consumption. As part of the 2015 verification, the EC recommended an adjustment to Enbridge's avoided water costs to reflect a more appropriate estimate of avoided water costs. Enbridge applied a similar approach with its 2016 avoided water costs.

STATUS UPDATE: This change has been made. Enbridge Gas submits that Avoided Costs should be reviewed in more detail for the next DSM Framework, possibly as part of the development of EM&V Protocols.

CE4. Finding: The EC found major discrepancies in the way the utilities calculate cost-effectiveness. Some areas of discrepancies included the discount rate, the use of a non-energy benefit adder, the format of reporting results, and the allocation of administration and overhead costs by program. While there is always a balance to be found between uniform methods and the need to account for each specific utility's needs, greater uniformity could be achieved.

Recommendation: Work towards a better uniformity of cost-effectiveness methods and assumptions between the two gas utilities.

Outcome: More accurate and consistent cost-effectiveness results.

UNION RATE ZONES RESPONSE: Union adhered to its Board-approved 2015 Plan for the following items noted by the EC:

- **Discount Rate:** For 2015 only, as outlined in its 2015-2020 Plan Ex A Tab 2 page 26: "Union will also discount the total avoided costs resulting over the life of each DSM measure by using its Weighted Average Cost of Capital ("WACC")." As per the Plan Ex A Tab 3 page 42, Union will adopt a 4% real discount rate starting with its 2016 programs. See also Union's resolution to EC Recommendation CE2.
- **Non-energy benefit adder:** For 2015 only, as outlined in its 2015-2020 Plan Ex A Tab 2 page 24: "Union will employ the Total Resource Cost ("TRC") test agreed upon in the EB-2011-0327 Settlement as the sole method of program cost effectiveness screening. The TRC test methodology and thresholds will remain consistent with those outlined in EB-2011-0327." This TRC methodology does not include the 15% non-energy benefit adder. As per its 2015-

2020 Plan Ex A Tab 3 page 40, Union will be employing the Total Resource Cost-Plus (“TRC-Plus”) test as the primary cost-effectiveness test to screen its programs beginning in 2016. This includes use of a 15% non-energy benefit adder.

With the above changes, there will be improved uniformity in cost-effectiveness methods and assumptions between both utilities in 2016.

EGD RATE ZONE RESPONSE: Enbridge acknowledges the EC’s recommendation and moving forward, Enbridge will consult with Union in an effort to work towards better uniformity of cost-effectiveness methods and assumptions.

STATUS UPDATE: The Union Rate Zones and the EGD Rate Zone aligned on discount rates and non-energy adders when the Union Rate Zones adopted a 4% real discount rate and a 15% non-energy benefit adder starting with its 2016 programs. The Union Rate Zones and the EGD Rate Zone aligned on the addition of avoided carbon costs starting with the 2017 program year. The Union Rate Zones and the EGD Rate Zone aligned on the inflation rate used starting with the 2019 program year. Also see response to CE1

Other

Table 5-5 from Evaluation Contractor’s 2015 Natural Gas DSM Annual Verification Report

#	Other Recommendation	Applies to		
		Union	Enbridge	Evaluation
OR1	When the C&I deep savings metric is used, deliver monthly billing data for each C&I participant.	✓		
OR2	Provide a detailed explanation for the DSMSI calculation.	✓	✓	

OR1. Finding: The Union scorecard includes a metric that relies on an understanding of the whole-building energy use for each C&I program participant. The program data included the total annual consumption at each site, normalized by a regional (north or south) estimate of heating degree days. The calculation appeared to assume that industrial sites were not weather-sensitive but commercial sites were.

Recommendation: When the C&I deep savings metric is used, deliver monthly billing data for each C&I participant to allow the EC to verify the annual consumption values and the weather sensitivity assumptions. Provide the supporting information (and calculation, if possible) for the normalized regional heating degree days.

Outcome: Greater certainty around scorecard achievements.

UNION RATE ZONES RESPONSE: Union's 2016-2020 scorecards no longer have a C&I deep savings metric.

EGD RATE ZONE RESPONSE: Not Applicable

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

OR2. Finding: The evaluator was unable to locate a source document that supports the utilities' calculation of DSMSI. Given the importance of the shareholder incentive, it is appropriate to have a clearly defined and detailed explanation of how it is calculated.

Recommendation: Provide a detailed explanation for the DSMSI calculation for review by the EC and OEB.

Outcome: Greater certainty around shareholder incentives.

UNION RATE ZONES RESPONSE: The source document that describes how the incentive is calculated can be found in EB-2015-0029 Ex A Tab 2 page 21. Union provided this explanation to the EC and EAC during the course of the 2015 audit and the EC made no suggestions or changes to Union's approach.

EGD RATE ZONE RESPONSE: This recommendation was previously addressed in the course of the 2015 verification process. Enbridge provided a detailed explanation regarding the calculation of the shareholder incentive to the EC and the EAC during the course of the 2015 verification. The approach followed the calculation outlined by the Board in the previous Guidelines, EB-2008-0346. The calculation to be used by Enbridge in 2016 was subsequently provided and has also been reviewed with the EC and EAC.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

Table 5-6 from Evaluation Contractor's 2015 Natural Gas DSM Annual Verification Report

#	Energy Savings and Program Performance Recommendation	Applies to		
		Union	Enbridge	Evaluation
ES1	The utilities should continue in their commitment to accuracy.	✓	✓	
ES2	Evaluate free-ridership for the programs annually and couple the free-ridership evaluation with process evaluation			✓
ES3	Error ratios from this report inform sample design for future evaluation.			✓
ES4	Align the program design with cumulative net goals	✓	✓	
ES5	Do not pay incentives until after installation is complete.	✓	✓	
ES6	Develop policies to collaborate across electric and gas projects to avoid double-counting fuel savings and increases from energy efficiency measures.	✓	✓	
ES7	Consider establishing a policy to define rules around energy savings calculation for fuel switching and district heating/cooling measures.	✓	✓	✓
ES8	Consider establishing a policy that defines an eligibility floor and cap based on simple payback period for energy efficiency projects.	✓	✓	
ES9	Consider establishing an official definition for EUL and implementing a study to define EULs for program measures	✓	✓	✓
ES10	Track metrics for how long it takes from the final installation verification to the posting of incentive payments.	✓	✓	
ES11	Increase transparency of "influence adjustments" and do not include in gross	✓		

Energy savings and program performance

ES1. Finding: Both utilities exhibit a strong commitment to accurate energy savings estimates. Both utilities have made significant investments in developing calculation tools which model savings accurately. For example, Union's dock door seal calculator is well considered and designed, and Enbridge's Etools calculator is very thorough in attempting to model savings for key measures.

Both utilities chose to retain engineers with strong understandings of their customers' building and process systems. We had numerous opportunities to interact with these engineers on phone calls and site visits, and have grown to respect their knowledge and engagement with the types of

systems that matter to their customers.

Both utilities showed a commitment to finding accurate savings. 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 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.

Recommendation: The utilities should continue in their commitment to accuracy.

Outcome: Accurate energy savings.

UNION RATE ZONES RESPONSE: Union is committed to being a high performing organization dedicated to continuous improvement mechanisms in all aspects of its work. Union appreciates the recognition that our engineers are knowledgeable subject matter experts.

EGD RATE ZONE RESPONSE: Enbridge is committed to continue striving for accurate savings calculation estimates. Enbridge has been a leader in refining savings calculations for many technologies and will continue to look for opportunities to improve approaches and calculation tools with consideration for new information and learnings.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

ES2. Finding: Free-ridership in the utilities' programs is high.

Recommendation: With high free-ridership and rapidly changing programs, consistent evaluation of free-ridership annually and free-ridership evaluation coupled with process evaluation will help identify specific ways for each program to manage and reduce free-ridership.

Outcome: Effective free-ridership management will allow the programs to increase their net savings significantly in future years.

UNION RATE ZONES RESPONSE: This recommendation was not directed to Union however, Union finds it necessary to make clear that it does not agree with the EC's findings. There are well documented concerns with the approach to NTG determination taken by the EC. The NTG study did not in many instances reflect industry best practice. Union notes there were significant concerns with the measurement of free-riders conducted by the EC on the 2015 program year custom offers. Most importantly, Union is concerned with the reliability of scoring that was determined based on feedback from customer representatives regarding projects completed up to 2 ½ years earlier. Beyond the ability to reach truly informed participants to the projects, the delayed research significantly exacerbated recall bias of survey participants. In addition, the limited research

conducted to ascertain utility influence delivered through the utility's business partners; the focus in the survey instrument on the payment of incentives rather than assessment of the entire suite of services and values provided to customers; the posing of questions that did not ensure clarity of properly captured efficiency improvements relative to specific project utilized baselines to ensure there could be no double counting of adjustments; and, the dismissal of consideration of utility influence and long standing customer support prior to the current program year, all contributed to proposed free-rider values which are not reasonable, nor accurate, and in which there can be no confidence.

It is also worth address the unique nature of Union's Large Volume program. This program is a Direct Access program where customers access their own money for eligible projects. If they do not use their money, it becomes available to other customers. 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.

EGD RATE ZONE RESPONSE: This recommendation was not directed to Enbridge however, Enbridge finds it necessary to make clear that it does not have confidence in the ECs findings. There are well documented failings and concerns with self-report survey approaches that were proven out in the EC's findings. Enbridge notes there were significant concerns with the measurement of free-riders conducted by the EC on the 2015 program year custom offers. The study did not, in a number of instances, reflect industry best practice. Also, given the limited information shared with the utility with respect to how survey responses were interpreted and translated into scores, and with no way to know if calculations of NTG scores were done corrected, Enbridge does not have confidence in the results. Enbridge is particularly concerned with the reliability of scoring that was determined based on feedback from customer representatives regarding projects undertaken up to 2 ½ years earlier. Beyond the ability to reach truly informed participants to the projects, Enbridge is concerned the delayed research significantly exacerbated the inherent recall bias of survey participants. In addition, the limited research conducted to ascertain utility influence delivered through the utility's business partners; the focus in the survey instrument on the payment of incentives rather than assessment of the entire suite of services and values provided to customers; the posing of questions that did not ensure clarity of properly captured efficiency improvements relative to specific project utilized baselines to ensure there could be no double counting of adjustments; and, the dismissal of consideration of utility influence and long standing customer support prior to the current program year, collectively contributed to proposed free-rider values in which there can be no confidence.

Notwithstanding Enbridge's concerns with the NTG study findings and the approach taken in the

2015 evaluation effort, given the EC's recommendation here, and the considerable discussion on this process during the 2015 verification, it is puzzling that OEB Staff has decided to not proceed with planned free-ridership/NTG evaluation on custom programs in the following year's evaluation.

STATUS UPDATE: An updated custom free rider study was completed for the 2018 program year. Enbridge Gas is supportive of discussions at the EAC to determine the priority and frequency of free ridership studies. However, the decision to conduct impact evaluation and at what frequency does not lie with Enbridge Gas. Enbridge Gas is in the early stages of a process evaluation for its Custom Commercial offering in 2020.

ES3. Finding: Relative precision targets were exceeded for some programs and not met for others.

Recommendation: Error ratios from the results provided in this report should be used to inform sample design for future evaluation years.

Outcome: Better defined error ratios for the measures in the programs will allow more efficient sample design for future evaluations, improving precisions and reducing costs.

UNION RATE ZONES RESPONSE: This recommendation was not directed to Union however, Union has commented extensively during the 2015 audit on the topics of error ratios, sample size and resulting uncertainties. Prior to the 2015 audit, CPSV sampling would have required 50-70 projects be verified. The 2015 auditor verified 191 projects. Despite this increase in sample size, the EC's sample design did not result in an enhancement to precision. Union will be advocating the reintroduction of the sampling methodology used prior to 2015 that was the result of a known industry expert hired by the TEC as an independent third party.

EGD RATE ZONE RESPONSE: This recommendation was not directed to Enbridge however, Enbridge has shared its concerns with the EC and the EAC regarding the error ratios in the results presented in the CPSV and NTG sampling and the resulting uncertainties regarding any accuracy in the proposed adjustments.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

ES4. Finding: Attribution for the programs came primarily through acceleration rather than changes in efficiency or quantity/size. This is partly due to the measures that dominate the programs: controls, maintenance, and optimisation. These measures do not have varying efficiencies, so the programs are either affecting the number of units implemented or accelerating the measure. Acceleration is less valuable to programs that are seeking to meet cumulative net goals. Acceleration periods tend to be considerably shorter than the estimated useful life (EUL) of a measure and thus the partial

attribution that results is low relative to cumulative gross savings.

Recommendation: To align the programs with cumulative net goals, the utilities should seek to:

- continue promoting long life measures and consider discontinuing promotion of short lived measures
- proactively upsell equipment purchases from standard to efficient products
- target hard to reach customers who have not participated in the past
- promote EE measures with low market penetration (such as heat reflector panels)
- motivate customers to increase the scope of their projects, some options include multi-measure bonuses or escalating incentive structures that pay more for doing more

Outcome 1: Focusing on proactive sales rather than reactive will help the net-to-gross (NTG) ratio.

Outcome 2: Effective free-ridership management will allow the program to increase net savings significantly in future years.

UNION RATE ZONES RESPONSE: Union does focus its efforts on achieving cumulative gas savings but supports a wide range of eligible energy conservation projects. Union continually improves and changes the design and focus of its programs but does not agree with all of the EC's recommended suggestions.

EGD RATE ZONE RESPONSE: While Enbridge does focus its efforts on achieving cumulative gas savings, and agrees to continue to work to align programs to seek improvements in areas recommended above by the EC, Enbridge also intends to continue to deliver programming to support a wide range of eligible energy conservation projects to address the multiple key priorities set out by the Board. The Framework specifically stated that "DSM budgets will be driven by the gas utilities' ability to increase activity and address the key priorities discussed below, including delivering tailored service to those customers who have already increased their efficiency levels but can continue to realize savings, increasing operational efficiency improvements, and incorporating behavioural changes into program offerings." ⁵

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

ES5. Finding: A handful (<5) of respondents indicated that all or part of their incentivized project had

⁵ EB-2014-0134, Report of the Board, DSM Framework for Natural Gas Distributors (2015-2020), Section 4.2, page 19

not yet been installed over a year after the incentive was paid.

Recommendation: Do not pay incentives until after installation is complete.

Outcome: Cost-effectiveness of the program will increase as it avoids paying for savings that do not materialize.

UNION RATE ZONES RESPONSE: Union does pay incentives only after projects are completed and commissioned. Union requested more information on which projects DNV is referring but was not given any additional information. Fewer than 5 instances across both utilities suggests this finding is an exception rather than the rule.

EGD RATE ZONE RESPONSE: Enbridge did not receive details from the EC identifying any projects where this was the case. Enbridge is unaware of any specific project(s) that received incentive payments having not yet been installed. Enbridge requires that projects are completed prior to the payment of incentives.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

ES6. Finding: Some customers receive incentives from their electric provider and natural gas utility to complete the same EE measure. Both providers may claim the same changes in energy use, resulting in overlap when aggregated across fuels at the provincial level.

Recommendation: Develop policies to collaborate across electric and gas projects to avoid double-counting fuel savings and increases from energy efficiency measures.

Outcome: More accurate energy and carbon savings estimates across the province.

UNION RATE ZONES RESPONSE: Union was not made aware of any instances of double counting energy savings for projects that were reviewed through the course of the 2015 audit and doesn't understand the basis for which the EC reached its finding.

Union continues to work towards coordination of CDM and DSM programs as outlined in the 2015-2020 DSM Guidelines.

EGD RATE ZONE RESPONSE: Enbridge is not aware of the EC providing details regarding any observations of double counting of fuel savings for custom projects that were reviewed through the course of the 2015 Verification. As outlined in the Board's Framework and Guidelines (EB-2014-0134), Enbridge continues with efforts to co-ordinate DSM and CDM programs and increase collaboration with electricity programs where possible and appropriate.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required. Enbridge Gas will continue to explore formal collaborative partnerships with electric distribution companies to ensure attribution is appropriate and customer experience is optimized.

ES7. Finding: Some measures (e.g., geothermal heat pumps, combined heat and power, and those that save district heating energy) have difficult-to-define baseline technologies.

Recommendation: Consider establishing a policy to define rules around energy savings calculation for fuel switching and district heating/cooling measures.

Outcome: Less evaluation risk and a better alignment between province energy efficiency goals and program implementation.

UNION RATE ZONES RESPONSE: Union continues to adhere to DSM policies and guiding principles as defined in the 2015-2020 DSM Framework and Guidelines.

EGD RATE ZONE RESPONSE: Enbridge will look at considerations to define approaches to energy savings calculations for fuel switching and district heating/cooling measures.

STATUS UPDATE: Enbridge Gas continues to adhere to DSM policies and guiding principles as defined in the 2015-2020 DSM Framework and Guidelines and as outlined in the utilities' approved 2015-2020 DSM Plans. This includes offering incentives to projects that reduce natural gas consumption, whenever calculating the gas savings can be done in a feasible manner. Additional discussion about changes to these policies or approaches are better suited for the development of the next DSM Framework.

ES8. Finding: Projects with very long and very short simple payback periods often have low NTG ratios. However, from a customer service standpoint, it may be difficult for utilities to deny incentives to customers unless they have pre-established rules to point to.

Recommendation: Consider establishing a policy that defines an eligibility floor and cap based on simple payback period for energy efficiency projects.

Outcome: The rule will give utilities a guideline to restrict the program to projects that are more likely to result in net savings. It will also allow the utilities to reject potentially poor projects without a large effect on customer satisfaction.

UNION RATE ZONES RESPONSE: As set out in the Board's Decision and Order, Section 5.2.6 on Union's 2015-2020 Plan (EB-2015-0029), the OEB rejected the need to introduce a policy defining payback eligibility criteria for the Commercial and Industrial custom offer.

EGD RATE ZONE RESPONSE: As set out in the Board's Decision and Order, Section 5.2.6 on Enbridge's 2015-2020 Plan (EB-2015-0049), the OEB rejected the need to introduce a policy defining payback eligibility criteria for the Commercial and Industrial custom offer.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required. Regardless, Enbridge Gas is committed to increasing its NTG ratios and will continue to make program improvements to do so.

ES9. Finding: Members of the EAC and evaluation team have different understandings of the definition of some evaluation inputs.

Recommendation: Consider establishing an official definition for EUL and implementing a study to define EUL for all measures, especially steam traps, pipe leaks, steam leaks, condensate leaks, and pipe insulation.

Outcome: The study will improve the accuracy of lifetime savings estimates.

UNION RATE ZONES RESPONSE: Union adheres to the EUL definition included in the glossary of terms developed as part of the Board approved TRM filed in December 2016. Union understands that OEB Staff has issued an RFP for a CI custom measure life review as part of the 2016 evaluation process.

EGD RATE ZONE RESPONSE: A definition for EUL was included in the glossary of terms developed as part of the Board approved TRM filed in December 2016. Enbridge understands that Board Staff has issued an RFP for a CI custom measure life review as part of the 2016 evaluation process.

STATUS UPDATE: A CI custom measure life review was completed as part of the 2016 evaluation process. This included a definition of EUL and an update to the EULs of a select group of custom measures.

ES10. Finding: A handful (<5) of sites reported unhappiness with delays in receiving their incentive payment (5 months).

Recommendation: Track metrics for how long it takes from the final installation verification to the posting of incentive payments. Consider holding program managers accountable to these metrics by considering them during performance reviews, building in performance bonuses if all payments are posted within one month, and/or implementing a penalty if it takes greater than three months to post any payments.

Outcome: Improved customer satisfaction.

UNION RATE ZONES RESPONSE: Union pays incentives only after projects are completed and commissioned. This process is communicated with project participants. Union requested more information on which projects DNV is referring but was not given any additional information. Fewer than 5 instances across both utilities suggests this finding is an exception rather than the rule.

Union operates under a culture of continuous improvement but does not agree that the EC's recommendation is needed to address its finding on fewer than 5 sites across both utilities.

EGD RATE ZONE RESPONSE: Enbridge requires that projects must be completed prior to the payment of incentives. Incentives are paid only after the measure(s) are installed, and the project is completed and fully commissioned. Enbridge is unaware of any customer complaints regarding payment delays. In any case where such an observation has been made, Enbridge suggests a review of the specific circumstances is in order to confirm that the customer had completed and submitted all project requirements necessary to meet project completion standards and facilitate timely payment; this may help clarify the circumstances for any identified delays.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

ES11. Finding: Influence adjustments were made to projects that adjusted the gross savings for "net" or program influence reasons. Accounting of which projects had these adjustments was not maintained by the program and the adjustments were included in different places in project calculation workbooks, making their identification challenging. In addition, the program NTG was also applied to these projects, effectively double discounting savings in scorecards.

Recommendation: If the utility chooses to continue making influence adjustments to the savings upon which it calculates savings, these adjustments should be made more transparent and not included in the reported gross savings for the program in scorecards. Instead the specific project influence adjustment should be included in the scorecard in place of the general program or domain level NTG factor.

Outcome: Reduced risk of double adjustments.

UNION RATE ZONES RESPONSE: As an outcome of previous audits, Union began applying influence adjustments in 2015 to certain maintenance-related projects (largely steam leak and steam trap repair projects). Union applied the factor so that its claim accounted only for savings it had influenced that are incremental to a customer's standard maintenance practice. However, Union does agree with the EC that applying an influence adjustment in addition to a NTG factor effectively double discounts savings. Union no longer applied an influence adjustment factor starting in 2016.

EGD RATE ZONE RESPONSE: Not Applicable

STATUS UPDATE: Eleven projects had influence adjustment factors in 2016 and these were suitably addressed by the EC during verification. The Union Rate Zones no longer apply influence adjustments starting with the 2017 program year.

#	Energy Savings and Program Performance Recommendation	Applies to		
		Union	Enbridge	Evaluation
	savings			
ES12	Conduct a process evaluation to improve Large Volume influence on customer projects	✓		
ES13	Consider approaches to market that leverage third-party vendors.	✓	✓	

ES12. Finding: Union's Large Volume program has a very high amount of free-ridership.

Recommendation: This evaluation did not include a process evaluation. Union should consider conducting a process evaluation focused on how to reduce the rate of free-ridership. Three options that the Union might consider are:

- Eliminate measure types with high free-ridership (Union indicated that most maintenance type measures were eliminated in 2016).
- Use an application process that includes a committee review that can reject free riders. This option is hard for utilities to manage as it can affect customer satisfaction negatively
- Clear payback criteria such as initial payback must be longer than X years and the incentive paid must reduce payback below Y years. This has the advantage of being a rule that account representatives can explain when talking to customers.
- Non-energy benefits of projects that large industrial customers gravitate to are often large compared to energy saving benefits, so simple payback criteria will not eliminate all free rider projects. Awareness of this issue should be promoted among the implementation

team.

Outcome: Effective free-ridership management may allow the program to increase its net savings significantly in future years.

UNION RATE ZONES RESPONSE: As per Union's resolution to recommendation ES2, the unique Direct Access design is entirely incompatible with the application of a free rider rate. Union disagrees with the EC that a process evaluation focused on how to reduce the rate of free-ridership should be conducted. This type of study will not address the fundamental incompatibility between the Large Volume program design and the application of a free rider rate.

EGD RATE ZONE RESPONSE: Not Applicable

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

ES13. Finding: Vendor attribution did not increase overall program attribution significantly. Of the vendors that customers cited as influences, few indicated that either program had much effect on the projects.

Recommendation: The utilities should consider approaches to market that leverage third-party vendors. A process evaluation that includes vendor interviews might uncover opportunities.

Outcome: Effective leveraging of vendors could both increase NTG ratios and increase program uptake.

UNION RATE ZONES RESPONSE: Union's current approach to market for all of its DSM programs fully leverages third parties. For many years, Union has extensively engaged third party partners including vendors/contractors/engineers and distributors to promote Union DSM programs and support customers in the decision making process, propelling customers to implement energy efficiency improvements. Union believes the EC's finding suggests that the approach employed in their free rider study was flawed and did not effectively identify the significant and important role of the vendor/business partner community. For example, it is best practice of self-report NTG surveys to interview participants and vendors as soon as possible after project implementation. This helps reduce recall bias and helps ensure that interviews are conducted with a person that was actively involved in the original project. Union suspects that recall bias is particularly pronounced for vendors who might not recall the details of one specific project over the numerous projects for which it was involved over the two year gap between project implementation and the interview. Vendors will have also had staff turnaround within this two year gap and the EC did not provide information on whether the vendor staff member interviewed was actively involved in the original

project.

EGD RATE ZONE RESPONSE: Enbridge's approach to market for its commercial and industrial offers fully leverages third party vendors. For many years, Enbridge has extensively engaged business partners including vendors/contractors/engineers and distributors to promote the Enbridge DSM program and support customers in the decision making process, propelling customers to implement energy efficiency improvements. Enbridge has found this approach to be highly effective in extending the utilities reach and increasing project uptake.

STATUS UPDATE: The original utility responses have addressed the recommendation. Also, Enbridge Gas is in the early stages of a process evaluation for its Custom Commercial offering in 2020.

Verification processes

Table 5-7 from Evaluation Contractor's 2015 Natural Gas DSM Annual Verification Report

#	Verification Process Recommendation	Applies to		
		Union	Enbridge	Evaluation
VP1	Modify contracts to require participants to agree to comply with EM&V as well as utility representatives as part of the requirements for participation in the program.	✓	✓	
VP2	The verification and utility staff should agree to a code of conduct for each role during onsite visits.	✓	✓	✓

VP1. Finding: DNV GL was unable to obtain access to all the equipment at all the sites selected for verification. Both Enbridge and Union have several large projects with industrial companies, including food processing, refineries, and other industries. In many cases, the customer refused to provide SCADA data or similar trend data to allow a reasonable verification of the project. This means we were unable to do more than a reasonableness check on the savings.

A review of the Enbridge contract shows that the customer is not required to provide the information that is necessary for EM&V. The most relevant sections are:

- Item 6 states: Payment of the Incentive Payment is subject to the completion of a satisfactory site inspection of the improvements, including the installed equipment by an authorized representative of Enbridge.
- Item 9 states: Upon request within eighteen months of the commissioning date of the Project, and with reasonable notice, the Customer agrees to provide authorized representatives of Enbridge with access to the Project, and with required information or data relating to the project for the purposes of the Application and these General Terms and Conditions.

Neither of these are sufficient for EM&V.

Recommendation: Modify contracts to require participants to agree to comply with EM&V as well as utility representatives as part of the requirements for participation in the program.

Outcome: Reduced evaluation costs and risks. Participant non-compliance requires evaluators to request documentation for a large backup sample, and to survey and/or visit additional sites to obtain sufficient data for the evaluation. The process of contacting a site and getting a refusal costs time and money, as does the substitution of an additional site to make up for the unobtained data. In some cases, there might not be additional sites to sample, in which case the evaluation estimates will have lower precision than they would with full compliance.

UNION RATE ZONES RESPONSE: Union encourages its customers to participate with verification activities. Prior to 2015, Union did not find the need to include a requirement for EM&V into requirements for project participation; 100% of participants selected for verification agreed to participate and to a degree that satisfied the verifiers' ability to defend its findings.

In some cases, the EC's opinion on what constitutes a reasonable verification is misaligned with what should be expected in practice. Union raised cases with the EC where customers complained about the length of time and level of involvement needed to participate with 2015 on-site verification activities. Participants have commented to Union that they do not have the level of resources available to accommodate these types of requests. No similar participant complaints were made for verifications prior to 2015. The extent of participant involvement required for 2015 verification should not be considered reasonable.

The EC notes that in some cases, verifiers were unable to obtain access to all the equipment or participants did not provide all requested data. Criteria including safety concerns, perceived reasonableness of the request, customer privacy and time lag from measure installation can prevent access to certain equipment. An average of two years has passed between projects implemented in 2015 and verification activities conducted in 2017. Due to this time lag, it can be expected that some data may be overly burdensome for the customer to extract or might no longer

be available at all.

EGD RATE ZONE RESPONSE: Enbridge encourages its customers to comply, cooperate and participate with all EM&V verification activities. At the same Enbridge recognizes it is important to be respectful that customers are busy running business and requests for customers' time should not be overly burdensome. Up until this 2015 Verification, virtually 100% of sampled participants selected for verification have complied with verification related requests. In the 2015 sample, in some cases, Enbridge received feedback from customers that onerous time requirements and/or specific data requests made of customers may not have been considered reasonable and/or comprised customer privacy concerns or safety policies. In addition, the delay between project completion and third party evaluation, of greater than 2 years in some cases, may have further discouraged customers to participate fully in the 2015 Verification because the appropriate person that should respond was now not available. Enbridge believes the language contained in Item 9 in Enbridge's Energy Efficiency Project Application General Terms and Conditions details that the customer has agreed to allow access to the project and the required information or data relating to the project as a condition of participation. Enbridge will investigate however how it might improve the language.

STATUS UPDATE: The original utility responses have addressed the recommendation. Enbridge Gas also notes that the EC stated that the 2017/2018 CPSV participant response rate for the utilities is consistent or slightly higher than what the EC has seen in comparable studies in North America.⁶

VP2. Finding: Verification engineers and verification forms caused confusion with site contacts and the length of visits also led to a handful of customer complaints. Utility staff at a handful of sites responded to questions in place of participating customers and in one case interfered with data collection.

Recommendation: The verification and utility staff should agree to a code of conduct for each role. The teams should receive clear direction as to the dos and don'ts of all parties involved in site visits, including both verification engineers and utility staff should they attend the visit. Open lines of communication between the site team and utility staff should be maintained to reduce misunderstandings and ensure that the teams are on the same page as to each other's role.

In general, the following should be part of standard verification practices:

- Ensure site engineer reviews final site report for accuracy post-audit.

⁶ 2017-2018 Natural Gas Demand Side Management Custom Savings Verification report. pg 36, 37 and 38.

- Align data collection forms with site report structure to reduce communication and transcription errors.
- Ensure data appropriate to determining EUL is collected while on-site (i.e., make EUL determination a primary, rather than secondary focus).
- Request specific documentation or data from systems prior to site visit (allowing for adequate time for site contact to obtain).

Outcome: Improved data collection and customer satisfaction.

UNION RATE ZONES RESPONSE: Union agrees that a verification code of conduct for EC, verification and utility staff should be established.

Union also agrees with the EC's suggested inclusions in the code of conduct and proposes that other items be included to help address Union concerns as well as participant concerns communicated to Union over the course of the 2015 verification. These concerns, which were presented and discussed with the EC and OEB Staff, include:

- Verifiers booked site visits with as little as one day's notice to both customers and Union.
- Customers noted that having Union Account Managers attend on-sites should be mandatory and not optional.
- Union Account Managers that attended on-site visits observed that verifiers sometimes oversimplified customer responses to questions.
- Verifiers appeared unprepared for some on-site verifications.

Union raised these concerns with both the EC and Board Staff and the EC has committed to improvements for the 2016 verification process. In turn, Union has addressed the concerns raised by the EC related to responding to questions in place of participating customers. Upon receiving this feedback from the EC, Union communicated verification expectations internally and no further complaints against Union were received.

EGD RATE ZONE RESPONSE: Enbridge is unaware of any customer site visits/project reviews where verifiers indicated any concerns with the conduct of Enbridge utility staff, however as communicated to the EC early in the process, Enbridge shared concerns regarding observations of the verifiers at a number of the site visits. These included poor/untimely communication regarding site visit scheduling, concerns about questions asked of customers regarding unrelated or irrelevant information about the project indicating a poor understanding of the project or technology, site visit reports that included measurements or findings that were in fact not completed, and requests for data that were perceived to compromise customer privacy.

Enbridge concurs that a verification code of conduct for verification and utility staff should be established. Enbridge also suggests that protocols ensure there is a project review with utility staff undertaken prior to the site visit to ensure a clear understanding of the project.

STATUS UPDATE: A code of conduct was developed for the 2016 verification. The EC did not repeat this recommendation in subsequent years.

Documentation and support

Table 5-8 from Evaluation Contractor's 2015 Natural Gas DSM Annual Verification Report

#	Documentation and Support Recommendation	Applies to		
		Union	Enbridge	Evaluation
DS1	Take steps to improve documentation: • Include explicit sources for all inputs and assumptions in the project documentation. • Store background studies and information sources with the project files and make them available to evaluators. • Provide evaluators full access to customer data. • Provide pre- and post-installation photos, where available. • Document and provide internal M&V documents where available. • Institute a checklist as part of project closeout to ensure all relevant project documentation is assembled as ready for verification	✓	✓	
DS2	Ensure that incremental costs are supported by invoices or other documentation	✓	✓	
DS3	Increase the amount of documentation and source material for projects that have greater energy savings.	✓	✓	

DS4 A	Digitize and file project documentation for all projects as they are completed and paid during project closeout.	✓	✓	
DS4 B	Until the utilities can implement an effective digital document storage process, the evaluation should allow more time for the utilities to assemble and deliver the documentation.			✓
DS5	Consider providing more training or adding quality control steps to ensure the summary workbook front page is completed and stored in a consistent manner.	✓		
DS6	Use a consistent summary workbook.		✓	

DS1.Finding: Project documentation for some projects lacked sufficient details to allow evaluators to reproduce the calculations made by program staff or third-party vendors. Specific issues included:

- Project data or details missing
- Insufficient measure-level details to fully describe what was installed
- Descriptions that were difficult to understand
- Use of black box tools
- Hardcoded information in calculation spreadsheets
- Energy intensity changes presented without providing the data to justify it
- Undocumented assumptions
- Sources referenced but not included or available, such as feasibility studies and historical analysis of energy use that was left out of the project documentation
- Scanned documents that were unreadable
- Input adjustments that approximate other effects, but are not explained
- Insufficient access to customer data (by customers) for confidentiality reasons.
- Modelling files that could not be opened
- Adjustments to savings estimates for safety or influence that were not clearly marked, sourced, or carried out in a consistent fashion
- Etools files not provided for many industrial boiler & boiler add-on projects

Recommendation: Several steps could be taken to improve data quality:

- Include explicit sources for all inputs and assumptions in the project documentation.

- Store background studies and information sources with the project files and make them available to evaluators.
- Provide evaluators full access to customer data.
- Provide pre- and post-installation photos, where available.
- Document and provide internal M&V documents where available.
- Institute a checklist as part of project closeout to ensure all relevant project documentation is assembled as ready for verification

Outcome: Properly explaining and sourcing the savings calculation method and assumptions allows the evaluating engineer to more easily identify what needs to be verified. It also makes it easier to determine whether the methods and assumptions are reasonable and use ex ante assumptions rather than seek documented values elsewhere.

UNION RATE ZONES RESPONSE: Union continually strives to improve the comprehensiveness of custom project documentation and generally works to ensure full and detailed inputs and supporting evidence is clearly outlined for each project. Nonetheless, Union will examine these recommendations moving forward. Given the timing of the receipt of the 2015 Annual Verification Recommendations in Q3 of 2017, incorporation of any such recommendations will be made in the 2018 program year at the earliest.

EGD RATE ZONE RESPONSE: Enbridge continually strives to improve the comprehensiveness of custom project documentation and generally works to ensure full and detailed inputs and supporting evidence is clearly outlined for each project. Nonetheless, Enbridge will review these recommendations to improve data quality moving forward. Given the timing of the receipt of the 2015 Annual Verification Recommendations, in Q3 of 2017, incorporation of any such recommendations will be made in the 2018 program year.

STATUS UPDATE: The EC has noted incremental improvements in project documentation in the 2016, 2017 and 2018 verification processes (see 2016 Annual Verification recommendation DS12 and 2017/2018 Annual Verification recommendation DS8). This speaks to utility efforts to continually improve the comprehensiveness of custom project documentation. Enbridge Gas is committed to ensuring that full and detailed inputs and supporting evidence are clearly outlined for each project.

All custom projects are reviewed by an internal QA/QC team of professional engineers. This QA/QC team attempts to apply the same scrutiny to projects as the EC. Two independent estimates of project savings and the type of documentation needed will not always align. In some cases, the verifier might request additional clarification documentation. In other cases, the utility's

documentation might have additional information the verifier was not looking for. This speaks to the strength of the verification process; the verifier can request further documentation from the utility, the customer or a third party and regularly does so when needed.

As detailed in their respective 2015-2020 Multi-Year Plans, both utilities outlined the need for an improved DSM tracking and reporting system. The Board approved this request in its January 20th, 2016 Decision. This system was rolled out for the 2018 program year for the Union Rate Zones and for the 2019 program year for Enbridge Gas. These systems include many upgrades and make providing data simpler for annual savings evaluation and verification.

DS2. Finding: Invoices were not always included with documentation, and we saw a handful (<5) of cases where utility program staff were overclaiming incremental costs. This did not appear to be systemic, but higher incremental costs enable payment of a larger incentive.

Recommendation: Ensure that incremental costs are supported by invoices or other documentation, especially for add-on and optimization measures where the total cost and incremental cost are likely to be the same. Equipment replacement measures may require an additional standard efficiency quote to produce incremental cost.

Outcome: Incremental cost is an important component of simple payback, which is often used to judge the economic benefit of energy efficiency projects. It is also an input to some benefit-cost tests.

UNION RATE ZONES RESPONSE: Union does ensure that incremental costs are supported by invoices or other documentation. In some cases, project costs are bundled within invoices for larger work being completed in tandem at a customer site. In others, projects are implemented using internal customer resources and no formal invoice is generated. In such cases, Union uses best available information to estimate incremental costs and these estimates are subject to verification.

Union requested more information on which projects DNV is referring but was not given any additional information. Fewer than 5 instances across both utilities suggests this finding is an exception rather than the rule.

EGD RATE ZONE RESPONSE: Enbridge endeavours to ensure that claimed incremental costs are supported by invoices or other documentation. In some cases, project costs are bundled within invoices for larger work being completed in tandem at a customer site. Enbridge will continue to work to minimize any instances where incremental costs are not clearly documented.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

DS3. Finding: Larger projects appeared to fall under the same documentation standards as smaller projects.

Recommendation: Increase the amount of documentation and source material for projects that have greater energy savings.

Outcome: Projects that are better documented tend to have more accurate savings estimates and receive fewer evaluation adjustments than those that are less documented. Large projects have a greater effect on overall savings adjustment factors. Therefore, large projects with better documentation are more likely to result in adjustment factors closer to 100%.

UNION RATE ZONES RESPONSE: Union disagrees with the EC's recommendation. Union strives to ensure its project documentation captures all relevant information regardless of project size.

EGD RATE ZONE RESPONSE: For consistency, Enbridge strives to ensure project documentation captures all the relevant information to support accurate savings calculation estimates regardless of the size of project.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

DS4. Finding: Enbridge did not maintain complete digital project files prior to the evaluation request. Union appeared to have digital documentation that was not completely assembled prior to evaluation.

Recommendation A: Digitize and file project documentation for all projects as they are completed and paid during project closeout. PDF and Excel files associated with a project should be stored in a way that allows them to be easily found and associated with a specific project and/or customer. The best practice is to include a document repository as part of the program tracking system with a separate folder for each project.

UNION RATE ZONES RESPONSE: As detailed in its 2015-2020 DSM Plan, Union outlined the need for a DSM tracking and reporting system upgrade. The Board approved this request in its January 20th, 2016 Decision. This system upgrade is expected to be rolled out in 2018.

EGD RATE ZONE RESPONSE: Enbridge DSM is currently undergoing a DSM IT system upgrade that will include improvements to the organization and facilitation of digitized project files. This system upgrade is expected to be rolled out in 2018.

STATUS UPDATE: Updated DSM tracking and reporting systems were rolled out for the 2018 program year for the Union Rate Zones and for the 2019 program year for Enbridge Gas. These

systems include many upgrades and make providing data simpler for annual savings evaluation and verification.

Recommendation B: Until the utilities can implement an effective digital document storage process, the evaluation should allow more time for the utilities to assemble and deliver the documentation.

Outcome: In our experience, DSM programs that store complete and well-organized digital records experience less evaluation risk. In other words, their gross savings adjustments are closer to 100%. This happens for three reasons:

- Digitization facilitates internal review of project documentation, providing additional opportunities to identify missing information and errors
- Assembly during project closeout improves the comprehensiveness of the documentation because less time has elapsed than if it was assembled for evaluation, so less information is lost or forgotten
- Easy retrieval makes it more likely that the complete file is sent to the evaluation team, reducing the information gap between implementation and evaluation.

UNION RATE ZONES RESPONSE: This recommendation was not directed to Union.

EGD RATE ZONE RESPONSE: This recommendation was not directed to Enbridge

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

DS5. Finding: Union custom projects utilized a project application summary workbook that summarizes the key project inputs, calculations, and most details. In general, this is a good approach that facilitates internal review and evaluation. One challenge was that different projects used the workbook in different ways:

- The notes section was sometimes used to identify and highlight specific unique approaches and features in projects, but not always.
- Calculations internal to the summary page were consistent for most projects, but not all (additional factors were sometimes added).
- Sub-methods critical to the calculation were contained in hidden sheets.
- Safety and influence adjustments were inserted in different locations and not always explained.

Recommendation: Consider providing more training or adding quality control steps to ensure the summary workbook front page is completed and stored in a consistent manner. Identify a common approach for common measures and, if necessary, document deviations and the reasons for the

deviations in a clearly labelled field on the summary sheet.

Outcome: A consistent summary workbook aids both internal and external quality assurance, quality control, and measurement and verification.

UNION RATE ZONES RESPONSE: Union agrees that its project application summary ("PAS") workbooks work well to summarize key project inputs and calculations, and that different projects might use the workbooks in different ways. Complete uniformity within PAS workbooks across hundreds of custom project is difficult. Union will explore this recommendation as part of its continuous improvement of custom project documentation.

EGD RATE ZONE RESPONSE: Not Applicable

STATUS UPDATE: The EC has noted that 2016 custom project workbooks had improved source documentation relative to 2015 projects (see 2016 Annual Verification recommendation DS18). This speaks to the utility's efforts to continually improve the comprehensiveness of its project application summary ("PAS") workbooks. Enbridge Gas agrees that these workbooks are effective tools for summarizing key project inputs and calculations and understands that different projects might use the workbooks in different ways. Complete uniformity within PAS workbooks across hundreds of custom projects will take time and may not always be achievable or appropriate. Enbridge Gas continues to consider this recommendation as part of its continuous improvement of custom project documentation.

DS6. Finding: The Enbridge Etools is used as both a calculation tool and as a communication tool with customers. While it appears to serve the needs of the program, this form of communication is difficult for the evaluation efforts.

- Etools does not easily allow for assumptions to be sourced within the record.
- Some Etools selections may be site-specific and some may be defaults; the calculator does not distinguish.
- Energy savings that are calculated outside of Etools are hard-entered in Etools but not always sourced.

Recommendation: Use a consistent summary workbook.

Outcome: A consistent summary workbook aids both internal and external quality assurance, quality control, and measurement and verification.

UNION RATE ZONES RESPONSE: This recommendation was directed to Enbridge only.

EGD RATE ZONE RESPONSE: Enbridge is committed to continue in its efforts to improve upon the

comprehensiveness and clarity of all relevant project information, data and underlying input assumptions. Given the timing of the receipt of the 2015 Annual Verification Recommendations, in Q3 of 2017, considerations to improve on a project summary workbook will be reviewed for the 2018 program year.

STATUS UPDATE: For future eTools version updates, Enbridge Gas will make best efforts to list all assumptions used in the eTools calculator, provide back up sources, and provide visual indicators to which values are default assumptions versus actual site information. Best efforts will also be made to ensure energy savings calculated outside of eTools and hard entered into eTools are substantiated, properly documented and provided as backup.

Data management

Table 5-9 from Evaluation Contractor's 2015 Natural Gas DSM Annual Verification Report

#	Data Management Recommendation	Applies to		
		Union	Enbridge	Evaluation
DM1 A	Track contacts associated with projects in the program tracking database.	✓	✓	
DM1 B	Strongly consider investing in relational program tracking databases.	✓	✓	
DM1 C	Include structure for improved data integrity in the evaluator request for contact information for the 2016 and 2017 savings verification and evaluation.			✓
DM2 A	Consider offering bonus incentives early in the year to combat the "hockey stick" phenomenon where a large percent of projects get closed in the fourth quarter of the year (which results in rushed QC for data).	✓	✓	
DM3	Track and provide to evaluators dates for key milestones in the project.	✓	✓	
DM4	Maintain a customer identifier in the database to clearly identify related sites.	✓	✓	
DM5	Include EUL (also remaining useful life for dual baselines), NTG, and each of the key savings types (i.e., annual and cumulative, gross and net) in the program tracking extracts provided to evaluators.	✓	✓	

DM1. Finding: Neither Union nor Enbridge currently track participating customer or participating vendor contact information in their program tracking database. Providing the information to the evaluation put significant burden on utility staff. When contact information was provided, there were significant data integrity issues including contacts listed in the wrong places, partial addresses, and incorrect or missing phone numbers and email addresses.

Recommendation A: Track contacts associated with projects in the program tracking database. At a minimum, the program tracking database should include:

- Project site address
- Customer mailing address
- Primary customer contact name
- Primary customer contact phone
- Primary customer contact email
- Primary customer contact mailing address
- Addresses are best tracked as multiple fields including:
 - Street address line 1 o Street address line 2 o City
 - Province
 - Postal code

Phone number fields should include data validation to enforce a consistent format and avoid missing or extra digit errors. Phone extensions should be tracked in a field separate from the ten-digit phone number and be restricted to numeric data only.

The best practice is to maintain contacts in a table separate from specific project or customer data. This allows for a single contact to be connected to multiple accounts and/or projects as necessary without creating duplication. This structure also makes it easier to associate multiple contacts with a single project.

Vendor contact information should also be tracked in the database, in the same table as the participating customer contact information. With a relational database, the contact ID from the table can be added to a project record in the role consistent with the contact's participation (such as vendor, decision maker, or technical expert) with a separate table that allows a single vendor contact to be associated with multiple projects.

Outcome A: Reduced burden on utility staff to seek contact information for projects, whether for internal or evaluation use. Reduced evaluation costs and improved sample design expectations.

UNION RATE ZONES RESPONSE: As detailed in its 2015-2020 DSM Plan, Union outlined the need for a DSM tracking and reporting system upgrade. The Board approved this request in its January 20th, 2016 Decision. This system upgrade is expected to be rolled out in 2018.

EGD RATE ZONE RESPONSE: Enbridge is currently undergoing a tracking & reporting system

upgrade that will enable the capture of participant and vendor information in a single database. This upgrade is expected to be rolled out in 2018.

STATUS UPDATE: Updated DSM tracking and reporting systems were rolled out for the 2018 program year for the Union Rate Zones and for the 2019 program year for the EGD Rate Zone. These systems include many upgrades and make providing data simpler for annual savings evaluation and verification. The EC also noted that in 2016, the data provided by utility staff was much more consistent and clearer relative to 2015 (see 2016 Annual Verification recommendation DM26).

Recommendation B: The utilities should strongly consider investing in relational program tracking databases. Relational program tracking databases and customer relationship management (CRM) systems allow for multiple contacts to be associated with a single account and/or project. This allows programs to easily clarify aspects of projects during implementation and to provide accurate, timely, and usable contact information to evaluators and verifiers. The incremental cost of implementation is low if it is part of the initial database design, populated as projects are started, and updated once they are complete.

Outcome B: Reduced burden on utility staff and reduced evaluation costs. A relational database would streamline aggregation of program data for scorecards and make providing data simpler for annual savings evaluation and verification.

UNION RATE ZONES RESPONSE: As detailed in its 2015-2020 DSM Plan, Union outlined the need for a DSM tracking and reporting system upgrade. The Board approved this request in its January 20th, 2016 Decision. This system upgrade is expected to be rolled out in 2018.

EGD RATE ZONE RESPONSE: Enbridge DSM is currently undergoing an IT system upgrade that will include improved tracking & reporting and CRM components. This system upgrade is expected to be rolled out in 2018.

STATUS UPDATE: Updated DSM tracking and reporting systems were rolled out for the 2018 program year for the Union Rate Zones and for the 2019 program year for the EGD Rate Zone. These systems include many upgrades and make providing data simpler for annual savings evaluation and verification.

Recommendation C: For 2016 (and perhaps 2017), we do not anticipate that contact information will have been entered into the program tracking databases. When the evaluation requests contact information for the 2016 and 2017 savings verification and evaluation, the contact request spreadsheet will be updated to provide additional fields to enforce data integrity (e.g., specific fields for a parsed address and company name for the technical and decision-making contacts).

Outcome C: Reduced evaluation costs due to less data cleaning and research to fill missing information. Improved data collection with less returned advance letters and more accurate connection between projects and contacts.

UNION RATE ZONES RESPONSE: This recommendation was not directed to Union.

EGD RATE ZONE RESPONSE: This recommendation was not directed to Enbridge

STATUS UPDATE: Enbridge Gas considers the original responses to be complete.

DM2. Finding: Both utilities have indicated that inputting and/or extracting data necessary for annual reporting and evaluation requires significant effort.

Recommendation A: Consider offering bonus incentives early in the year to combat the “hockey stick” phenomenon where a large percent of projects get closed in the fourth quarter of the year.

Outcome: Reduced burden on program staff, more consistency in meeting annual filing deadlines.

UNION RATE ZONES RESPONSE: Union disagrees that offering bonus incentives early in the year to combat the “hockey stick” phenomenon would address the EC’s finding. The EC’s finding was caused more by the change in process, specific data requirements, project files needed for the NTG Study and the request for CPSV documentation for more than double the number of projects compared to previous years. Even with these changes, Union met, or was within a week of meeting each of the EC’s deadlines for providing data necessary for annual reporting and evaluation efforts.

EGD RATE ZONE RESPONSE: In the case of the 2015 Verification, the data requests from the EC were delivered in Q4 at year end, not in Q2 or Q3 as contemplated in the Board’s new governance structure. This is the busiest time of the year. However, Enbridge does not agree that offering a bonus incentive early in the year to combat the “hockey stick” phenomenon would address the EC’s finding. Firstly, in many cases, particularly in industrial setting, customers utilize primarily two time periods to execute a major change to their process or the facility: summer shutdown, for those customers that incorporate this mid-year break and more often Christmas shutdown.

The EC’s observation regarding the utilities’ effort was in large part as a result of the change in process, new data categorization requirements and the increased volume of project files requested for the CPSV, free-ridership and spillover studies encompassing substantially more projects compared to previous years.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

Recommendation B: See recommendation DM1B. The utilities should consider investing in a new database.

Outcome: Reduced burden on utility staff and reduced evaluation costs.

UNION RATE ZONES RESPONSE: See Union's response to DM1B.

EGD RATE ZONE RESPONSE: See Enbridge's response to DM1B.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

DM3. Finding: The extracts from the utility program tracking database do not include dates for key project milestones. Enbridge's data did not include any dates and Union's included only the "installation date."

Recommendation: Track and provide to evaluators dates for key milestones in the project. Dates for project start, installation, and those that define the program year provide useful context for interviewers that is not always easy to find in project documentation

Outcome: Improved data collection through more informed interviewers and reduced evaluation costs through less need to search for dates in documentation.

UNION RATE ZONES RESPONSE: Union has an on-going relationship with its CI and Large Volume customers. Through this relationship, some projects get proposed, prioritized, deferred and changed over time. Not all projects will have a definitive start date. As per the EC's finding, Union does track an installation date. This date is important as it denotes the date after which installation and commissioning are complete and Union pays out a customer incentive. The program year is defined by the calendar year.

EGD RATE ZONE RESPONSE: Though all "key project milestones" may not have been presented in Enbridge's summary tracking database, Enbridge does include the measure(s) "Turn on Date", which denotes when the measure(s) has been installed and fully commissioned in the tracking summary. The incentive payment process commences only after this date has been entered into the tracking database and the custom project file submitted for claim. This date is also utilized for LRAM purposes. In addition ESCs are expected to track other relevant key milestones in the project file including project initiation and meeting dates with customers.

Enbridge DSM is currently undergoing an IT system upgrade that will include improved tracking & reporting and CRM components that will facilitate the improved capture of milestone dates. This upgrade is expected to be rolled out in 2018.

STATUS UPDATE: Enbridge Gas does track an installation date for its custom projects. This date was included in their respective tracking workbooks. Updated DSM tracking and reporting systems were rolled out for the 2018 program year for the Union Rate Zones and for the 2019 program year for Enbridge Gas. These systems include many upgrades and make providing data simpler for annual savings evaluation and verification.

DM4. Finding: Customers with multiple sites are not tracked in the program tracking database. A few property management groups had many sites selected in the sample, but it was not clear from project tracking or the provided contact information that the sites were related. Property management firms were the most significant but not the only customer type where this was true.

Recommendation: Maintain a customer identifier in the database to clearly identify related sites. This is easiest to deploy in a relational database see recommendation DM1B.

Outcome: Reduced evaluation costs and reduced customer burden. In some cases, a failure to identify related sites can result in multiple calls to the same customer, which a customer identifier would avoid. In addition, tracking related sites could improve program implementation by increasing awareness of connected opportunities.

UNION RATE ZONES RESPONSE: Union projects are labeled with both a customer ID and project ID. Project IDs are project-specific. Customer IDs remain the same for all sites associated with an individual customer account with the exception of a few cases such as sites across a school board or large property management groups. See Union's response to DM1B.

EGD RATE ZONE RESPONSE: Enbridge's custom projects are designated with a unique project ID. Although a customer identifier to identify related sites is not utilized for custom projects, projects can be linked on the basis of billing information, site address, or at the customer name assignment for multiple addresses. There are some exceptions however are schools boards and property managers with many sites.

STATUS UPDATE: Starting with the 2019 program year, Enbridge Gas is aligning the tracking files for EGD Rate Zone and the Union Rate Zones as best as possible and drawing best practices from each. Regarding customer identifiers, the Union Rate Zones' custom offering currently indicates which customers have participated in multiple projects. Enbridge Gas is currently exploring this for the EGD rate zone.

DM5. Finding: EUL and cumulative gross savings were not provided in the standard program tracking database extracts. The evaluation team backed out the missing information from the fields provided.

Recommendation: Include EUL (also remaining useful life for dual baselines), NTG, and each of the key savings types (i.e., annual and cumulative, gross and net) in the program tracking database.

Outcome: Improved data integrity results in less evaluation risk and more accurate savings totals. Providing each of the key savings types and their components allows evaluation to confirm that the savings provided are internally consistent.

UNION RATE ZONES RESPONSE: Union's tracking database provided to DNV included all of these categories. Union requested the EC clarify this finding but was not given any additional information.

EGD RATE ZONE RESPONSE: Enbridge tracks the EUL for all custom projects and includes the RUL where it is determined to be applicable; in addition Enbridge includes the remaining categories listed above in its tracking summary.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

2016 Annual Verification recommendations, original utility response, and status update of any planned changes in response to the recommendation

The Evaluation Contractor (“EC”) submitted its 2016 Natural Gas Demand Side Management Annual Verification report to the Evaluation Advisory Committee (“EAC”) on October 30, 2018. The report included findings and recommendations addressed to the Union Rate Zones, the EGD Rate Zone, and on future evaluation work.

Findings, recommendations and outcomes are provided below as reported in Section 5 of the EC’s report, along with:

- The original responses from the Union Rate Zones and the EGD Rate Zone, which were filed as part of the 2016 clearance of account applications (EB-2018-0300 / EB-2018-0301). These are identified below as “Union Rate Zones response” and “EGD Rate Zone response”
- A status update on the original responses

2016 Annual Verification Recommendations

1.1 Overall annual verification

Table 1. Overall annual verification - summary of recommendations¹

#	Finding	Recommendation	Recommended in 2015	Applies to 2016			Primary Outcome		
				Union	Enbridge	Evaluation	Reduce Costs	Improve Accuracy	Decrease Risk
O1	The Enbridge tracking file does not currently include information that allows the evaluator to identify all the projects installed by a single customer.	A: Consider investing in a relational program tracking database.	✓	✓	✓		✓	✓	✓
		B: Enbridge should include site-level information for all measures installed through the program.	✓		✓			✓	✓
O2	The format of Enbridge's tracking data is not well suited to a combined evaluation with the Union data.	A: Enbridge should deliver tracking data in a single flat file.	✓		✓		✓	✓	✓
		B: Consider investing in a relational program tracking database.	✓	✓	✓		✓	✓	✓
O3	Neither Union nor Enbridge tracking databases currently use prescriptive measure descriptions that map directly to the approved energy savings spreadsheet (TRM).	A: Develop, maintain, and use an electronic summary spreadsheet of the TRM.	✓	✓	✓	✓	✓	✓	✓
		B: Once the electronic TRM spreadsheet is developed, track prescriptive savings using unique measure descriptions that map to electronic TRM.	✓	✓	✓	✓	✓	✓	✓
		C: Once the electronic TRM spreadsheet is developed, utilize the same electronic TRM for both utilities		✓	✓	✓	✓	✓	✓

¹ 2016 Natural Gas DSM Annual Verification Report Table 56

		D: OEB: develop means for consistent system				✓	✓	✓	✓
O4	Different TRMs were used by utilities for savings calculations.	A: Explicitly agree to the TRM version to utilize for measure-inputs		✓	✓	✓	✓	✓	✓
		B: Use the same TRM version for both utilities for each program year		✓	✓	✓	✓	✓	✓
O5	DNV GL and other EAC members were sometimes confused about appropriate sources and the definition of terms.	A: Evaluation Contractor: distribute to the EAC a list of the anticipated sources at the start of the verification process, possibly within the scope of work, for review and verification.				✓	✓		✓
		B: Evaluation Contractor: distribute to the EAC a glossary of terms at the start of the verification process, possibly within the scope of work, for review and verification.				✓	✓		✓
O6	Explicit documentation was not available for all program stages, specifically for non-savings metrics	A: Document each required element and stage for non-savings metrics.		✓	✓	✓	✓		✓

O1. Finding: The Enbridge tracking file does not currently include information that allows the evaluator to identify all the projects installed by a single customer.

Recommendation A: Both utilities should strongly consider investing in relational program tracking databases. Relational program tracking databases and customer relationship management (CRM) systems allow for multiple measures and projects to be associated with a single customer and/or customer site. The incremental cost of implementation is low if it is part of the initial database design, populated as projects are started, and updated once they are complete.

Outcome: Reduced burden on utility staff and reduced evaluation costs. A relational database would streamline aggregation of program data for scorecards and make providing data simpler for annual savings evaluation and verification.

UNION RATE ZONES RESPONSE: As detailed in its 2015-2020 DSM Plan, Union outlined the need for a DSM tracking and reporting system upgrade. The Board approved this request in its January 20th, 2016 Decision. This system upgrade was rolled out in 2018.

ENBRIDGE RESPONSE: As detailed in its 2015-2020 Multi-Year Plan, Enbridge outlined the need for a DSM IT system replacement. The Board approved this request in its January 20th, 2016 Decision. As a result, Enbridge DSM is currently undergoing a system upgrade that will include improved tracking & reporting and CRM components. This system upgrade is expected to be rolled out in late 2018.

STATUS UPDATE: Updated DSM tracking and reporting systems were rolled out for the 2018 program year for the Union Rate Zones and for the 2019 program year for the EGD Rate Zone. These systems include many upgrades and make providing data simpler for annual savings evaluation and verification.

Starting with the 2019 program year, Enbridge is aligning the tracking files for the EGD Rate Zone and the Union Rate Zones as best as possible and drawing best practices from each. This includes providing requested data in a single flat file.

Recommendation B: Enbridge should include a unique site-level or customer-level identifier for every measure installed in the program to allow the evaluator to identify all projects installed at a single customer, regardless of program.

Outcome: Confirmation that each installation is unique and assessment of interactive effects.

UNION RATE ZONES RESPONSE: This recommendation was directed to Enbridge only.

ENBRIDGE RESPONSE: Enbridge's projects are designated with a unique project ID. Although a customer identifier to identify related sites is not utilized for projects, they can be linked on the basis of account billing information, site address, or at the customer name assignment for multiple addresses. There are some exceptions however such as School Boards and property managers with many sites.

STATUS UPDATE: EGD Rate Zone's projects are designated with a unique project ID and a unique site ID that connects all projects completed at a given site. However, EGD Rate Zone's account structure does not assign a unique ID that connects multiple sites to a single customer. Although a unique customer ID is not available, customers with multiple sites can be identified using customer contact info that is provided to the EC each year for the purposes of custom project verification.

See also status update to recommendation O1A.

O2. Finding: The format of Enbridge's tracking data is not well suited to a combined evaluation with the Union data, meaning that the format requires a significant investment of time to extract the

necessary data for verifying each program's savings. In addition to increased time and thus verification cost, the need for manual extraction of data introduces many opportunities for error, which potentially decreases savings accuracy and increases risk.

Recommendation A: Deliver to evaluators a single, flat file of tracking data.² Each record should have measure-level information which includes the information listed below:

- Program identification information, such as scorecard, and program name
- Customer identification information, such as a unique customer ID, rate class, and location
- Measure identification information, such as measure description, unique measure identification, measure group, measure life, free rider rate, and savings per unit for prescriptive measures
- Savings information, such as annual gross and net savings, cumulative gross and net savings, and non-gas savings
- Additional information as needed to allow the evaluator to verify lost revenue and cost-effectiveness

A “verification ready” flat file would not require summary rows, hidden rows or columns, links or formulas but would include all necessary variables in a single tab or table for all projects and measures, regardless of type.

Outcome: Reduced burden on program staff, more flexibility for evaluators.

UNION RATE ZONES RESPONSE: This recommendation was directed to Enbridge only.

ENBRIDGE RESPONSE: Enbridge's tracking summary has evolved and improved through the review of previous audits to a comprehensive and transparent tool. Prior auditors and Audit Committees expected Enbridge's tracking database to have this level of transparency to fully illustrate the determination of scorecard achievements. Enbridge's tracking reports have historically been found to be comprehensive and accurate. Though Enbridge's tracking information for 2016 was not laid out in a single flat file, as was desired by the current EC, with the exception of this item, the tracking spreadsheet Enbridge provided the EC included the project information details requested in Recommendation A. Based on the EC's recommendations from the 2015 verification, Enbridge made every effort to ensure the 2016 tracking summary clearly provided the information

² In this context, a flat file is a table with one record per line and no summary information.

requested.

STATUS UPDATE: See status update to recommendation O1A.

Recommendation B: See recommendation O1A. The utilities should consider investing in a new database.

Outcome: Reduced burden on utility staff and reduced evaluation costs.

UNION RATE ZONES RESPONSE: See Union's response to recommendation O1A.

ENBRIDGE RESPONSE: See response to O1A.

STATUS UPDATE: See status update to recommendation O1A.

O3. Finding: Neither Union nor Enbridge tracking databases currently use prescriptive measure descriptions that map directly to the approved energy savings spreadsheet (TRM). The EC does note that Enbridge did provide a tab within the excel Tracking File that provided a summary of their prescriptive offers and the savings values associated with these and that Union provided a mapping of Union names to TRM terms. However, these offer names do not consistently match the values described within the TRMs. The EC often struggled to align tracking measures to the correct TRM measure, resulting in increased effort and time in identifying intended TRM measures and repeated back-and-forth between evaluation and the utilities for clarification.

Recommendation A: Develop, maintain, and use an electronic summary of the TRM, such as an Excel file. Each measure (identified as a unique savings value) should have an assigned measure ID number, and new ID numbers should be assigned when a measure is updated with a new savings value. This allows for a historical record of the changes in the TRM and allows the evaluation to identify outdated values. Once developed or agreed to, both utilities should utilize this system for simplification and transparency.

Recommendation B: Once the electronic TRM is developed, track prescriptive savings using unique measure descriptions that clearly map to the electronic TRM.

Recommendation C: Once the electronic TRM is developed, utilize the same electronic summary file for both utilities.

Recommendation D: As the entity with primary ownership of the TRM, the OEB should develop the references for parties to directly refer to specific measures in a consistent way which accounts for variations in energy savings due to capacity or other characteristics.

Outcome: Reduced burden on utility staff and reduced evaluation costs. Fewer errors in the tracking data.

UNION RATE ZONES RESPONSE: OEB Staff now coordinates the TRM update process.³ These recommendations should be directed to OEB Staff. However, Union notes that in 2016 it provided the EC with a detailed electronic mapping of prescriptive measures. This mapping connected measure names in Union's tracking database with the correct subdoc, and noted which input assumption filing the subdocs can be found, including the page number.

A direct one-to-one naming of measures from the TRM to Union's tracking database is not possible in certain cases. For example, a measure offered within two different programs that have different incentive structures (e.g. CI Prescriptive and Low-Income Prescriptive) might refer back to the same subdoc but would require two different names within Union's database.

In 2016, the EC did not find any errors in the Union tracking database related to incorrect mapping of prescriptive measures to the correct subdoc.

ENBRIDGE RESPONSE to Recommendations O3A, O3B, O3C, O3D: As acknowledged by the EC in Recommendation O3D, the OEB now has ownership of the TRM. As such these recommendations should be directed to OEB Staff. In the meantime, as noted in the finding above, Enbridge provided, in its 2016 tracking worksheet, details that provided a summary of prescriptive offers and their associated savings values per the TRM sub-docs. It should be noted that a direct one-to-one naming of measures based on the current TRM to Enbridge's tracking database is not always possible. For example, a measure offered across two different sectors that have unique incentive structures (e.g., CI Prescriptive and Low-Income Prescriptive) might refer back to the same sub-doc but would require two different "names" within Enbridge's tracking database. Also of note, the EC did not find any errors in Enbridge's tracking database related to incorrect mapping of prescriptive measures to the appropriate sub-doc.

STATUS UPDATE: The original utility responses have addressed the recommendation. Enbridge continues to provide sufficient detail to connect each record within its databases to the appropriate substantiation document measure.

O4. Finding: Mid-way through the evaluation and verification process, it was noted that utilities were using different TRMs for reference for savings values. The general rule for use of the best available information, while generally good, does allow for ambiguity. In this instance, the ambiguity created

³ The online portion of the TRM has been transitioned to OEB Staff as outlined in the OEB's March 4 letter regarding the transition of Technical Evaluation Committee Activities.

a need for additional verification processes, with new savings values for Union Gas.

Recommendation A: Explicitly state which TRM version applies to the annual savings calculations for savings calculations for both Scorecard/DSM shareholder incentive calculations as well as lost revenue calculations. This explicit agreement on the appropriate TRM should be made prior to the start of the verification cycle, at the very latest.

Recommendation B: Use the same TRM version for both utilities for each program year.

Outcome: Reduced evaluation costs. Decreased risk to utilities that savings estimates are incorrect due to use of "incorrect" TRM, improved savings accuracy.

UNION RATE ZONES RESPONSE: Union used the Board-approved prescriptive input assumptions available at the time when setting its 2016 targets, and consistent with the framework, also used those same input assumptions when calculating draft results. These input assumptions were consistent with the March 2015 Input Assumption filing and were filed in Union's 2015-2020 DSM Plan application at Exhibit A, Tab 3, Appendix D.

During the 2016 EM&V process, all EAC members except Union agreed that it was most appropriate to use the December 2015 TRM for both utilities' 2016 results. Union disagreed in principle that input assumptions should be changed at all as its 2016 targets are based on the March 2015 TRM and any changes to prescriptive input assumptions should be applied prospectively to the following year. In order to move forward with the audit, Union conceded and asked that Board Staff make note of the disagreement.

To remain consistent with Board Decision that the same set of input assumptions should be used for targets and results, Union updated its 2016 targets to also reflect the December 2015 TRM. This update is presented and discussed within the body of Union's 2016 DSM Deferral application.

For the remainder of the 2015-2020 Framework, input assumptions and net-to-gross factors that are the result of the annual evaluation process will be used to determine subsequent targets for prescriptive programs. Prescriptive results for shareholder savings calculations will use the same input assumptions and net-to-gross adjustment factors that were used to determine Union's targets. Results for lost revenue calculations will use the best available information at the time of the audit.

ENBRIDGE RESPONSE to O4A and O4B: It is Enbridge's understanding that the expectation was that for the 2016 program year, the Company should use the TRM that had been most recently filed as at December 31, 2015 (the end of the previous program year). As such Enbridge utilized the

TRM that was reflected in EB-20150344 New and Updated DSM Measures – Joint Submission from Union Gas Limited and Enbridge Gas Distribution, December 16, 2015. The EC accepted these TRM values as appropriate in the 2016 verification. Enbridge's understanding of the Board's direction for the balance of the 2015 to 2020 Framework is that input assumptions and net-to-gross factors that are the result of the annual evaluation process will be used to determine subsequent targets. Results for gas savings calculations will use the same input assumptions and net-to-gross adjustment factors that were used to determine that year's targets. Results for lost revenue calculations will use the best available information at the time of the audit.

STATUS UPDATE: Starting with the 2017 program year, both the Union Rate Zones and the EGD Rate Zone have stated which TRM version applies to the annual savings calculations for savings calculations for both Scorecard/DSM shareholder incentive calculations. Both the Union Rate Zones and the EGD Rate Zone have aligned on which TRM version to use for each year following 2016.

O5. Finding: Throughout the verification process, DNV GL and other EAC members had questions about the appropriate source to use for items such as TRM savings (March or December), program eligibility requirements, and other information necessary to complete the evaluation. The EAC and EC also had a number of discussions about terminology and the meaning of different terms. These conversations often resulted in small delays in the evaluation work.

Recommendation A: The evaluation team should distribute to the EAC a list of the anticipated sources at the start of the verification process, possibly within the scope of work, for review and verification.

Recommendation B: The evaluation team should distribute a glossary of terms to the EAC at the start of the verification process, possibly within the scope of work, for review and verification.

Outcome: Clearly defined and agreed upon sources, definitions and documentation should reduce the risk for confusion and re-analysis of scorecard metrics and reduce costs.

UNION RATE ZONES RESPONSE: Although this recommendation was not directed to Union, Union reiterates the desire to have meeting minutes taken during the EM&V process. Having minutes would enable more opportunity for a transparent review of the issues the EC has raised in support of this recommendation.

For clarity, Union adheres to the glossary of terms developed as part of the Board-approved TRM filed in December 2016 and supports its use for all EM&V purposes. Program eligibility is as defined in Union's Board-approved 2015-2020 DSM Plan. Scorecard metrics and their calculation are as defined in the Board's Decision on Union's 2015-2020 DSM Plan.

The EC concluded that no changes to Union's 2016 results related to program eligibility, scorecard metrics or their calculation were necessary.

ENBRIDGE RESPONSE to O5A and O5B: These recommendations were not specifically directed to Enbridge but rather for future evaluation consideration however, Enbridge concurs that clear and documented consensus amongst the EAC and EC regarding the sources to be utilized is appropriate.

Enbridge adheres to the glossary of terms developed as part of the Board approved TRM filed in EB-2016-0245 in December 2016 and supports its use in the evaluation effort. Scorecard metrics and their calculation are as defined in the Board's Decision on Enbridge's 2015-2020 DSM Plan in EB-2015-0049.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

O6. Finding: 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.

Recommendation A: Documentation for each required element and stage for non-savings metrics should be recorded. The majority of these elements for future years have been identified in this evaluation, in the scorecard and program-relevant appendix sections.

Outcome: Reduced burden on utility staff and reduced evaluation costs.

UNION RATE ZONES RESPONSE: Union collects documentation sufficient to support savings calculations, program eligibility and the calculation of its scorecard metrics. The EC concluded that no changes to Union's 2016 non-savings metrics were necessary.

ENBRIDGE RESPONSE: Enbridge believes it collects documentation sufficient to support results for non-savings metrics. Ultimately, upon review and with clarification from Enbridge regarding eligibility, the EC concluded no changes to Enbridge's non-savings metrics were warranted.

STATUS UPDATE: The original utility responses have addressed the recommendation. Enbridge Gas works with the EC to provide requested documentation and additional follow-up material where available. The EC's 2017 verification report confirms sufficient documentation was provided in 2017

to demonstrate participants have moved into Step 4 of the Run it Right program: “Enbridge provided an EMIS file that listed the starting date for monitoring of all 29 sites after project implementation, satisfying the fourth step identified in Figure 6-8.”⁴

1.2 Whole home simulation modeling

Table 2 Whole Home Simulation Modeling - summary of recommendations⁵

#	Finding	Recommendation	Recommended in 2015	Applies to			Primary Outcome		
				Union	Enbridge	Evaluation	Reduce Costs	Improve Accuracy	Decrease Risk
SM1	Both utilities use building simulation modeling to estimate energy savings	A: Provide both simulation file (HSE) and output file (TSV) to the evaluation team for every project.	✓		✓		✓		✓
SM2	Both utilities collect and deliver <i>some</i> photographs to support retrofit site improvements.	A: Provide more explicit support for major measure installations.	✓	✓	✓				✓
SM3	There were some inaccurate savings entries.	A: Consider reviewing and modifying program processes to avoid data entry or outdated simulation result errors.		✓			✓		✓
		B: Provide more explicit support for major measure installations.	✓	✓	✓		✓		✓
SM4	Air sealing as a savings measure is present in a high percentage of single-family home retro-fit projects.	A: Evaluation: distribute before and after equivalent leakage area and energy savings attributable to reduced air leakage (if possible).				✓		✓	✓

⁴ 2017 Natural Gas Demand-Side Management Annual Verification report. March 13, 2020. Pg 172.

⁵ 2016 Natural Gas DSM Annual Verification Report Table 57

#	Finding	Recommendation	Recommended in 2015	Applies to			Primary Outcome		
				Union	Enbridge	Evaluation	Reduce Costs	Improve Accuracy	Decrease Risk
SM5	The energy savings from the home retrofit programs rely exclusively on the simulations provided by the delivery agents.	A: Consider funding a study to verify the models produced by the utility agents.	✓			✓		✓	

SM1. Finding: Both utilities use building simulation modeling to estimate energy savings for their home retrofit programs, including Home Energy Conservation, Home Reno Rebate, Winterproofing, and the Home Weatherization Program. HOT2000 is the most common program used for those simulations, which is a program developed and released by NRCAN for certified energy advisors. Because of the restrictions on the program, the evaluator could not consistently run the simulation files and produce the same result reported by the program. While Union provided TSV files for all sampled locations, Enbridge did not.

Recommendation A: Provide the building simulation file (HSE), the program output file (TSV), and full supporting documentation for all claimed project measures for every sampled project.

Outcome: Reduced burden on utility staff and reduced evaluation costs.

UNION RATE ZONES RESPONSE: This recommendation is not directed to Union.

ENBRIDGE RESPONSE: Enbridge believes that the EC has made this finding in error. In the case of the Residential Home Energy Conservation offer, all program output files were provided to the EC along with the HSE building simulation file and full supporting documentation for all requested projects included in the EC's verification sample. A TSV can only be generated where the EnerGuide mode of NRCAN's HOT2000 software is used.

As permitted in the Home Weatherization offer, not all projects include building simulation models completed in the EnerGuide Rating application mode of HOT2000. In scenarios where the building simulation model ("HSE") for the project was completed in "general" mode, the software does not provide for the generation of a TSV program output file. In these cases, to be of assistance, Enbridge proactively provided the EC with a PDF document clearly illustrating the values in the HSE

file referenced to support the calculation of the project energy savings. This PDF document provided an explanation on how the building simulation was utilized to confirm the gas savings claimed and included a breakout of the gas savings calculations accompanied with screenshots from the building simulation file to verify the data used in the calculations

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

SM2. Finding: Both utilities collect and deliver some photographs to support many of the changes made at a home retrofit site as well as additional documentation for installed equipment and performed measures. However, the evaluator could not consistently confirm the number or type of major measures installed based on the photographs or other documentation provided.

Recommendation A: Consider providing more explicit support for each measure to eliminate uncertainty around project savings and participation. Full project documentation (pre/post photos, documentation of all installations or actions such as invoices and/or photos of each measure, data collection reports, pre-and post blower door tests for all sites) to the evaluation team. By delivering all documentation, the evaluation team would not have to follow up with the utility to obtain output for models that could not be run but could still verify the output for models that can be run.

Outcome: Greater certainty around scorecard achievements.

UNION RATE ZONES RESPONSE: Union endeavours to provide all available supporting information collected on behalf of the offering to the EC as requested. The type of supporting information gathered is consistent with what Natural Resources Canada ("NRCan") requires Certified Energy Advisors ("CEA") to collect for use of HOT2000 software. Building simulation files (HSE) and program output files (TSV) are also provided.

In certain cases, confirming measures after they have been installed is difficult. For example, upgraded wall insulation is sometimes covered up by drywall, paint or other material making a post-installation photo impossible. In such scenarios an invoice confirms that work was complete and is further supported by the post-retrofit energy audit results.

Union will continue to work with the EC to ensure that it has all information available to facilitate the confirmation of measures installed in a home undergoing verification.

ENBRIDGE RESPONSE: Enbridge consistently works to provide all available supporting information (e.g., documents/photos/invoices) collected by agents in delivering the offering to the EC upon request. The supporting information gathered for the Whole Home offers is consistent with

what Natural Resources Canada (“NRCan”) requires be collected for use of HOT2000 software. Building simulation (“HSE”) files as well as project data output files (“TSV”) are also provided, where available.

Of note, in some projects, confirming measures after they have been installed can be challenging. By way of example, wall insulation once completed is covered up by drywall, making a post-installation photo difficult however, an invoice confirms that work was complete.

Enbridge will continue to strive to provide all available information to facilitate the confirmation of measures installed in a project subject to review.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

SM3. Finding: The evaluator identified a number of inaccurate savings entries due to data entry errors or outdated Union home retrofit simulation results. Many of these errors could be avoided through changes in program processes.

Recommendation A: Consider reviewing and modifying program processes to avoid similar errors in the future.

Recommendation B: Consider providing more explicit support for each measure to eliminate uncertainty around project savings and participation. Full project documentation (pre/post photos, documentation of all installations or actions such as invoices and/or photos of each measure, data collection reports, pre-and post blower door tests for all sites) to the evaluation team. By delivering all documentation, the evaluation team would not have to follow up with the utility to obtain output for models that could not be run but could still verify the output for models that can be run.

Outcome: Reduced burden on utility staff and reduced evaluation costs.

UNION RATE ZONES RESPONSE: Union's program delivery model has energy advisors run HOT2000 in accordance with the requirements of NRCan's protocols, which form the basis of Union's residential program. Energy Advisors are independent consultants and are not under contract with Union.

Union operates under a culture of continuous improvement. Since 2015, efforts have been made to improve upon the process it uses to collect data from its Energy Advisors. Union will continue with similar efforts going forward.

ENBRIDGE RESPONSE: This finding/recommendation [SM3a] was not directed to Enbridge. See

response to SM2 [for response to SM3b].

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

SM4. Finding: Air sealing as a savings measure is present in a high percentage of single-family home retro-fit projects, over 90% of projects in some programs. With such a high percentage of projects relying on a single measure, it is more important to ensure the savings validity of that measure.

Recommendation A: If possible, the evaluation team should evaluate the before and after leakage area and attributable energy savings.

Outcome: Greater certainty around savings estimates.

UNION RATE ZONES RESPONSE: This recommendation was not directed to Union.

ENBRIDGE RESPONSE: This recommendation was not directed to Enbridge.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

SM5. Finding: The energy savings from the home retrofit programs rely exclusively on the simulations provided by the delivery agents. Those simulations likely rely on a number of assumptions or standard modeling practices which may or may not follow industry standards. A detailed review of the models was outside the scope of the annual audit.

Recommendation A: Consider funding a study to verify the models produced by the utility agents to ensure they conform to standard industry practice.

Outcome: Greater certainty around savings estimates.

UNION RATE ZONES RESPONSE: While this recommendation was not directed at Union, Union would like to clarify that the Home Reno Rebate offering was developed using NRCan's protocols, including CEAs, and has been approved by the Board. The energy advisors complete training to achieve their certification from NRCan, and are trained to simulate home energy usage using NRCan's HOT2000 modeling software. This certification trains advisors to use NRCan industry standard inputs and modeling practices. Simulation results are then provided to NRCan and are subject to NRCan's QA procedure.

Union considers having Energy Advisors use NRCan standard inputs and modeling practices

appropriate to ensure that industry standard practices are followed.

ENBRIDGE RESPONSE: While this recommendation was not directed to Enbridge, it should be clarified that the agents supporting the home retrofit offer are expected to follow NRCan protocols. These agents complete training to achieve their certification from NRCan, and are trained to simulate home energy usage using NRCan's HOT2000 modeling software. This certification requires advisors to use NRCan industry standard inputs and modeling practices. In practice, home energy modelling simulation files are submitted to NRCan and are subject to NRCan's QA procedures.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

SM6. Finding: Site-level documentation confirmed that an auditor was involved, it does not signal that the auditor was an approved Certified Energy Evaluator.

Recommendation A: Tracking certifications for all energy evaluators and/or auditors submitting records.

Outcome: Ensuring proper credentials for all auditors decreases risk to program.

UNION RATE ZONES RESPONSE: This recommendation was not directed to Union.

ENBRIDGE RESPONSE: This recommendation was not directed to Enbridge.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

SM7. Finding: Number of projects for residential retrofit programs was very large.

Recommendation A: Increase sample to include more project files in following verification cycles.

Outcome: Increased sample, along with improved documentation recommended earlier, increases the accuracy of savings estimates for the applicable programs.

UNION RATE ZONES RESPONSE: This recommendation was not directed to Union.

ENBRIDGE RESPONSE: This recommendation was not directed to Enbridge.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

Cost-effectiveness recommendations

Table 3 Cost-effectiveness - summary of recommendations⁶

#	Finding	Recommendation	Recommended in 2015	Applies to			Primary Outcome		
				Union	Enbridge	Evaluation	Reduce Costs	Improve Accuracy	Decrease Risk
CE1	All overhead is still applied at the sector level rather than the program level.	A: Allocate "sector"-level administrative cost and overhead to each individual program	✓	✓	✓			✓	✓
CE2	Water avoided costs are still based on water rates.	A: Explore the possibility of better defining water costs	✓			✓		✓	✓
CE3	The utilities used different discount rates.	A: Use a consistent real discount rate of 4% when using real streams of benefits and costs.	✓	✓	✓		✓		✓
CE4	EUL is inconsistently applied for accelerated projects.	A: Include separate fields in the tracking data to explicitly communicate accelerated, annual and cumulative savings.			✓			✓	
CE5	A reduction factor accounting for removals and non-installs was applied to savings and resource costs.	A: Do not adjust resource costs if the costs are still incurred by the program, even if the equipment is removed.			✓			✓	

CE1. Finding: In 2015, the EC recommended that "sector"-level administrative costs and overhead be allocated to each individual program and the utilities report program-level cost-effectiveness

⁶ 2016 Natural Gas DSM Annual Verification Report Table 58

results. In 2016, there are still inconsistencies in how administrative and overhead costs are allocated. For example, Union identifies administration and evaluation costs at the scorecard level whereas Enbridge details spending as direct and indirect at the OEB-defined program level and then has an explicit 'overhead' spend at the scorecard level. To facilitate the analysis, the EC recommends that the utilities report spending in a consistent format and apportion the overhead costs to individual programs.

Recommendation A: Allocate "sector"-level administrative cost and overhead to each individual program and report program-level cost-effectiveness results. Explicit allocation of general administration and evaluation costs will allow for easier cost-effectiveness calculations at the program level.

UNION RATE ZONES RESPONSE: Union disagrees with this recommendation in terms of the definition of a program and the allocation requirements of the guidelines. Union does not allocate administration and evaluation costs at the scorecard or "sector" level. Union allocates these costs at the program level, where programs are defined as Residential, Commercial Industrial, Low-Income, Large Volume, Market Transformation and Performance-based as per Union's 2015-2020 DSM Plan.

The EC's reference to "programs" actually refers to "offerings" within these programs. One example of an offering is the CI Prescriptive offering within the Commercial Industrial program. Union will continue reporting its costs on a program-level basis consistent with the programs as defined within its 2015-2020 DSM Plan.

ENBRIDGE RESPONSE: As outlined in Enbridge's 2015-2020 DSM Plan (EB-20150049), where possible, Enbridge allocates these costs at the program level – i.e. Resource Acquisition, Low Income and Market Transformation. In some instances, as acknowledged in the Board's framework where this is not possible, administration and overhead costs may be reflected at the portfolio level.

STATUS UPDATE: The original utility responses have addressed the recommendation. Enbridge Gas believes that the way it categorizes costs is consistent with determining cost-effectiveness at the appropriate levels (i.e. program and portfolio levels, as per the OEB's direction). Any fundamental change in the way costs are allocated for the purpose of determining cost-effectiveness should occur as part of the next DSM Framework.

CE2. Finding: Water avoided costs are still based on water rates. The utilities followed the EC's 2015 approach and reduced the water avoided costs by 75% to simulate the removal of the fixed-cost portion of the rate. As is the case for gas and electricity, water avoided costs should only include the marginal impact from reduced consumption. Fixed costs (which, in our experience, can represent about 75% to 80% of water costs) must be excluded. On the other hand, water rates are

often predominantly or exclusively variable, notably to promote conservation, and are thus a bad proxy of avoided costs.

Recommendation A: Explore the possibility of better defining water avoided costs.

Outcome: Better defined water avoided costs will result in more accurate cost effectiveness values, reducing the risk of less accurate values.

UNION RATE ZONES RESPONSE: This recommendation was not directed to Union. For clarity, Union agrees with the EC that water avoided costs should only include the marginal variable impact from reduced consumption. As part of the 2015 audit, the EC recommended a 75% reduction to Union's avoided water costs (which are based on average water retail costs across its service territory) as a means to better estimate avoided water costs. Union continued to use the EC's approach for 2016.

ENBRIDGE RESPONSE: This recommendation was not directed to Enbridge however, Enbridge concurs with the EC that water avoided costs should only include the marginal variable impact from reduced consumption. In the 2015 verification, the EC recommended a 75% reduction to avoided water costs (which are based on average retail water costs across Enbridge's service territory) as a means to better estimate avoided water costs. Enbridge repeated this approach in 2016.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required. Enbridge Gas submits that Avoided Costs should be reviewed in more detail for the next DSM Framework.

CE3. Finding: While the discount rate appears to be aligned there was a methodological inconsistency between utilities. Union calculated their discount rate using 4% as their real discount rate and an inflation rate of 1.68% to get a combined discount rate of 5.7472%. Enbridge did not show how their discount rate was calculated and simply applied a discount rate of 5.75%.

Recommendation A: Both utilities should use identical discount rates.

UNION RATE ZONES RESPONSE: Union converts the real 4% discount rate recommended by the Board into a nominal discount rate using the formula provided by the EC in its 2015 verification findings. To do so, Union used an inflation rate of 1.68%, which is the inflation rate used for 2016 in Union's 2015-2020 plan.

Without a specific recommended approach for the utilities to use, Union is unclear as to what approach the EC is recommending and will therefore continue to use its current practice.

ENBRIDGE RESPONSE: Enbridge followed the EC's recommendation from the 2015 verification and calculated the discount rate using 4% as the real discount rate with an inflation rate of 1.68%. In the same way the EC applied the calculation in 2015, Enbridge simply rounded the combined discount rate to 2 significant digits consistent with most other values utilized by the EC.

STATUS UPDATE: Starting with the 2019 program year, both utilities are using identical discount rates.

CE4. Finding: EUL and cumulative gross savings were not provided in a consistent manner in the Enbridge program tracking database extract. The EUL inconsistency is the result of a work-around for advanced (Accelerated) projects used by Enbridge to report accurate dual baseline savings estimates and first year savings. Communicating the work-around consistently with the evaluation team led to some rework.

Recommendation A: Include separate fields in the program tracking database for EUL, RUL, gross first year annual savings, gross post-RUL annual savings, NTG, gross cumulative savings, net cumulative savings, and net first year savings.

Outcome: Improved data integrity results in less evaluation risk and more accurate savings totals. Proving each of the key savings types and their components allows evaluation to confirm that the savings provided are internally consistent.

UNION RATE ZONES RESPONSE: This recommendation was not directed to Union.

ENBRIDGE RESPONSE: Enbridge will explore how to more clearly and consistently capture and provide details for accelerated projects in the future.

STATUS UPDATE: Enbridge Gas provides the EC with all requested data broken out into specific fields as requested, including those noted in this recommendation with the exception of RUL data. Enbridge Gas is exploring how to provide this information for the 2019 audit for the EGD Rate Zone.

CE5. Finding: Enbridge applied a reduction factor to both the resource savings and costs for some measures to account for the percent of non-installs and removals. The adjustment factor is correctly applied to the savings; however, it should not be applied to the costs as costs are still incurred.

Recommendation A: Do not adjust resource costs to account for non-installations or removals.

Outcome: A more accurate representation of the costs incurred by the program.

UNION RATE ZONES RESPONSE: This recommendation was not directed to Union.

ENBRIDGE RESPONSE: Enbridge concurs with the EC's recommendation. Enbridge acknowledges there were very few instances, with very minor impacts, where a reduction factor applied to savings was also incorrectly applied to costs for showerhead and faucet prescriptive measures. Enbridge will work to correct this moving forward.

STATUS UPDATE: The EGD Rate Zone has corrected this starting with the 2017 program year.

2. CPSV recommendations

This section is broken into four sub-categories:

1. Energy savings and program performance
2. Verification process
3. Documentation and support
4. Data management

2.1 Energy savings and program performance

Table 4 Energy savings and program performance - summary of recommendations⁷

#	Energy Savings and Program Performance		Applies to			Primary Beneficial Outcome			
	Finding	Recommendation	Union	Enbridge	Evaluation	Reduce Costs	Increase	Increase Customer	Decrease
1	Both utilities exhibit a strong commitment to accurate energy savings estimate	The utilities should continue in their commitment to accuracy.	✓	✓				✓	✓
2	The CPSV effort found realization rates near 100% and identified adjustments for most projects.	Continue performing custom savings verification on a regular basis.			✓				✓
3	Relative precision targets were met or surpassed for all programs	Use error ratio assumptions from the results provided in this report in future evaluation years, but with more			✓	✓			✓

⁷ 2016 Natural Gas DSM Annual Verification Report Table 59

#	Energy Savings and Program Performance		Applies to			Primary Beneficial Outcome			
	Finding	Recommendation	Union	Enbridge	Evaluation	Reduce Costs	Increase	Increase Customer	Decrease
		conservative bounding than performed this year.							
4	Some measures have difficult-to-define baseline technologies.	Establish a policy to define rules around energy savings calculation for fuel switching and district heating/cooling measures.	✓	✓	✓				✓
5	Review of documentation for gross evaluation showed that several projects were high free rider risks.	Review projects with large incentives for free ridership risk. Develop clear program rules that allow the utility to reject free rider projects.	✓	✓			✓		✓
6	Influence adjustments were made to projects that adjusted the gross savings for "net" or program influence reasons.	Increase transparency of "influence adjustments" and do not include in gross savings	✓				✓	✓	✓
7	There is not a clear policy to determine "standard" baselines.	Establish a clear policy to determine and define "standard" baselines	✓	✓	✓	✓			✓
8	Some measures in each utility program are routine maintenance or periodic repairs that are considered standard care in other jurisdictions.	Establish a clear policy regarding eligibility of maintenance and repair measures for the programs.	✓	✓	✓	✓			✓
9	The programs did not consistently account for	Add an interactivity check to the programs' internal QC process for savings estimates.	✓	✓	✓	✓			✓

#	Energy Savings and Program Performance		Applies to			Primary Beneficial Outcome			
	Finding	Recommendation	Union	Enbridge	Evaluation	Reduce Costs	Increase	Increase Customer	Decrease
	interactivity among measures.								

ES1. Finding: Both utilities exhibit a strong commitment to accurate energy savings estimates. Both utilities have made significant investments in developing calculation tools which model savings accurately. For example, Union's dock door seal calculator is well considered and designed, and Enbridge's Etools calculator is very thorough in attempting to model savings for key measures.

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.

Recommendation: The utilities should continue in their commitment to accuracy.

Outcome: Accurate energy savings.

UNION RATE ZONES RESPONSE: Union is committed to being a high performing organization dedicated to continuous improvement mechanisms in all aspects of its work. Union appreciates the recognition that our engineers are knowledgeable subject matter experts.

ENBRIDGE RESPONSE: Enbridge intends to continue to strive for accurate savings calculation estimates in line with the Company's dedication to continuous improvement in its DSM program efforts. Enbridge has been a leader in refining savings calculations for many technologies and are recognized as subject matter experts in many areas throughout the industry. Enbridge will continue to look for opportunities to improve approaches and calculation tools with consideration for new information and learnings.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

ES2. Finding: The CPSV effort this year found realization rates near 100% and identified adjustments for most projects. Across the programs a near equal number of adjustments increased and decreased savings and one third of projects had a large adjustment (verified savings more than 20% different from tracked).

Recommendation: Continue performing custom savings verification on a regular basis. Even a study that results in an adjustment of near 100% is still valuable because the programs know that their savings estimates will be reviewed. Knowing a review will be conducted improves the quality of ex ante estimates. The review itself also results in information that improves future program savings estimates.

Outcome: Accurate energy savings.

UNION RATE ZONES RESPONSE: This recommendation was not directed to Union. For clarity, Union agrees that performing custom savings verification on a regular basis is a worthwhile exercise. It might also be worthwhile to explore the frequency with which custom project savings verification is conducted. Alternative options, such as using a proxy value one year based on a previous study, or verifying multiple years of program participants at one time might have gains in efficiency while maintaining a fulsome review of program results. Verification should consider both the relative materiality of potential outcomes versus the cost and resource burden to the EAC and customers.

Union also notes that the EC Final CPSV report states that both utilities generally produced solid ex ante engineering estimates of savings that are not systematically biased and that much of the variation in gross realization rates is driven by changes in operating conditions that are often difficult to anticipate in ex ante savings estimation. With an average of two years between when a project's energy savings were first estimated and then verified, changes in operating conditions can lead to large adjustments.

ENBRIDGE RESPONSE: This recommendation was not directed to Enbridge however, Enbridge generally concurs that completing custom savings project verification on a regular basis is useful. As discussed at the EAC recently, the committee has considered the frequency of undertaking CPSV. For example, a review which spans multiple years may be more efficient while still maintaining an appropriate scope in terms of the breadth of project results reviewed. Further, in accordance with the EC's recommendation for Low Income in 2016, multiple years of consistent and solid verification results merit consideration for the application of a weighted realization rate based

on prior years' findings.

It should be noted that the EC reported that the utilities generally produced solid ex ante engineering estimates of savings that were not systematically biased. The EC further noted that much of the CPSV adjustment variation in gross realization rates was due to changes in operating conditions observed at the time of verification. It is broadly acknowledged that such conditions are often difficult to anticipate in ex ante savings estimation. This reality was exacerbated in the 2016 effort given that these verifications were being completed often 2 years or more after the project was completed. In these cases, changes in operating conditions can lead to larger adjustments.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

ES3. Finding: Relative precision targets were met or surpassed for all programs. The sample design incorporated the previous year's error ratios (ERs) and averaged them with the assumption used in 2015. ERs were further bounded (minimum ER was 0.25, maximum 0.60) to limit the risk of over- or under- collecting data. There was one segment (Union Commercial) where precision was not as good as expected.

Recommendation: The process used to develop error ratios assumptions from the results provided in this report should be continued in future evaluation years, possibly with more conservative bounding (potentially increasing the maximum ER) to avoid under-collection of data for any segments.

Outcome: Realistic estimates of error ratios result in an appropriate amount of data collected to meet targets.

UNION RATE ZONES RESPONSE: This recommendation was not directed to Union. For clarity, Union highlights the importance of maintaining a balance between ensuring study results meet a suitable threshold of statistical significance and ensuring that customers are not overly burdened by over sampling. The level of sampling in 2016 met this balance and was more reasonable than the level of over sampling experienced in 2015.

ENBRIDGE RESPONSE: This recommendation was not directed to Enbridge however, it is important to highlight the prudence of maintaining balance between ensuring results meet a suitable threshold of statistical significance while also ensuring customers are not overly burdened by excessive and repeated sampling. Enbridge is of the view that the sampling in 2016 more reasonably met this balance than in the 2015 effort.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

ES4. Finding: Some measures (e.g., geothermal heat pumps, combined heat and power, and those that save district heating energy) have difficult-to-define baseline technologies. Multiple different baselines are possible for these projects depending on how one looks at the scope of the project: how non-gas energy changes and offsite gas use are considered in savings estimates are two of the challenging aspects.

Recommendation: Consider establishing a policy to define rules around energy savings calculations and baselines for fuel switching and district heating/cooling measures.

Outcome: Less risk of adjustment and a better alignment between province energy efficiency goals and program implementation.

UNION RATE ZONES RESPONSE: Union continues to adhere to DSM policies and guiding principles as defined in the 2015-2020 DSM Framework and Guidelines and as outlined in its approved 2015-2020 DSM Plan.

ENBRIDGE RESPONSE: Enbridge is expected to adhere to DSM policies and guiding principles as defined by the Board in the 2015-2020 DSM Framework and Guidelines.

STATUS UPDATE: Enbridge Gas continues to adhere to DSM policies and guiding principles as defined in the 2015-2020 DSM Framework and Guidelines and as outlined in the utilities' approved 2015-2020 DSM Plans. This includes offering incentives to projects that reduce natural gas consumption, whenever calculating the gas savings can be done in a feasible manner. Additional discussion about changes to these policies or approaches are better suited for the development of the next DSM Framework.

ES5. Finding: Through the gross verification process, we reviewed project documentation and had conversations with customers about their installed measures. While the focus of this report is not on net savings, we did observe a handful of projects (out of the 122 evaluated) that appeared to be clearly at high risk for free ridership. These projects included maintenance type measures, projects that were far along in planning prior to utility involvement, projects with very short paybacks, and projects that included significant non-energy benefits.

Recommendation: Review projects with large incentives for free ridership risk. Develop clear program rules that allow the utility to reject free rider projects.

Outcome: Increased savings, reduced risk of free ridership, more efficient use of program funds.

UNION RATE ZONES RESPONSE: Union is committed to reducing free ridership in its CI Custom program and has made a number of changes, as outlined in its DSM Mid-Term Submission (EB-2017-0127) with this objective in mind. Receiving feedback from the EC is a critical part of the process improvement cycle, and the current EM&V lag time has hindered Union's ability to respond to any lessons stemming from it. It would also be helpful if the EC provided specific project examples as opposed to general comments.

ENBRIDGE RESPONSE: To the extent possible, Enbridge is committed to reducing free ridership in its Commercial/Industrial Custom offers and has taken a number of steps, as outlined in its DSM Mid-Term Submission (EB-2017-0127) with this objective in mind. Receiving feedback from the EC is an important component of the continuous improvement cycle. The delay in the current EM&V process has hindered the utility's' ability to respond to learnings year to year. It would be helpful if the EC provided specific project examples rather than general comments.

STATUS UPDATE: The original utility responses have addressed the recommendation. Also, Enbridge is in the early stages of a process evaluation for its Custom Commercial offering in 2020

ES6. Finding: Union made influence adjustments to projects that adjusted the gross savings for "net" or program influence reasons. Accounting of which projects had these adjustments was not maintained by Union and the adjustments were included in different places in project calculation workbooks, making their identification and validation challenging. In addition, the program NTG was also applied to these projects, effectively double discounting savings in scorecards.

Recommendation: If Union chooses to continue making influence adjustments to the savings upon which it calculates savings, it should make these adjustments more transparent and exclude them from the reported gross savings for the program in scorecards. Instead the specific project influence adjustment should be included in the scorecard in place of the general program or domain level NTG factor.

Outcome: Reduced risk of double adjustments.

UNION RATE ZONES RESPONSE: As an outcome of previous audits, Union began applying influence adjustments in 2015 to certain maintenance-related projects (largely steam leak and steam trap repair projects). Union applied the factor so that its claim accounted only for savings it had influenced that are incremental to a customer's standard maintenance practice. However, Union does agree with the EC that applying an influence adjustment in addition to a NTG factor effectively double discounts savings. Eleven projects had influence adjustment factors in 2016 and these were

suitably addressed by the EC during verification.

ENBRIDGE RESPONSE: This recommendation is not directed to Enbridge.

STATUS UPDATE: The Union Rate Zones no longer applies influence adjustments starting with the 2017 program year.

ES7. Finding: There is not a clear policy to determine what standard to use for replace on burnout or new construction baselines. The 2016 verification used a code or minimum available baseline where required, in alignment with the 2015 net-to-gross study. Without a clear policy there is uncertainty for all stakeholders as to what the appropriate baseline should be. This uncertainty affects all aspects of the programs, including what measures are offered, what incentives are paid and how measures are evaluated.

Recommendation: Establish a clear policy to determine and define baseline standards where an “industry standard” baseline would be applicable.

Outcome: Consistency of approach across utilities, evaluators and studies will reduce risk of adjustment and evaluation cost.

UNION RATE ZONES RESPONSE: Union adheres to DSM policies and guiding principles as defined by the Board in the 2015-2020 DSM Framework and Guidelines. In the case of new construction, in line with standard practice in other jurisdictions, code requirements are generally used for baseline consideration. In replace on burnout scenarios for a given technology, where there exists a supported, evidenced-based report to inform an industry standard practice, Union would apply this standard as the appropriate baseline. In the absence of an industry standard, Union attempts to seek an external data source to support a reasonable approach or consider site-specific information to inform the baseline.

ENBRIDGE RESPONSE: Enbridge adheres to DSM policies and guiding principles as defined by the Board in the 2015-2020 DSM Framework and Guidelines. In the case of new construction, in line with standard practice in other jurisdictions, code requirements are generally used for baseline consideration. In replace on burnout scenarios, for a given technology, where there exists a supported, evidenced based report to inform an industry standard practice, the utility would apply this standard as the appropriate baseline. In the absence of a supported industry standard, Enbridge attempts to seek an external data source to inform a reasonable approach or consider site-specific information to inform the baseline.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is

required.

ES8. Finding: Some measures in each utility program are routine maintenance or periodic repairs that are considered standard care in other jurisdictions.

Recommendation: Establish a clear policy regarding eligibility of maintenance and repair measures for the programs.

Outcome: Reduced free ridership risk.

UNION RATE ZONES RESPONSE: Union continues to adhere to DSM policies and guiding principles as defined in the 2015-2020 DSM Framework and Guidelines, and as outlined in its approved 2015-2020 DSM Plan. Union notes that for at least some of these projects, Union incents an acceleration of maintenance or repairs and Union claims a measure life for only the accelerated portion.

ENBRIDGE RESPONSE: Enbridge is expected to adhere to DSM policies and guiding principles as defined in the 2015-2020 DSM Framework and Guidelines. It should be noted however, that as an internal policy Enbridge does not support routine maintenance projects in the Commercial/Industrial custom offer.

STATUS UPDATE: Understanding industry practices that would have occurred without DSM programs, and not incenting such projects, is a key part of Enbridge's approach to minimizing free-ridership. Enbridge continues to learn from the market and evolves program rules as needed. Net-to-gross evaluation will determine Enbridge's success at influencing projects. Ultimately, Enbridge is committed to minimizing free-ridership and will continue to make best efforts to do so.

ES9. Finding: The programs did not consistently account for interactivity among measures. In several cases, we saw an overestimation of the combined boiler efficiency improvement yielded by the addition of linkageless controls and condensate heat recovery measures and an overestimation of savings for subsequent measures that interact with earlier measures within the same program year.

Recommendation: Add an interactivity check to the programs' internal QC process for savings estimates.

Outcome: More accurate savings estimates and a reduced evaluation risk.

UNION RATE ZONES RESPONSE: Union agrees that interactivity should be accounted for when estimating savings for custom projects. Union now more clearly confirms that interactive projects are suitably accounted for. This is done in part by way of questions posed in an updated basecase

form that accompanies each custom project. It is worth noting that this change resulted from Union's internal continuous improvement processes and did not result from the 2016 EM&V process.

ENBRIDGE RESPONSE: Enbridge agrees that interactivity should be accounted for when estimating savings for custom projects and makes an effort to account for interactivity across multiple projects. Enbridge intends to review its process further to examine how it might improve reviews with consideration for interactivity.

STATUS UPDATE: The original utility responses have addressed the recommendation. Enbridge Gas confirms that interactive projects are now more suitably accounted for.

2.2 Verification processes

Table 5 Verification process recommendations⁸

#	Verification Process		Applies to			Primary Outcome			
	Finding	Recommendation	Union	Enbridge	Evaluation	Reduce Costs	Increase	Increase Customer	Decrease
10	DNV GL was unable to obtain access to all the equipment at all the sites selected for verification.	Modify contracts to require participants to agree to comply with EM&V as part of the requirements for participation in the program.	✓	✓		✓			✓
11	Future evaluations should consider large HVAC to be high rigour rather than standard rigour.	Consider large HVAC measures for higher rigour verification.			✓				✓

VF 10. Finding: DNV GL was unable to obtain access to all the equipment at all the sites selected for verification. Both Enbridge and Union have several large projects with industrial companies, including food processing, refineries, and other industries. In many cases, the customer refused to provide SCADA (Supervisory Control and Data Acquisition) system data or similar trend data to

⁸ 2016 Natural Gas DSM Annual Verification Report Table 60

allow a reasonable verification of the project. This means we were unable to do more than a reasonableness check on the savings.

A review of the Enbridge contract shows that the customer is not required to provide the information that is necessary for EM&V. The most relevant sections are:

- Item 6: Payment of the Incentive Payment is subject to the completion of a satisfactory site inspection of the improvements, including the installed equipment by an authorized representative of Enbridge.
- Item 9: Upon request within eighteen months of the commissioning date of the Project, and with reasonable notice, the Customer agrees to provide authorized representatives of Enbridge with access to the Project, and with required information or data relating to the project for the purposes of the Application and these General Terms and Conditions.

Neither of these are sufficient for EM&V.

Recommendation: Modify contracts to require participants to agree to comply with EM&V as well as utility representatives as part of the requirements for participation in the program.

Outcome: Reduced evaluation costs and risks. Participant non-compliance requires evaluators to request documentation for a large backup sample, and to survey and/or visit additional sites to obtain sufficient data for the evaluation. The process of contacting a site and getting a refusal costs time and money, as does the substitution of an additional site to make up for the unobtained data. In some cases, there might not be additional sites to sample, in which case the evaluation estimates will have lower precision than they would with full compliance.

UNION RATE ZONES RESPONSE: Union encourages its customers to participate with verification activities. When Union still coordinated the verification process prior to 2015, Union did not find the need to include a requirement for EM&V into project participation. 100% of participants selected for verification agreed to participate and to a degree that satisfied the verifiers' ability to defend its findings. Union understands the verification participation rate in 2016 to be 62% for CI and 67% for Large Volume.

The 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. An average of two years has passed between projects implemented in 2016 and verification activities conducted in 2018. Due to

this time lag, it can be expected that some data may be overly burdensome for the customer to extract or might no longer be available at all.

ENBRIDGE RESPONSE: Enbridge encourages its customers to comply, cooperate and participate with all EM&V activities. At the same Enbridge recognizes it is important to be respectful that customers are busy running businesses and requests for customers' time should not be overly burdensome. Up until the 2015 verification, virtually 100% of sampled participants selected for verification have complied with verification related requests. In recent verification efforts, in some cases, Enbridge received feedback from customers that 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. In addition, the delay between project completion and third party evaluation may have discouraged customers from participating fully in the verification because the appropriate person that should respond was now not available. Notwithstanding the foregoing, Enbridge has strengthened language in the custom offer application to include specific wording as follows: "The Customer agrees to participate in any follow-ups surveys, studies, audits, evaluations or verifications conducted by Enbridge or its agents in connection with the Program. Enbridge reserves the right to independently verify the information in this Application."

STATUS UPDATE: The original utility responses have addressed the recommendation. Enbridge Gas also notes that the EC stated that the 2017/2018 CPSV participant response rate for both the Union Rate Zones and the EGD Rate Zone is consistent or slightly higher than what the EC has seen in comparable studies in North America.⁹

VF11. Finding: Large HVAC and HVAC controls projects proved more complex to evaluate than planned.

Recommendation: Future evaluations should consider large HVAC to be high rigour rather than standard rigour.

Outcome: Better alignment of rigour with uncertainty will improve accuracy of savings estimates and provide more cost-effective evaluation.

UNION RATE ZONES RESPONSE: This recommendation was not directed to Union.

ENBRIDGE RESPONSE: This recommendation is not directed to Enbridge.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is

⁹ 2017-2018 Natural Gas Demand Side Management Custom Savings Verification report. pg 36, 37 and 38.

required.

2.3 Documentation and support

Table 6. Documentation and support recommendations¹⁰

#	Documentation and Support		Applies to			Primary Outcome			
	Finding	Recommendation	Union	Enbridge	Evaluation	Reduce Costs	Increase Customer Satisfaction	Increase Customer Satisfaction	Decrease Risk
12	Incremental improvement in project documentation by both utilities was observed in the 2016 CPSV. Project documentation for some projects lacked sufficient details to allow evaluators to reproduce the calculations made by program staff or third-party vendors.	Take steps to improve documentation: • Implement an electronic tracking system that archives all materials • Include explicit sources for all inputs and assumptions in the project documentation. • Store background studies and information sources with the project files and make them available to evaluators. • Provide evaluators full access to customer data. • Provide pre- and post-installation photos, where available. • Document and provide internal M&V documents where available. • Institute a checklist as part of project closeout to ensure all relevant project documentation is assembled as ready for verification	✓	✓			✓		✓

¹⁰ 2016 Natural Gas DSM Annual Verification Report Table 61

#	Documentation and Support		Applies to			Primary Outcome			
	Finding	Recommendation	Union	Enbridge	Evaluation	Reduce Costs	Increase Customer Satisfaction	Increase Customer Satisfaction	Decrease Risk
13	Explanations of complex projects were not consistently clear making it hard to understand what process is producing energy savings.	Improve clarity and details of documentation explaining the source of energy savings for complex projects.	✓	✓					✓
14	Ex ante savings estimates based on annual energy consumption for industrial sites did not always include sufficient information documenting production.	Include site production totals in relevant years in the savings estimates based on annual energy consumption for industrial sites	✓	✓					✓
15	Enbridge Boilers use a 73% assumed thermal efficiency for in situ boilers that have been in place for more than 10 years.	Estimate boiler degradation from name plate efficiency to determine the baseline boiler efficiency rather than a flat number	✓	✓					✓
16	Pipe insulation is a significant source of savings for the Union Gas programs. Documentation for the source of factors used in calculations and of in situ conditions was not consistently provided.	Document baseline conditions of pipe insulation (and other measures) using photos and text descriptions to provide context. Explicitly tie the documentation of baseline condition to the heat loss rate used for the savings calculation.	✓	✓					✓

#	Documentation and Support		Applies to			Primary Outcome			
	Finding	Recommendation	Union	Enbridge	Evaluation	Reduce Costs	Increase Customer Satisfaction	Increase Customer Satisfaction	Decrease Risk
17	Enbridge documentation did not always include a prose explanation and supporting documentation for baseline types (ROB, ER) and remaining useful life (RUL).	Always complete the "Base Case Overview" in the form with a prose description of the base case. The description should reference included emails and photos to document in situ conditions and features that are carried over into the baseline system.		✓					✓
18	The utilities should use longer duration data in ex ante savings estimates when possible.	Use longer duration data in ex ante savings estimates. When time periods less than a year are used, documentation should be provided to indicate why the period used is applicable to a full year and why a full year was not able to be used.	✓	✓		✓			✓

#	Documentation and Support		Applies to			Primary Outcome			
	Finding	Recommendation	Union	Enbridge	Evaluation	Reduce Costs	Increase Customer Satisfaction	Increase Customer Satisfaction	Decrease Risk
19	In situ boiler name plate information, age and operating condition are all helpful for determinizing the designed performance and reasonable range of actual efficiency for the system as well as providing context to better determine remaining useful life (RUL)	Document in situ boiler name plate information, age and operating condition for all projects where boiler efficiency affects savings	✓	✓					✓
20	Items that may be obvious to the ex ante team can be non-obvious to an outside party.	Review ex ante documentation from an outside perspective to help identify gaps	✓	✓					✓
21	At large sites with multiple spaces containing similar equipment, ex ante documentation did not always identify which space or piece of equipment was affected by the project.	Include additional descriptions of spaces and equipment affected to differentiate among similar spaces and equipment at the site.	✓	✓					✓

#	Documentation and Support		Applies to			Primary Outcome			
	Finding	Recommendation	Union	Enbridge	Evaluation	Reduce Costs	Increase Customer Satisfaction	Increase Customer Satisfaction	Decrease Risk
22	Invoices were not always included with documentation, and sources for incremental costs were not always clear.	Ensure that incremental costs are supported by invoices or other documentation, especially for add-on and optimization measures where the total cost and incremental cost are likely to be the same.	✓	✓				✓	✓
23	Larger projects appeared to fall under the same documentation standards as smaller projects.	Increase the amount of documentation and source material for projects that have greater energy savings.	✓	✓					✓
24	Union's custom project summary workbook is a good approach to documentation. The workbook is not used in a consistent manner across all projects.	Consider providing more training or adding quality control steps to ensure the summary workbook front page is completed and stored in a consistent manner. Identify a common approach for common measures and, if necessary, document deviations and the reasons for the deviations in a clearly labelled field on the summary sheet.	✓			✓			✓

#	Documentation and Support		Applies to			Primary Outcome			
	Finding	Recommendation	Union	Enbridge	Evaluation	Reduce Costs	Increase Customer Satisfaction	Increase Customer Satisfaction	Decrease Risk
25	Enbridge Etools does not sufficiently document sources of inputs and assumptions.	Use a consistent summary workbook.		✓		✓			✓

DS12. Finding: Incremental improvement in project documentation by both utilities was observed in the 2016 CPSV. Project documentation for some projects lacked sufficient details to allow evaluators to reproduce the calculations made by program staff or third-party vendors. Specific issues included:

- Project data or details missing
- Insufficient measure-level details to fully describe what was installed
- Descriptions that were difficult to understand
- Use of black box tools
- Hardcoded information in calculation spreadsheets
- Undocumented assumptions
- Sources referenced but not included or available, such as feasibility studies and historical analysis of energy use that was left out of the project documentation
- Input adjustments that approximate other effects, but are not explained
- Insufficient access to customer data (by customers).
- Modelling files that could not be opened
- Adjustments to savings estimates for safety or influence that were not clearly marked, sourced, or carried out in a consistent fashion

Recommendation: Improve data quality. Possible steps include:

- Implement an electronic tracking system that archives all materials
- Include explicit sources for all inputs and assumptions in the project documentation.
- Store background studies and information sources with the project files and make them available to evaluators.
- Provide evaluators full access to customer data.

- Provide pre- and post-installation photos, where available.
- Document and provide internal M&V documents where available.
- Institute a checklist as part of project closeout to ensure all relevant project documentation is assembled as ready for verification

Outcome: Properly explaining and sourcing the savings calculation method and assumptions allows the evaluating engineer to more easily identify what needs to be verified. It also makes it easier to determine whether the methods and assumptions are reasonable and use ex ante assumptions rather than seek documented values elsewhere.

UNION RATE ZONES RESPONSE: Union is pleased to hear that incremental improvement in project documentation was observed in the 2016 CPSV. This speaks to Union's efforts to continually improve the comprehensiveness of custom project documentation even in the absence of any external auditor feedback, given the 2015 audit was not completed until the end of 2017. Union is committed to ensuring that full and detailed inputs and supporting evidence are clearly outlined for each project. It's important to note that all of Union's custom projects are reviewed by an internal QA/QC team of professional engineers. This QA/QC team attempts to apply the same scrutiny to projects as the EC. Nonetheless, Union will examine 2016 specific recommendations for consideration towards project documentation refinement.

ENBRIDGE RESPONSE: Enbridge is gratified to hear that incremental improvements in project documentation were observed in the 2016 CPSV. Enbridge is committed to improving custom project documentation as appropriate in an effort to ensure that detailed inputs and supporting evidence are clearly outlined for each project. Nonetheless, Enbridge will review these specific recommendations to investigate opportunities to improve project documentation quality and data quality moving forward.

STATUS UPDATE: The EC has noted incremental improvements in project documentation in the 2017 and 2018 verification processes (see 2017/2018 Annual Verification recommendation DS8).

All custom projects are reviewed by an internal QA/QC team of professional engineers. This QA/QC team attempts to apply the same scrutiny to projects as the EC. Two independent estimates of project savings and the type of documentation needed will not always align. In some cases, the verifier might request additional clarification documentation. In other cases, the utility's documentation might have additional information the verifier was not looking for. This speaks to the strength of the verification process; the verifier can request further documentation from the utility, the customer or a third party and regularly does so when needed.

As with any large-scale IT initiative, trade-offs exist between complexity, functionality, and resources/costs. Enbridge considers each EC finding and recommendation but not all can or should

be implemented. Enbridge Gas operates dozens of DSM offerings and initiatives, which rely on many internal groups and external organizations. Achieving a single-source storage for all required participation/eligibly information across all programs is challenging and most likely not efficient for program implementers.

As detailed in their respective 2015-2020 Multi-Year Plans, the utilities outlined the need for an improved DSM tracking and reporting system. The Board approved this request in its January 20th, 2016 Decision. This system was rolled out for the 2018 program year for the Union Rate Zones and for the 2019 program year for the EGD Rate Zone. These systems include many upgrades and make providing data simpler for annual savings evaluation and verification.

DS13. Finding: Explanations of complex projects were not consistently clear making it hard to understand what process is producing energy savings. This was seen with large HVAC control projects with MUAs, AHUs, heat recovery projects, and custom process projects, and others.

Recommendation: Improve the documentation/explanation of the source of energy savings for complex projects that are related to complex systems. Use figures, diagrams, and equations as needed, especially for cascading or multi-staged measures. Parameters such as the heating source, and the efficient case peak and off-peak period flowrates and schedules should be recorded and sourced. If there are additional units not included in the measure, these should be documented and considered in savings estimates (even if the effect is zero).

Outcome: Increased accuracy of savings estimates. Reduced evaluation risk.

UNION RATE ZONES RESPONSE: Union strives to ensure its project documentation captures all relevant information regardless of project complexity. This includes use of figures, diagrams, and equations as needed and an explanation of the source of energy savings.

Two independent estimates of project savings and the type of documentation needed will not always align. In some cases, the verifier might request additional clarification documentation. In other cases, Union's documentation might have additional information the verifier was not looking for. This speaks to the strength of the verification process; the verifier has the ability to request further documentation from the utility, the customer or a third party and regularly does so when needed.

Union will consider the recommendation for greater clarity on complex projects as part of its continuous improvement efforts.

ENBRIDGE RESPONSE: Irrespective of the complexity of projects, Enbridge engineers strive to

ensure project documentation reflects the relevant information to clearly describe each project. In some cases this may include supporting schematics, charts, calculations and equations to provide an explanation regarding the process producing energy savings. Enbridge will explore the recommendation for greater clarity on complex projects as part of its commitment to continuous improvement.

STATUS UPDATE: The original utility responses have addressed the recommendation. Enbridge Gas continues to strive for greater clarity on complex projects as part of its continuous improvement efforts.

DS14. Finding: Ex ante savings estimates based on annual energy consumption for industrial sites did not always include sufficient information documenting production. The change in energy use pre- and post- measure is sensitive to changes in production.

Recommendation: Savings estimates based on annual energy consumption for industrial sites should include information from the site on amount of production in the years used. It's not enough to say "not much is changed, they run 24/7". If detailed production data are not available, the utilities should get percentage differences year to year (e.g.: if year 1=100%; is year 2 exactly the same, or is it 95% or 110% of production the previous year).

Outcome: Documenting production changes and using them in savings estimates will improve accuracy and reduce evaluation risk.

UNION RATE ZONES RESPONSE: Union changes its approach to calculating natural gas savings based on what's driving the savings. When production changes impact natural gas savings, Union includes pre and post production data. If savings are being driven by base load, weather/space heating or other factors, production data may or may not be included.

ENBRIDGE RESPONSE: For projects moving forward, Enbridge will explore clarifying how it documents changes in production for industrial project savings based on annual energy consumption.

STATUS UPDATE: The EGD Rate Zone has adopted Union's approach to calculating natural gas savings based on what's driving the savings. When production changes impact natural gas savings, Enbridge Gas includes pre and post-production data. If savings are being driven by base load, weather/space heating or other factors, production data may or may not be included.

DS15. Finding: Enbridge Boilers use a 73% assumed thermal efficiency for in situ boilers that have been in place for more than 10 years. This is based on a 2% de-rate of a 2007 combustion

efficiency study that found an average combustion efficiency of 74.6% for 39 boilers aged 12-38 years (average 24.5). The study, which EGD provided to the evaluation team, did not attempt to tie the degraded combustion efficiency to the original rated efficiency of the boilers. The study is also now more than 10 years old, so its findings are likely out of date and should only at most apply to 20-year-old or more boilers. For 2016, the evaluation used the 73% value since a better option was unavailable at the time.

Recommendation: Use a degradation from name plate efficiency to determine the baseline boiler efficiency rather than a flat number. The 2017 CPSV effort should include in the scope secondary research to determine a degradation factor or curve to be used for the 2017 and 2018 CPSV and could be incorporated by the utilities for the 2019 program year until primary research is completed or a better approach is developed.

Outcome: Improving this key assumption will improve savings estimates for a significant portion of savings in the Enbridge portfolio and the process would also be applicable to Union sites where baseline boiler efficiencies are required and not based on site tests of boiler performance.

UNION RATE ZONES RESPONSE: Union believes this recommendation refers to Enbridge's ETools, which are not used by Union. For clarity, Union strives to use nameplate efficiency unless testing data can support a different efficiency.

ENBRIDGE RESPONSE: Enbridge acknowledges that a research effort to seek updated information is merited given the age of the study currently utilized to support the 73% assumed combustion efficiency. It should be noted however, Enbridge utilizes this assumption for application in atmospheric boiler projects only.

STATUS UPDATE: ETools defaults to 73% thermal efficiency for in-situ boilers that are older than 20 years where no nameplate information is available. If nameplate information is available, the stated efficiency is used. For basecase boilers, eTools has since been changed to default the basecase boilers thermal efficiencies to stated minimum requirements by Ontario Regulation 404. This regulation states that any boiler used for space heating applications between 300 – 2,500 MBH installed in the province of Ontario after January 1, 2017 must have a minimum thermal efficiency of 83%. As this regulation does not cover boilers used in domestic hot water or combined heating applications, the program defaults to the original thermal efficiency of 80.5%.

DS16. Finding: Pipe insulation is a significant source of savings for the Union Gas programs. Union estimates heat loss rate for damaged baseline insulation less than that from a simple bare pipe assumption, which is reasonable and appropriate. Documentation for the source of the factors used in the calculation and documentation (via photos and/or a description of the pipe insulation

condition) was not consistently provided.

Recommendation: Document baseline conditions using photos and text descriptions to provide context. Tie the documentation of baseline condition to the heat loss rate used in a clear way.

Outcome: Improving documentation of baseline conditions and clarity in calculations will reduce evaluation risk improve consistency of approach among the Union engineering team.

UNION RATE ZONES RESPONSE: Union will consider improving documentation for pipe insulation base case descriptions for future projects (noting that this recommendation was received in Q4, 2018).

ENBRIDGE RESPONSE: Though Enbridge strives to ensure its project documentation captures relevant information to support calculations, Enbridge recognizes there may be areas for improvement including documented substantiation regarding baseline conditions. Enbridge will review the recommendation for greater clarity on pipe insulation projects as part of its commitment to continuous improvement.

STATUS UPDATE: Enbridge Gas no longer uses damaged insulation as a basecase. The basecase is either bare or less thickness than what was incented. Enbridge Gas continues to strive to provide greater clarity on pipe insulation projects as part of its commitment to continuous improvement.

DS17. Finding: Enbridge documentation did not always include a prose explanation and supporting documentation for baseline types (ROB, ER) and remaining useful life (RUL). "See Etools for base case" is not sufficient: Etools is not designed to provide context and sources to support the values included.

Recommendation: Always complete the "Base Case Overview" with a prose description of the base case. The description should reference included emails and photos to document in situ conditions and features that are carried over into the baseline system.

Outcome: Improved descriptions and documentation will reduce evaluation risk and help Enbridge ensure that accurate information has been entered into Etools.

UNION RATE ZONES RESPONSE: This recommendation was not directed to Union.

ENBRIDGE RESPONSE: Enbridge is committed to continue in its efforts to improve upon the comprehensiveness and clarity of all relevant project information, data and underlying input assumptions. Enbridge will review this recommendation with ESCs to ensure the "Base Case Overview" provides a prose description of the base case with supporting documentation where

possible.

STATUS UPDATE: Enbridge Gas continues to enhance its documentation as part of its commitment to continuous improvement. ETools boiler savings calculation now requires the boiler replacement decision (e.g. ROB, ER) and age of existing boiler (RUL) as mandatory fields.

DS18. Finding: Duration of pre- post- data (energy consumption, production output, raw material consumption, etc.) used for savings estimates were too brief in several instances.

Recommendation: The utilities should use longer duration data in ex ante savings estimates when possible. When time periods less than a year are used, the utilities should document why the period used is applicable to a full year and why a full year was not able to be used.

Outcome: Increased accuracy of savings estimates.

UNION RATE ZONES RESPONSE: Typically Union strives for a full year of pre and post data when possible. Union's Professional Engineers apply their judgement if a full year of pre and post data isn't required or possible to achieve.

ENBRIDGE RESPONSE: Enbridge will review the recommendation for greater clarification of pre- and post-data as part of its commitment to continuous improvement. It should be noted in the case of process load assessments, for example, where it can be established that energy consumption is consistent, data across shorter time periods may be sufficient.

STATUS UPDATE: The original utility responses have addressed the recommendation.

DS19. Finding: The utilities did not always gather boiler nameplate data for in situ systems. The age and operating condition was also not always recorded or described. This was a concern on boiler projects, but also for projects where boiler efficiency has an effect on savings, such as greenhouses, pipe insulation and heat recovery.

Recommendation: In situ boiler name plate information, age and operating condition are all helpful for determinizing the designed performance and reasonable range of actual efficiency for the system as well as providing context to better determine remaining useful life (RUL)

Outcome: Improving documentation of the in situ boiler will reduce uncertainty in savings estimates and reduce evaluation risk.

UNION RATE ZONES RESPONSE: Union strives to use nameplate efficiency unless testing data can support a different efficiency. In cases where nameplate or testing is unavailable, Union uses

an appropriate and conservative proxy.

ENBRIDGE RESPONSE: Enbridge makes an effort to include boiler nameplate data for in situ systems where available and applicable unless testing data can support a different efficiency. Enbridge will review the recommendation for greater documentation of the in situ boiler as part of its commitment to continuous improvement.

STATUS UPDATE: The original utility responses have addressed the recommendation. Enbridge Gas continues to strive for greater documentation of the in situ boiler as part of its commitment to continuous improvement.

DS20. Finding: Items that may be obvious to the ex ante team can be non-obvious to an outside party. Examples from sites this year included in situ burners that could not be turned off and whether heating needs were equal to or greater than the amount of heat recovered.

Recommendation: Review ex ante documentation from an outside perspective to identify where documentation or explanation could be added.

Outcome: Reduced evaluation risk.

UNION RATE ZONES RESPONSE All of Union's custom projects are reviewed by an internal team of QA/QC Professional Engineers. This QA/QC team attempts to apply the same scrutiny to projects as the EC.

ENBRIDGE RESPONSE: It is challenging to anticipate which information may be nonobvious to the verifier however, Enbridge will consider the recommendation for greater documentation review as part of its commitment to continuous improvement.

STATUS UPDATE: The original utility responses have addressed the recommendation. Enbridge Gas continues to strive for greater documentation review as part of its commitment to continuous improvement.

DS21. Finding: At large sites with multiple spaces containing similar equipment, ex ante documentation did not always identify which space or piece of equipment was affected by the project.

Recommendation: Include additional descriptions of spaces and equipment affected to differentiate among similar spaces and equipment at the site.

Outcome: Reduced evaluation risk.

UNION RATE ZONES RESPONSE: Union will consider the recommendation for greater documentation on additional descriptions of spaces and equipment affected as part of its continuous improvement. To do so, Union requests that specific examples be provided. See also Union's response to DS13.

ENBRIDGE RESPONSE: Enbridge will review the recommendation to provide clarity differentiating among similar spaces and equipment at a site and to include additional descriptions of spaces and equipment affected, as part of its commitment to continuous improvement.

STATUS UPDATE: Enbridge Gas continues to strive to provide clarity differentiating among similar spaces and equipment at a site and to include additional descriptions of spaces and equipment affected, as part of its commitment to continuous improvement. For example, the utility now asks for google maps for greenhouse projects so that the utility can better document to which greenhouse the project applies.

DS22. Finding: Invoices were not always included with documentation, and sources for incremental costs were not always clear.

Recommendation: Ensure that incremental costs are supported by invoices or other documentation, especially for add-on and optimization measures where the total cost and incremental cost are likely to be the same. Equipment replacement measures may require an additional standard efficiency quote to produce incremental cost.

Outcome: Incremental cost is an important component of simple payback, which is often used to judge the economic benefit of energy efficiency projects. It is also an input to some benefit-cost tests.

UNION RATE ZONES RESPONSE: Union does ensure that incremental costs are supported by invoices or other documentation. In some cases, project costs are bundled within invoices for larger work being completed in tandem at a customer site. In others, projects are implemented using internal customer resources and no formal invoice is generated. In such cases, Union uses best available information to estimate incremental costs and these estimates are subject to verification.

ENBRIDGE RESPONSE: Enbridge generally attempts to ensure that incremental costs are supported by including invoices or other documentation in the project file. In some instances, project costs may be included as part of an invoice(s) relating to broader work being completed at a customer site. In such cases, Enbridge estimates incremental costs using engineering judgment. For some projects, implementation may be supported with internal customer resources, in which case no invoice is generated to support costs. In these cases, Enbridge will ask the customer to estimate

incremental costs based on their internal records.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

DS23. Finding: Larger projects appeared to fall under the same documentation standards as smaller projects.

Recommendation: Increase the amount of documentation and source material for projects that have greater energy savings.

Outcome: Projects that are better documented tend to have more accurate savings estimates and receive fewer evaluation adjustments than those that are less documented. Large projects have a greater effect on overall savings adjustment factors. Therefore, large projects with better documentation are more likely to result in adjustment factors closer to 100%.

UNION RATE ZONES RESPONSE: Union strives to ensure its project documentation captures all relevant information regardless of project size.

ENBRIDGE RESPONSE: Enbridge strives to ensure project documentation captures all relevant information to support and explain the project regardless of project size however, Enbridge will review the recommendation to increase the amount of documentation provided for projects with greater energy savings as part of its commitment to continuous improvement.

STATUS UPDATE: The original utility responses have addressed the recommendation. Enbridge Gas continues to review the amount of documentation provided for projects with greater energy savings as part of its commitment to continuous improvement.

DS24. Finding: Union custom projects utilized a project application summary workbook that summarizes the key project inputs, calculations, and most details. In general, this is a good approach that facilitates internal review and evaluation. We also found that the workbooks had improved source documentation relative to the 2015 projects. One challenge was that different projects used the workbook in different ways:

- The notes section was sometimes used to identify and highlight specific unique approaches and features in projects, but not always.
- Calculations internal to the summary page were consistent for most projects, but not all (additional factors were sometimes added).

- Sub-methods critical to the calculation were contained in hidden sheets.
- Safety and influence adjustments were inserted in different locations and not always explained.

Recommendation: Consider providing more training or adding quality control steps to ensure the summary workbook front page is completed and stored in a consistent manner. Identify a common approach for common measures and, if necessary, document deviations and the reasons for the deviations in a clearly labelled field on the summary sheet.

Outcome: A consistent summary workbook aids both internal and external quality assurance, quality control, and measurement and verification.

UNION RATE ZONES RESPONSE: Union is pleased by the acknowledgement that custom project workbooks had improved source documentation relative to 2015 projects. This speaks to Union's efforts to continually improve the comprehensiveness of its project application summary ("PAS") workbooks. Union agrees that these workbooks are effective tools for summarizing key project inputs and calculations, and understands that different projects might use the workbooks in different ways. Complete uniformity within PAS workbooks across hundreds of custom project will take time and may not always be achievable or appropriate. Union will consider this recommendation as part of its continuous improvement of custom project documentation.

ENBRIDGE RESPONSE: This recommendation was not directed to Enbridge.

STATUS UPDATE: The original utility responses have addressed the recommendation.

DS25. Finding: Enbridge Etools is used as both a calculation tool and as a communication tool with customers. While it appears to serve the needs of the program, this form of communication is difficult for the evaluation efforts.

- Etools does not easily allow for assumptions to be sourced within the record.
- Some Etools selections may be site-specific and some may be defaults; the calculator does not distinguish.
- Energy savings that are calculated outside of Etools are hard-entered in Etools but not always sourced.

Recommendation: Use a consistent summary workbook.

Outcome: A consistent summary workbook aids both internal and external quality assurance, quality control, and measurement and verification.

UNION RATE ZONES RESPONSE: This recommendation was not directed to Union.

ENBRIDGE RESPONSE: Enbridge will review the recommendation for a consistent summary workbook as part of its commitment to continuous improvement.

STATUS UPDATE: For future eTools version updates, Enbridge Gas will make best efforts to list all assumptions used in the eTools calculator, provide back up sources, and provide visual indicators to which values are default assumptions versus actual site information. Best efforts will also be made to ensure energy savings calculated outside of eTools and hard entered into eTools are substantiated, properly documented and provided as backup.

2.4 Data management

Table 7. Data management - summary of recommendations¹¹

#	Data Management		Applies to			Primary Outcome			
	Finding	Recommendation	Union	Enbridge	Evaluation	Reduce Costs	Increase Savings	Increase Customer Satisfaction	Decrease Risk
26 A	Neither Union nor Enbridge currently track participating customer or participating vendor contact information in their program tracking	Track contacts associated with projects in the program tracking database.	✓	✓		✓		✓	✓
26 B		Strongly consider investing in relational program tracking databases.	✓	✓		✓	✓	✓	✓

¹¹ 2016 Natural Gas DSM Annual Verification Report Table 62

#	Data Management		Applies to			Primary Outcome			
	Finding	Recommendation	Union	Enbridge	Evaluation	Reduce Costs	Increase Savings	Increase Customer Satisfaction	Decrease Risk
26 C	database. Providing the information to the evaluation puts significant burden on utility staff. In 2016, the data provided by utility staff was much more consistent and clear relative to 2015.	Continue to use improved structure for data integrity in the evaluator request for contact information for the 2017 savings verification and evaluation.			✓	✓		✓	
27	The extracts from the utility program tracking database do not include dates for key project milestones.	Track and provide to evaluators dates for key milestones in the project.	✓	✓		✓			✓
29	EUL and cumulative gross savings were not provided in a consistent manner in the Enbridge program tracking database extract	Include separate fields in the program tracking database for all components of gross and net cumulative and first year savings.	✓	✓			✓		✓

DM 26 Finding: Neither Union nor Enbridge currently track participating customer or participating vendor contact information in their program tracking database. Providing the information to the evaluation puts significant burden on utility staff. In 2016, the data provided by utility staff was much more consistent and clear relative to 2015.

Recommendation A: Track contacts associated with projects in the program tracking database. At a minimum, the program tracking database should include:

- Project site address
- Customer mailing address

- Primary customer contact name
- Primary customer contact phone
- Primary customer contact email
- Primary customer contact mailing address
- Addresses are best tracked as multiple fields including:
 - o Street address line 1
 - o Street address line 2
 - o City
 - o Province
 - o Postal code

Phone number fields should include data validation to enforce a consistent format and avoid missing or extra digit errors. Phone extensions should be tracked in a field separate from the ten-digit phone number and be restricted to numeric data only.

The best practice is to maintain contacts in a table separate from specific project or customer data. This allows for a single contact to be connected to multiple accounts and/or projects as necessary without creating duplication. This structure also makes it easier to associate multiple contacts with a single project, and decreases quality control costs.

Vendor contact information should also be tracked in the database, in the same table as the participating customer contact information. With a relational database, the contact ID from the table can be added to a project record in the role consistent with the contact's participation (such as vendor, decision maker, or technical expert) with a separate table that allows a single vendor contact to be associated with multiple projects.

Outcome A: Reduced burden on utility staff to seek contact information for projects, whether for internal or evaluation use. Reduced evaluation costs and improved sample design expectations.

UNION RATE ZONES RESPONSE: As detailed in its 2015-2020 DSM Plan, Union outlined the need for a DSM tracking and reporting system upgrade. The Board approved this request in its January 20th, 2016 Decision. This system upgrade was rolled out in 2018.

ENBRIDGE RESPONSE: As detailed in its 2015-2020 Multi-Year Plan, Enbridge outlined the need for a DSM IT system replacement. The Board approved this request in its January 20th, 2016 Decision. As a result, Enbridge DSM is currently undergoing a system upgrade that will include improved tracking & reporting and CRM components. This system upgrade is expected to be rolled out in late 2018.

STATUS UPDATE: As detailed in their respective 2015-2020 Multi-Year Plans, the utilities outlined the need for an improved DSM tracking and reporting system. The Board approved this request in its January 20th, 2016 Decision. This system was rolled out for the 2018 program year for the Union Rate Zones and for the 2019 program year for the EGD Rate Zone. These systems include many upgrades and make providing data simpler for annual savings evaluation and verification.

All the items identified in recommendation DM26a have been provided to the EC with few exceptions (e.g. a handful of customers that have not provided Enbridge Gas with email addresses). Enbridge Gas will continue to provide the EC with this customer information.

Regarding the level of effort on utility staff to compile this information, much of that effort is in ensuring that the contact information is up to date. With up to two years of time between the project completion date and the time of verification, customer and vendor contacts can change. Enbridge Gas' preference is to take the time to ensure the information provided to the EC is correct up front rather than have the EC report back to the utility for instances where contact information is no longer correct.

Recommendation B: The utilities should strongly consider investing in relational program tracking databases. Relational program tracking databases and customer relationship management (CRM) systems allow for multiple contacts to be associated with a single account and/or project. The incremental cost of implementation is low if it is part of the initial database design, populated as projects are started, and updated once they are complete.

For the implementation team, a query-able one-stop shop for information provides a wealth of information that can improve delivery. For example, these databases can help programs understand how contractors work across projects, identify when projects have hit snags and need attention, and give the program team access to key customer context such as historical participation, and different contacts that have worked with the program.

For evaluation, this allows programs to easily clarify aspects of projects during implementation and to provide accurate, timely, and usable contact information to evaluators and verifiers.

Outcome B: Improved customer satisfaction from better delivery, and a reduced burden on utility staff for tracking information. A relational database would also streamline aggregation of program data for scorecards and make providing data simpler for annual savings evaluation and verification.

UNION RATE ZONES RESPONSE: Union will continue to track contact information for participating customers and vendors. As detailed in its 2015-2020 DSM Plan, Union outlined the need for an improved DSM tracking and reporting system. The Board approved this request in its January 20th,

2016 Decision. This system has been rolled out in 2018 and includes many upgrades for the 2018 program year.

ENBRIDGE RESPONSE: As detailed in its 2015-2020 Multi-Year Plan, Enbridge outlined the need for a DSM IT system replacement. The Board approved this request in its January 20th, 2016 Decision. As a result, Enbridge DSM is currently undergoing a system upgrade that will include improved tracking & reporting and CRM components. This system upgrade is expected to be rolled out in late 2018.

STATUS UPDATE: See status update to recommendation DM26a.

Recommendation C: When the evaluation requests contact information for savings verification and evaluation, the contact request spreadsheet will continue to provide additional fields to enforce data integrity (e.g., specific fields for a parsed address and company name for the technical and decision-making contacts). If the program tracking databases are able to report contact information, this spreadsheet should be modified to reduce burden on utility staff while maintaining high levels of data integrity.

Outcome C: Reduced evaluation costs due to less data cleaning and research to fill missing information. Improved data collection with less returned advance letters and more accurate connection between projects and contacts.

UNION RATE ZONES RESPONSE: This recommendation was not directed to Union.

ENBRIDGE RESPONSE: This recommendation was not directed to Enbridge.

STATUS UPDATE: The original utility responses have addressed the recommendation. No update is required.

DM 27 Finding: The extracts from the utility program tracking database do not include dates for key project milestones. Enbridge's data did not include any dates and Union's included only the "install date."

Recommendation: Track and provide to evaluators dates for key milestones in the project. Dates for project start, installation, and those that define the program year provide useful context for interviewers that is not always easy to find in project documentation

Outcome: Improved data collection through more informed interviewers and reduced evaluation costs through less need to search for dates in documentation.

UNION RATE ZONES RESPONSE: Union has an on-going relationship with its CI and Large Volume customers. Through this relationship, some projects get proposed, prioritized, deferred and changed over time. Not all projects will have a definitive start date. As per the EC's finding, Union does track an installation date. This date is important as it denotes the date after which installation and commissioning are complete and Union pays out a customer incentive. The program year is defined by the calendar year.

ENBRIDGE RESPONSE: Contrary to the EC's finding, Enbridge does track an installation date. This date was included in the tracking workbook for all offers with the exception of prescriptive which, though the installation date was recorded in the project file, for the purposes of the tracking workbook, the installation month was recorded. Also, it should be noted that not all projects will have a definitive start date. The program year is defined by the calendar year.

STATUS UPDATE: The original utility responses have addressed the recommendation. Enbridge Gas will continue to work with the EC to point out requested data within the project documentation.

DM 29 Finding: EUL and cumulative gross savings were not provided in a consistent manner in the Enbridge program tracking database extract. The EUL inconsistency is the result of a work around for advanced (accelerated) projects used by Enbridge to report accurate dual baseline saving estimates and first year savings. Communicating the workaround consistently within the evaluation team led to some re-work.

Recommendation: Include separate fields in the program tracking database for:

- EUL
- RUL
- gross first year annual savings
- gross post-RUL annual savings
- NTG,
- gross cumulative gross
- net cumulative savings
- net first year savings.

Outcome: Improved data integrity results in less evaluation risk and more accurate savings totals. Providing each of the key savings types and their components allows evaluation to confirm that the savings provided are internally consistent.

UNION RATE ZONES RESPONSE: Union provides the EC with all requested data broken out into specific fields as requested, including those noted in this recommendation.

ENBRIDGE RESPONSE: Enbridge will review the recommendation to include separate fields in the program tracking database as described above as part of its commitment to continuous improvement.

STATUS UPDATE: Enbridge Gas provides the EC with all requested data broken out into specific fields as requested, including those noted in this recommendation with the exception of RUL data. Enbridge Gas is exploring how to provide this information for the 2019 audit for the EGD Rate Zone.

3. Measure Life Study Recommendations

3.1 Updates to Measure Lives

ML1. Finding: Use a 15-year measure life for boiler controls. This does not include burner modifications, which are currently assigned a separate measure life by Union. Enbridge could consider adding a separate category for burner modifications, which would use a 20-year life similar to Union.

ML2. Finding: Increase the measure life for variable frequency drives for make-up air units to 15 years.

ML3. Finding: Reduce the measure life for loading dock door and ramp seals to 10 years to be consistent with what is used in other cold-weather jurisdictions.

ML4. Finding: Reduce the measure life for pipe insulation to 14 years, which is consistent with the industry average, and accounts for a portion of the insulation being installed outdoors or in hazardous environments where it is unlikely to last 20 years.

ML5. Finding: Use a measure life of 15 years for building automation systems, also known as energy management systems.

UNION RATE ZONES RESPONSE to ML1 – ML5: Union accepts the proposed measure life changes to its custom CI, Low-Income multi-family and Large Volume offerings for the purpose of reaching consensus despite concerns with the study methodology, the reliability of results and the basis for which some conclusions were reached. Specifically, Union notes the following concerns:

ML3: Union questions the appropriateness of a 10-year measure life recommendation for dock door seals based on two jurisdictions without considering the variability of the technology itself.

ML4 and ML5: The Measure Life study recommends additional research be undertaken to examine the measure life for pipe insulation and building automation systems. Union agrees that additional

research is required to support more robust understanding of the measure lives for these two measures. From the Measure Life Study: “Due to the uncertainty, **Michaels Energy is not recommending immediate updates to two of the measures; pipe insulation and building automation systems.** These were two such measures where primary research should be considered a high priority. Michaels Energy recommends dedicated primary research for the types of applications installed in Ontario to be sure that lifetime values are appropriate.”(emphasis added)¹²

To further support its position, Union points to a few flaws in the Measure Life study. For example, Union questions the inference that a measure life for “hazardous installs” or “residential hot water insulation” projects would be applicable to the measure life for commercial and industrial pipe insulation projects. In accordance with Union's measure life guide, Union considers site-specific conditions when estimating the measure life, such as whether the installation conditions are “hazardous.” When installed under normal conditions, outdoor pipe insulation should last at least 20 years.

Another example in a flaw in the analysis pertains to the Building Automation System analysis, for which the study appears to confuse building automation systems with energy management systems. These are not the same measures.

These concerns notwithstanding, Union acknowledges that it has agreed with the EAC to accept the results of Measure Life Study for the 2017 shareholder incentive, 2017 LRAM calculations as well as the 2017 target calculations. This EAC agreement derives from the Board's Decision on Union's 2015-2020 Plan, which 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 in recognition that the Measure Life study is part of the 2016 evaluation process.

The Measure Life Study was finalized and presented to the utilities on May 10, 2018. As such, Union's 2017 and 2018 custom CI, Low-Income multi-family and Large Volume program delivery did not consider the results of the report. Union recommends conducting additional research in order to appropriately reflect the measures and conditions in question. Until new research is conducted, Union proposes to make the recommended changes for the 2017 CI/LI/LV custom results through the 2017 CI/LI/LV Custom Project Savings Verification or within the 2017 EM&V process under guidance of the EC to ensure changes to measure life are made appropriately. Union also notes that agreement was made at the EAC to also adjust the 2017 targets to reflect the measure life

¹² Final Report: Custom Measure Life Review May 10, 2018 Michaels No.: O6717AAN

changes.

ENBRIDGE RESPONSE to ML1 – ML5: As directed by Board Staff through the EAC, Enbridge will move forward with the measure life changes to custom offers proposed in the Measure Life Study for the purpose of reaching consensus (with application to 2017 targets as well as for application to 2017 shareholder incentive and LRAM calculations) but the utilities have concerns regarding the basis for which some conclusions were reached. These include:

- **Insulation:** The Measure Life Study recommends reducing the commercial/ industrial pipe insulation measure life from 20 to 14 years. However, the Study's 14 year measure life accounts for "hazardous and outdoor installs." The utilities are of the view that a pipe insulation installation classified as "hazardous" is specialized and should be treated separately. Such projects should not be averaged with a generalized/typical pipe insulation install. Outdoor insulation piping if installed properly should last at least 20 years. In addition, some sources provided for outdoor pipe insulation refer to residential hot water insulation installs. This type of install is not similar to industrial/commercial pipe insulation installs and should not be included in the average.
- **Energy Curtains.** The Study cites three sources for measure lives with an average of 13 years however the final value proposed was a measure life of 10 years.

STATUS UPDATE: Enbridge Gas confirms the targets and results for both the Union Rate Zones and the EGD Rate Zone were updated to reflect the changes in custom measure lives starting with the 2017 program year.

3.2 Future Research

ML6. Finding: As the top priority, conduct primary research on the type of pipe insulation projects installed in Ontario to determine the appropriate measure life.

ML7. Finding: As the second priority, conduct primary research on recently installed building automation systems to determine how current system measure lives deviate from the primary research conducted approximately 20 years ago.

ML8. Finding: Consider also studying dock door seals, either through vendor interviews or program participant interviews, to determine the appropriate measure life.

ML9. Finding: Collect on-going data, similar to the ASHRAE database referenced in the study, to confirm or deny the assumed measure lives for energy curtains, exhaust fan controls, boiler controls, heat exchangers, and "other" industrial equipment.

UNION RATE ZONES RESPONSE to ML6 – ML8: Union agrees that further research should be considered to explore the areas recommended in the Measure Life Study. These studies can be prioritized in consultation with the EAC.

UNION RATE ZONES RESPONSE to ML9 – It is unclear if this recommendation is intended for Union.

ENBRIDGE RESPONSE to ML6 – ML9: Enbridge agrees that further research should be considered to explore the areas recommended in the Measure Life Study. These studies should be prioritized in consultation with the EAC.

STATUS UPDATE: The original utility responses have addressed the recommendation.

3.3 Updates to Custom Measure Life Table

The custom program Measure Life Study recommends the measure lives in Table 8 be adopted as the “default” values for custom programs.

Table 8. Default measure lives recommended by the Measure Life Study

Measure	Recommended Measure Life
All other industrial equipment	20
Boiler – Industrial Process	20
Boiler – Space heating	25
Pipe Insulation	14
Boiler – Domestic Hot Water	25
Boiler Controls	15
Energy Curtains	10
Heat Recovery – Commercial	15
Heat Recovery – Industrial	20
Exhaust Fan Controls	15
Heat Reflector Panels	15
Economizers – Conventional and condensing	20
Steam Trap	6
Infiltration Controls – Air Doors	15
Infiltration Controls – Dock Seals	10
IR Poly	5
VFD retrofit on MUA	15
Heat Exchanger	17
Building Automation System	15

Ovens and Thermal Oxidizers	20
Reverse Osmosis Water Conditioner	20
Building Envelope	25

UNION RATE ZONES RESPONSE to Table 8: The Measure Life Study was finalized and presented to the utilities on May 10, 2018. As such, Union's 2017 and 2018 custom CI, Low-Income multi-family and Large Volume program delivery did not consider the findings of the report. Union recommends conducting additional research on the proposed changes to measure lives in order to appropriately reflect the measures and conditions in question. The EC's Final Verification report¹³ notes that it based its verified custom measure life values on those found in the Union's current Measure Life Guide when present and reasonable. Site contacts were asked about their expectations for the life of the measure installed. Whether to use Union's current measure life guide or the site contact information was based on the judgement of the evaluation engineer.

The EC provided no guidance on how to gauge if site-specific information is more reasonable than the default custom measure lives supported through the Measure Life Study. Union intends to rely upon default measure lives in a prescriptive manner. Unless truly compelling site-specific information is available to justify a measure life that is shorter or longer than the default value, Union expects that the default value be used. This acknowledges that the default value is an average; measure lives longer and shorter than this average are to be expected but use of an average value across a population should achieve results that balance out these over and underestimates.

This approach is similar to how prescriptive measure lives are used for prescriptive programs. A particular prescriptive installation of a measure might have a measure life that is longer or shorter than the prescriptive average, but the prescriptive average is used regardless.

ENBRIDGE RESPONSE: Following discussion at the EAC – although not all EAC members agreed – it was concluded that results of Measure Life Study should apply starting with 2017 shareholder incentive and LRAM calculations. 2017 targets were also to reflect updates to the Measure Life Study because the Board's Decision on the Multi-Year DSM 2015-2020 Plans 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." Since the Measure Life study was part of the 2016 evaluation effort, Enbridge's 2017 targets will reflect the changes in measure life.

¹³ 2016 Final Verification Report Appendix Q pg 60-61.

STATUS UPDATE: Enbridge Gas confirms the targets and results for both the Union Rate Zones and the EGD Rate Zone were updated to reflect the changes in custom measure lives starting with the 2017 program year. In absence of site-specific information, Enbridge Gas follows the default measure lives recommended by the Measure Life Study with the exception of industrial process boilers, for which Enbridge Gas has adopted a 25 year EUL.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Association of Power Producers of Ontario (APPrO)

Interrogatory

Reference:

Exhibit A, page 5 of 6

Preamble:

EGI requests that the OEB approve the same DSM annual budgets for the 2021 DSM program as those approved for 2020 for each of EGD and Union rate zones.

Question:

- a) Please present a detailed 2021 DSM budget in a manner that permits side-by-side comparison with the approved budget for 2020 for each of the EGD and Union rate zones.
- b) Please confirm that the 2021 DSM program does not propose any new, expanded or additional DSM-related costs applicable to large volume customers (**LVCs**) that are gas-fired generators (**GFGs**).

Response

- a) Please see the response at Exhibit I.SEC.2 for a comparison of the 2020 OEB-approved DSM budget and proposed 2021 DSM budget.
- b) Confirmed.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Association of Power Producers of Ontario (APPrO)

Interrogatory

Reference:

Exhibit A, Attachment 1
Exhibit A, Attachment 2

Question:

- a) For each large volume customer (**LVC**) rate class in the EGD and Union rate zones, please provide the following information in tabular form for 2015 through 2019 (actuals), 2020 (forecast), and 2021 (proposed):
- i) number of customers in each rate class and the proportion of those customers that are gas-fired generators (**GFGs**);
 - ii) number of customers in each rate class that participate in DSM programs and the proportion of those customers that are GFGs; and
 - iii) DSM costs allocated to the rate class (through base rates and deferral and variance accounts).

Response

- a) Based on the OEB's Decision and Order on the utilities' 2015-2020 DSM Plans,¹ only T2 and Rate 100 rate class customers are eligible for the Union rate zones' Large Volume Program. Tables 1-3 below summarize the requested details for these rate classes.

¹ EB-2015-0029 / EB-2015-0049 OEB Decision and Order (February 24, 2016), p. 3.

i.

Table 1
Customer Numbers – Union Rate Zones

Union Rate Zones Rate Class	All Customers ⁽³⁾						
	Actual	Actual	Actual	Actual	Unaudited (1)	Forecast (2)	Forecast (2)
	2015	2016	2017	2018	2019	2020	2021
T2 South	22	22	23	23	25	25	25
T2 South GFG	8	8	8	8	8	8	8
100 North	14	14	15	13	12	12	12
100 North GFG	6	5	5	2	1	1	1

NOTES:

(1) 2019 Results are unaudited.

(2) 2020 and 2021 are assumed to be the same as 2019.

(3) Figures represent customer count at the beginning of each year.

ii.

Table 2
DSM Participants – Union Rate Zones

Union Rate Zones Rate Class	DSM Participants						
	Actual	Actual	Actual	Actual	Unaudited (1)	Forecast (2)	Forecast (2)
	2015	2016	2017	2018	2019	2020	2021
T2 South	15	13	14	17	19	TBD	TBD
T2 South GFG	1	1	2	2	3	TBD	TBD
R100 North	5	5	6	5	6	TBD	TBD
R100 North GFG	1	2	1	0	0	TBD	TBD

NOTES:

(1) 2019 Results are unaudited.

(2) Enbridge Gas cannot forecast customer participation in 2020 and 2021.

iii.

Table 3
DSM Costs – Union Rate Zones

Union Rate Zones Rate Class	DSM Costs						
	2015 - Actual	2016 - Actual	2017 – Actual (1)	2018 – Actual (1)	2019 – Forecast (2)(3)	2020 – Forecast (3)	2021 - Proposed
T2	\$2,675,900	\$3,981,044	\$2,988,238	\$3,364,301	\$4,612,216	\$4,725,369	\$4,725,369
R100	\$855,713	\$576,543	\$802,100	\$814,353	\$1,111,159	\$1,147,290	\$1,147,290

NOTES:

- (1) Subject to OEB review and approval through pending 2017/18 DSM Deferral and Variance Account Clearance application proceeding.
- (2) 2019 actual allocations by rate class are presently unavailable.
- (3) OEB-approved DSM costs included in 2019 Rates and 2020 Rates.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Building Owners and Managers Association (BOMA)

Interrogatory

Reference:

EB-2019-0271, Page 1 of 5, paragraph #2

Question:

- a) Please provide a table summarizing the entire list of programs for each company prior to the merger, the annual budget for each of the years from 2015, 2016, 2017, 2018, 2019 and 2020, and the annual actual expenditures for each of the years 2015, 2016, 2017, 2018 and 2019.
- b) Please also include the gross savings of each of the programs, as well as the final approved and evaluated net savings.
- c) Please include an annual variance analysis with respect to overspending or underspending, as well as a variance analysis of the program results, both gross and net.

Response

- a) For 2015 DSM program year budget and expenditure details, please see the response at Exhibit I.SEC.12 Attachment 1.

For 2016 DSM program year budget and expenditure details, please see the response at Exhibit I.SEC.12 Attachment 2.

For Draft 2017 DSM program year budget and expenditure details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For Draft 2018 DSM program year budget and expenditure details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance

application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

OEB-approved 2019 and 2020 DSM program year budget details can be found in the OEB's Decision and Order on the utilities' 2015-2020 DSM Plans.¹ As 2019 DSM program year expenditure details are still being compiled at the time of this submission, they are not currently available. Please also see the response at Exhibit I.PP.1.

- b) For 2015 DSM program year gross and net savings detail, please see the response at Exhibit I.SEC.12 Attachment 1.

For 2016 DSM program year gross and net savings detail, please see the response at Exhibit I.SEC.12 Attachment 2.

For Draft 2017 DSM program year gross and net savings detail (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For Draft 2018 DSM program year gross and net savings detail (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

As 2019 DSM program year gross and net savings detail is still being compiled at the time of this submission, they are not currently available.

As the 2020 DSM program year is currently in progress, no gross or net savings detail is currently available.

- c) For 2015 DSM program year budget/spend variance and target/results variance details, please see the response at Exhibit I.SEC.12 Attachment 1.

For 2016 DSM program year budget/spend variance and target/results variance details, please see the response at Exhibit I.SEC.12 Attachment 2.

For Draft 2017 DSM program year budget/spend variance and target/results variance details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and

¹ EB-2015-0029/0049 OEB Decision and Order (February 24, 2016), Schedule A.

Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For Draft 2018 DSM program year budget/spend variance and target/results variance details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

As 2019 DSM program year budget/spend and target/results details are still being compiled at the time of this submission, they are not currently available. Please also see the response at Exhibit I.ED.10.

As 2020 DSM program year budget/spend and target/results details are still being compiled at the time of this submission, they are not currently available.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Building Owners and Managers Association (BOMA)

Interrogatory

Reference:

EB-2019-0271, Page 2 of 5, paragraph #4.

Question:

Please file the Final Report of the Performance-Based Conservation Pilot Project, December 2018 Revision 1 with Appendices, which both natural gas utilities participated in the IESO (our emphasis).

Response

Please see Attachment 1.



Performance-Based Conservation Pilot Project

FINAL REPORT

DECEMBER 2018

This report was prepared by [Toronto and Region Conservation Authority](#) and [Enerlife Consulting](#) for the [Independent Electricity System Operator](#).

We acknowledge and appreciate the participation and support of:

Brampton Civic Hospital
City of Brampton
Halton Catholic District School Board
Halton District School Board
Infrastructure Ontario
Peel District School Board
Town of Halton Hills
Town of Milton

Alectra Utilities
Enbridge
Halton Hills Hydro
Halton Region Water
Milton Hydro
Region of Peel Water
Union Gas

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1 EXECUTIVE SUMMARY

The multi-year Performance-Based Conservation pilot project was designed to demonstrate, evaluate and document the implementation of Performance-Based Conservation methodology to drive deep energy and water savings across large numbers of commercial and institutional buildings. It was primarily funded by Independent Electricity System Operator (IESO), with financial contributions from Enbridge and Union Gas, and with in-kind contributions from local electrical and water utilities. It was conducted by Toronto and Region Conservation Authority (TRCA) with technical direction from Enerlife Consulting. The pilot project engaged “big customers” (owners of large buildings or large numbers of smaller buildings), identified high-potential buildings and used data analytics to help customers and utility companies identify, implement and verify the best measures for converting conservation potential into deep savings measurable at the meter.

Performance-Based Conservation methodology has been developed in Ontario over the past decade and is now in growing use across Canada and in the United States, enabling wide-scale energy, water and greenhouse gas emissions reductions. The methodology uses progressively deeper utility data analytics, from annual to monthly to interval data, with the aim of:

- Enhancing customer engagement with evidence-based business cases for individual buildings and portfolios;
- Driving deeper savings through identification of high-potential buildings and measures; and
- Verifying actual savings and guiding continuous learning and improvement by means of ongoing monitoring and reporting of savings.

Figure 1 Performance-Based Conservation methodology

Performance-Based Conservation (PBC) is a utility billing data-driven methodology for delivering deep savings and greenhouse gas emissions reductions in buildings, portfolios, campuses and market segments. The methodology quantifies savings potential, identifies high-potential buildings, points towards the best energy and water savings measures in each building and guides continuous learning and performance improvement through ongoing monitoring of actual savings.

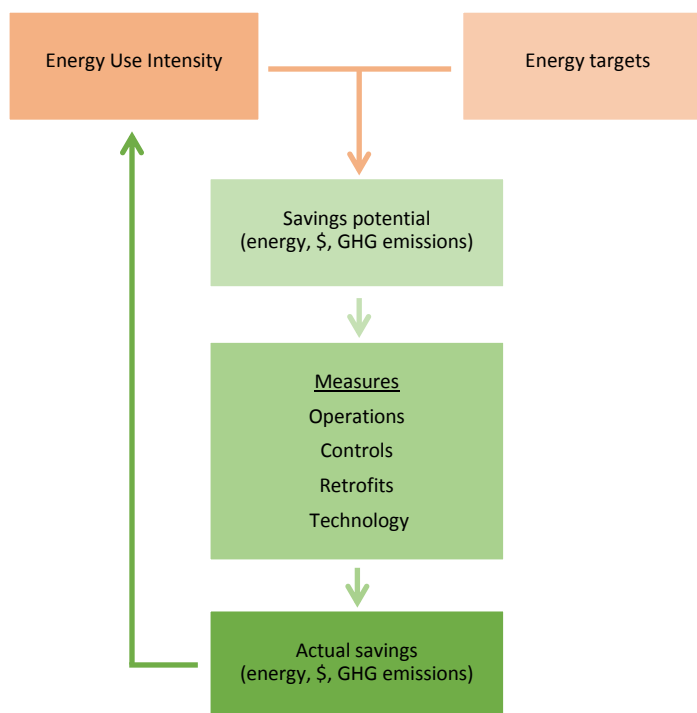
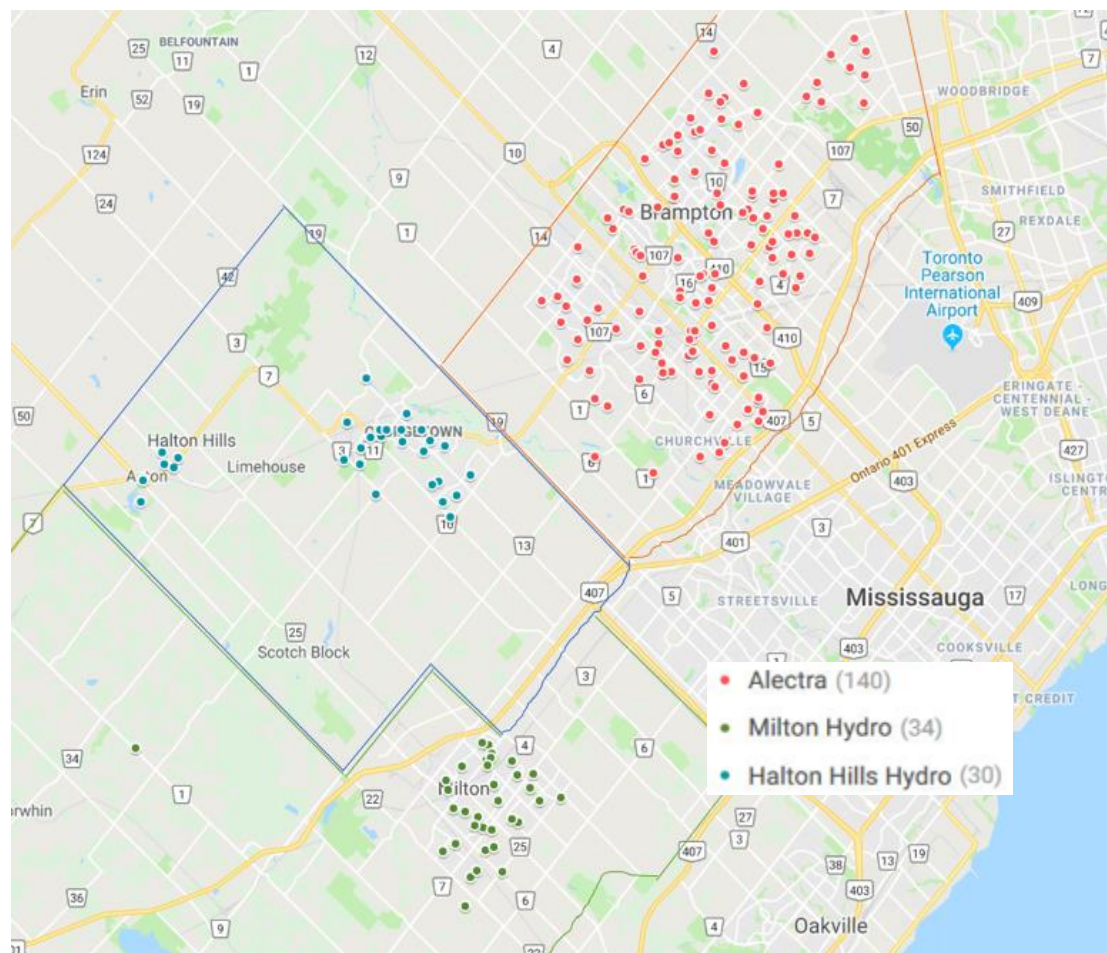


Figure 2 LDC service areas and participants in the pilot



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programs, the City of Brampton and Brampton Civic Hospital were also attuned to the approach. Towards the end of this stage of work, a focused private-sector building owner recruitment campaign was undertaken through TRCA's Partners in Project Green program. This effort attracted some commercial building operators which were either big box store managers who had no control of energy use or large chains which were not interested in addressing just a few of their outlets. Eight large public-sector customers ultimately accepted the offer to participate in the project, registering a total of 205 buildings covering 17,262,949 sq.ft. out of the total of 569 eligible buildings within the LDC distribution territories.

Collection of utility data and building profile information was more difficult and took more time than expected. Results of the benchmarking and target-setting analysis for the participating buildings are presented in the tables and figures below separately for participants (LDC customers) and for the utility companies. Energy and water targets were set at the top-quartile of current performance for each building type, indicating the targets are not very aggressive and comparable to the actual performance of peers. Actions to achieve these targets in Enerlife's experience are typically achievable within a 5-year simple payback.

Table 1 Target savings potential by customer

Participant	Total buildings	Total area (sq.ft.)	Annual target savings potential							
			Electricity		Natural gas		Water		Total	GHG emissions
			kWh	%	m3	%	m3	%	\$	tonnes/year
1	2	445,144	718,498	12%	90,018	20%	2,631	11%	\$130,165	199
2	28	2,204,054	7,390,120	19%	1,252,301	27%	192,389	52%	\$1,811,476	2,660
3	10	398,379	859,380	12%	196,423	20%	10,372	49%	\$195,712	405
4	7	650,695	5,772,163	37%	343,228	31%	21,617	45%	\$948,047	879
5	17	1,324,110	963,770	10%	174,595	21%	11,860	26%	\$212,542	368
6	30	1,933,409	3,622,299	23%	870,820	43%	62,005	53%	\$889,072	1,789
7	110	8,936,054	2,850,703	16%	2,667,697	37%	107,578	36%	\$1,431,682	5,151
8	1	1,371,104	6,066,359	17%	1,033,228	20%	41,959	17%	\$1,372,232	2,193
Totals	205	17,262,949	28,243,292	15%	6,628,309	29%	450,411	27%	\$6,990,928	13,644

Table 2 Target savings potential by utility company

Utility company	Total buildings	Total area (sq.ft.)	Annual target savings potential							
			Electricity		Natural gas		Water		Total	GHG emissions
			kWh	%	m3	%	m3	%	\$	tonnes/year
Alectra	141	12,956,356	17,025,679	12%						681
Milton Hydro	34	2,646,947	9,335,966	30%						373
Halton Hills Hydro	30	1,659,646	1,881,646	12%						75
Enbridge	141	12,956,356			5,043,245	28%				9,522
Union Gas	64	4,306,593			1,585,065	35%				2,993
Region of Peel Water	141	12,956,356					344,556	35%		
Halton Region Water	64	4,306,593					105,854	16%		
Totals			28,243,292	15%	6,628,309	29%	450,411	27%		13,644

Performance-Based Conservation (PBC) Pilot Project: Final Report

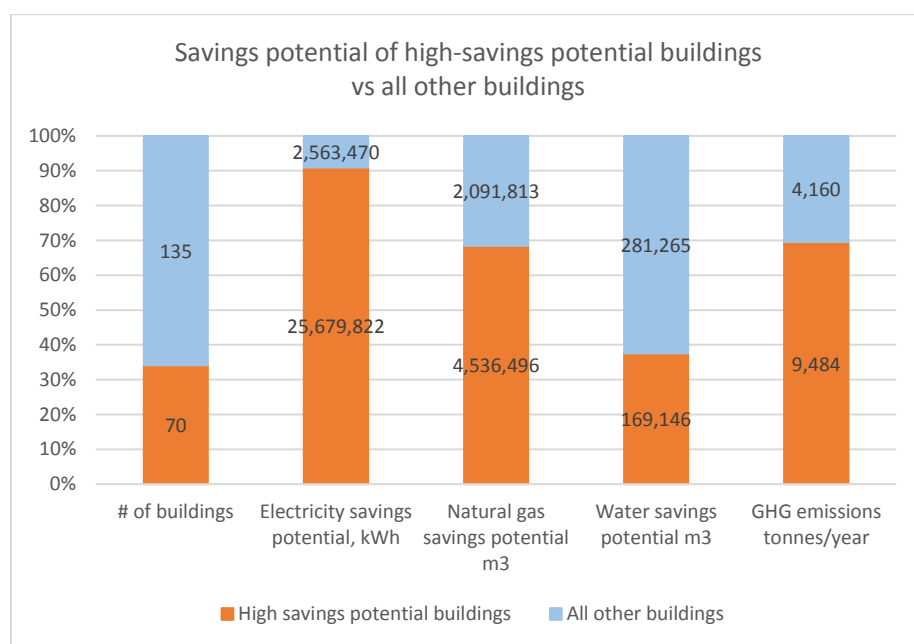
The PBC approach focuses on high-savings potential buildings which provide the highest returns on investment for owners and utility companies alike. The table below presents the total energy, water and emissions savings potential for those buildings with targeted utility cost savings greater than \$20,000 per year. These 70 buildings account for 82% of the total potential dollar savings.

Table 3 Savings potential of buildings with target savings greater than \$20,000 per year

Participant	# of buildings with high savings potential	Electricity savings potential, kWh	Natural gas savings potential, m3	Water savings potential m3	Total savings potential, \$	GHG emissions tonnes/year
1	1	625,470	90,018	2,631	\$120,753	195
2	19	7,060,883	1,119,226	4,326	\$1,728,155	2,396
3	3	461,069	194,368	10,147	\$131,790	381
4	5	5,714,838	293,771	19,821	\$934,788	783
5	2	342,273	75,761	220	\$71,163	157
6	17	3,443,551	656,515	33,374	\$757,480	1,377
7	22	1,965,380	1,073,610	56,669	\$699,750	2,001
8	1	6,066,359	1,033,228	41,959	\$1,257,861	2,193
Total - High savings potential buildings only	70	25,679,822	4,536,496	169,146	\$5,701,741	9,484
Total - all buildings	205	28,243,292	6,628,309	450,411	\$6,990,928	13,644

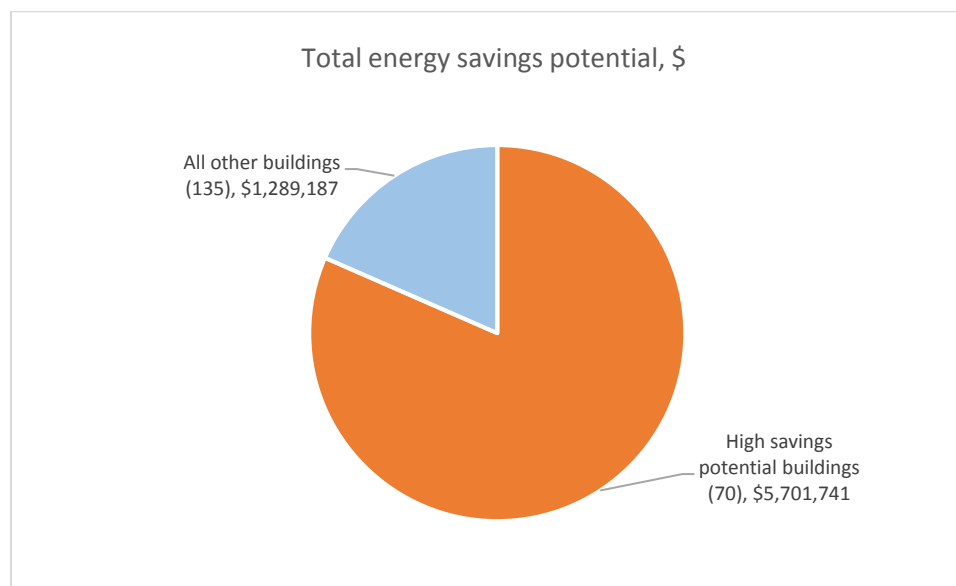
Table 3 and the figures below illustrate that a relatively small number of buildings account for the lion's share of the overall energy, water, utility cost and emissions savings potential.

Figure 3 Savings potential of high-savings potential buildings vs all other buildings



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Figure 4 Share of high-savings potential buildings in total energy savings potential



An Energy Assessment Report was provided to each participating customer, presenting their comparative energy performance, their targeted savings and the indicated areas for taking action. The utility companies received copies of the reports for their customers. The reports are included in Appendix A.

The original pilot project intent to report only on a subset of buildings and leave the remainder as a control group was not well received by initial participating customers, and since there were only eight participating organizations all buildings were included throughout the pilot.

Training workshops were then held with all participants to help make the connection between target savings and the corresponding conservation actions. These sessions presented deeper data analytics for the high-potential buildings, including base and seasonal energy and water component benchmarks and comparative interval meter profiles, pointing to where inefficiencies were to be found and which corresponding building systems and operations required attention. Facilitators drew on prior experience with other programs which use the PBC methodology, including TRCA's municipal and hospital programs, to inform the discussions.

Three workshops were held with the participating customers and utility companies between November 2017 and May 2018: one for school boards, one for government buildings and the third for the single participating hospital. These education sessions were aimed at understanding existing customer knowledge and decision-making with respect to energy efficiency investments and exploring what the customers need to address the identified savings potential, including how the utility companies could best support their efforts. The workshops also explored how the magnitude of savings, the focus on high-potential buildings and the indicated measures (particularly operational improvements) aligned with the utility companies' energy efficiency programs, models and incentives currently in effect.

Individual interviews were held with the participants after the workshops to determine what action they had taken, what they had found most useful from the reports and workshops and what barriers they encountered in achieving the identified savings. Webinars were then held with the utility companies to

Performance-Based Conservation (PBC) Pilot Project: Final Report

feed back their customers' responses and consider further how they could best support their efforts to achieve and sustain the targeted savings.

Actual, monthly weather-normalized energy and water savings for all the participating buildings were monitored and reported back to the owners and utility companies up to the fall of 2018, with follow-up interviews to discuss results and further explore how the pilot project has influenced their energy conservation actions.

Overall, energy and water savings were achieved: 2.9% for electricity, 2.3% for natural gas, and 9.2% for water. This translates into almost \$997,000 worth of energy and water savings and has resulted in greenhouse gas emissions reduction of over 1,000 tonnes CO₂e. Savings results vary substantially between the different owners. At this stage the results are largely attributable to previously determined projects and practices, but they provide valuable insight into savings trends across multiple owners and hundreds of buildings and serve as a reference for future improvements. The participant interviews summarized in Appendix D illustrate how Energy Assessment Reports and workshops have influenced customer behaviour and can be expected to impact savings results in future.

Table 4 Energy and water savings results

Participant	Electricity		Natural gas		Water		Actual total energy savings, \$	Actual GHG emissions reduction, tonnes CO ₂ e
	Actual savings, %	Target savings, %	Actual savings, %	Target savings, %	Actual savings, %	Target savings, %		
1	-4.7%	11.6%	-8.7%	20.2%	2.2%	11.0%	-\$31,551	-69
2	3.5%	18.6%	2.6%	26.9%	7.8%	52.0%	\$171,401	182
3	6.9%	11.9%	12.7%	19.8%	5.6%	49.0%	\$65,355	143
4	8.5%	36.5%	-32.1%	30.5%	-11.6%	45.0%	\$40,339	-400
5	-6.9%	9.7%	4.4%	20.9%	8.3%	26.4%	-\$68,185	53
6	-0.1%	22.9%	1.6%	42.9%	19.7%	52.7%	\$74,061	70
7	7.1%	15.6%	7.3%	36.7%	14.5%	36.0%	\$888,927	1,371
8	-2.1%	17.1%	-3.3%	19.8%	-4.4%	17.2%	-\$143,530	-265
Total	2.9%	15.3%	2.3%	29.0%	9.2%	27.0%	\$996,818	1,086

The primary conclusions from the pilot project are outlined below.

- The pilot was ultimately effective in supporting engagement of public-sector customers and addressing all of their buildings in the LDC service areas rather than just individual projects;

Conclusion 1: Customer engagement proved more challenging than expected

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- Private-sector commercial and retail owners were also recruited, but the commercial building operators which expressed interest were either big box store managers who had no control of energy use or large chains which were not interested in addressing just a few of their outlets;
- School board participants, each of which span multiple LDCs, found it challenging to work with only the subset of their buildings served by the 3 LDCs taking part in the pilot;
- The collaborative involvement of the electric, natural gas and water utilities was effective in customer recruitment, training and identification of measures.

Conclusion 2: Savings are greater than thought, and the biggest savings are found in a small number of buildings

- The pilot identified achievable energy and water savings potential which is considerably greater than owners or utility companies had previously thought;
- The lion's share of savings potential is found in a relatively small number of buildings which should be the focus of attention and investment;
- High-potential buildings, and the identified measures with the greatest savings potential and the best economic returns, were not previously being prioritized;
- It takes time for public-sector organizations to realign their projects and practices, and definitive evidence of higher savings due to the project has not yet been seen;
- Ongoing savings reporting is informative and motivational, supporting learning and guiding continuous improvement.

Conclusion 3: Performance-based conservation methodology is useful for quantifying savings potential and identifying the best savings opportunities

- Participants and utility companies found the data analytics and training useful in making the business case for action and focusing their efforts on the best energy and water savings opportunities;
- The larger participating owners with well-developed in-house energy efficiency programs reported being able to incorporate the pilot results into their planning and processes;
- Smaller participants lack resources and would welcome utility company support in identifying and implementing the best measures.

The introduction of the provincial saveONenergy Energy Performance Program and Toronto Hydro's OPSaver program, which include core principles of multi-year agreements, savings measured at the meter and recognition of operational savings, aligns well with Performance-Based Conservation methodology. Those principles do not work well within the current DSM framework for the natural gas utilities.

Conclusion 4: Performance-Based Conservation methodology aligns well with current electric CDM programs but not with gas DSM programs

Conclusion 5: Left unattended, energy and water use increases, attributed to operational issues, significantly offset savings achieved through conservation action

A substantial proportion of buildings recorded increases in energy use, which were primarily attributed to operational, maintenance and controls issues. While high-savings potential buildings have to be prioritized for achieving deep savings, a robust management and operations

plan needs to be in place for the remaining buildings so that the savings achieved are not offset by general increases elsewhere.

Recommendations arising from the pilot project are:

1. Ongoing engagement and reporting

It is recommended that the utility companies continue to provide technical and incentive support to the pilot participants through 2019-20 to help them adopt new projects and practices and achieve the identified conservation potential.

The pilot project has identified and prioritized a large electricity, natural gas and water savings potential and established a community of interest among the participating owners and utility company representatives. Continuing support in measure identification and implementation can contribute to the utility companies' conservation targets while helping their customers meet their conservation goals. This ongoing engagement and lessons learned can also inform CDM/DSM frameworks and program design after the current frameworks end in 2020.

For the school board participants, the other LDCs serving their buildings should be invited to join the ongoing effort so that their whole portfolios are covered.

2. Private-sector engagement

It is recommended that senior-level discussions be held with leading private-sector owners to explore if and how Performance-Based Conservation principles may be useful to them in meeting their energy efficiency and climate goals.

Performance-Based Conservation (PBC) Pilot Project: Final Report

A growing number of large commercial office owners are using the PBC methodology to manage their energy efficiency programs, and it will be useful to go deeper into how the approach could be adapted to local utility programs.

3. Program design

It is recommended that the IESO and the Ontario Energy Board work with the province's utility companies to accommodate Performance-Based Conservation in the post-2020 CDM/DSM frameworks and conservation program design, including program cost sharing and attribution of savings.

The experience of the pilot project, and of the existing sectoral programs referred to in Section 2 Background and Introduction, can be built upon to design powerful new integrated programs to deliver the considerable electricity, natural gas and water conservation potential which has been identified through Performance-Based Conservation. Key principles for consideration are:

- Collaboration among utilities;
- Multi-year engagement rather than one-time projects;
- Identification and prioritization of high-potential owners and buildings;
- Training for customers (including operations staff) and utility company representatives;
- Executive-level customer engagement combined with facility-level technical support;
- Continuing monitoring of actual savings measured at the meter for whole portfolios, not just individual buildings, with normalization for weather variances and other significant variables (such as portable classrooms connected to schools);
- Whole-portfolio energy and water management to identify and address increases due to operational issues; and
- Graduated incentives based on progress towards attainment of targeted performance.

2 BACKGROUND AND INTRODUCTION

Evolution of Performance-Based Conservation

The development of Performance-Based Conservation dates back to 2006, arising from the Canada Green Building Council's (CaGBC's) climate change mitigation strategy. The CaGBC board resolution prioritized substantial energy efficiency improvement across the buildings' sector, with the target of 50% reduction in energy intensity by 2015. In support of this target, large-scale national pilot projects were launched between 2007-2010 engaging commercial office owners, provincial, federal and municipal governments, K-12 school boards, major banks and credit unions and universities. Energy and water use for thousands of buildings were benchmarked. Engineers were retained to collect building system metrics for a few hundred of them including power densities, plant capacities and building envelope thermal factors. Analysis of the large body of resulting data provided important insights into the wide range of energy use intensities for similar buildings, and the contributing factors to more- and less-energy intensive buildings, in particular the importance of management and operations. Workshops with individual building owners led to some of the first evidence-based programs for improving energy efficiency.

The commercial office sector took this work a step further through REALPAC, its industry association, in developing the first national energy target for commercial office buildings. The "20 by '15" target, launched with CaGBC and Building Owners and Managers Association (BOMA) in 2009, called for all office buildings to attain a weather-normalized total energy use intensity of 20 equivalent kilowatt-hours per square foot (ekWh/sq.ft.) by 2015. At the time, the median total energy use intensity for commercial office buildings was 35 ekWh/sq.ft. The methodology included adjustments for material site-specific variables such as data centres, enclosed parking and heating energy sources. 20 by '15 provided a catalyst and evidence-based foundation for the world-class energy and emissions reduction initiatives and results recorded by Canada's commercial office owners over the past decade.

The methodology has been further developed for hospitals, municipalities and schools through TRCA's sector-wide programs, which combine energy and water benchmarking, targets and ongoing savings reporting with training, networking, recognition and applied research. The programs have enabled hundreds of owners of thousands of buildings to make the connection between actions and results and drive large-scale savings. The City of Toronto used PBC methodology in its 2014 Energy Conservation and Demand Management plan to determine the achievable conservation potential across more than 600 buildings and 15 different building types. Toronto's Tower Renewal Office is applying the same approach to the multi-residential sector, supporting private and social housing landlords in understanding their savings potential and taking evidence-based action to reduce energy, water and waste.

Performance-Based Conservation has also informed the recent introduction of utility company pay-for-performance incentive programs which incorporate the principles of multi-year agreements, savings measured at the meter rather than by calculation and recognition of the substantial contribution of operational savings.

Goals of the pilot project

The primary goal of this pilot project was to test the effectiveness of Performance-Based Conservation across multiple commercial building segments in the service areas of a number of local electric distribution companies (LDCs). The pilot also responded to a ministerial directive for electric and natural gas utility companies to work together in addressing customer needs and went further by also including the local water utilities.

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The pilot aimed to quantify the energy and water savings potential for the commercial sector across these communities and to provide actionable data analytics to participating customers and utility companies which would help them maximize energy reductions. Effectiveness was to be tested in terms of:

- Enhanced customer engagement through combined utility company presentation of the magnitude of savings potential and performance comparisons with similar owners and buildings.
- Greater savings through identification of high-potential buildings, use of data analytics to point to where the savings are to be found and training for customers and utility company representatives in using data to uncover the best savings opportunities.
- Verification of savings and guidance for continuous improvement through ongoing monitoring and reporting of monthly energy and water use.

Pilot project design

The three pilot LDCs – Brampton Hydro (now Alectra Utilities), Milton Hydro and Halton Hills Hydro – are located in the north-west corner of the Greater Toronto Area as shown in Figure 1, an area which is experiencing rapid growth and resulting electrical capacity limitations. The two smaller local communities of Town of Milton and Town of Halton Hills are served by Union Gas and Halton Water, while Brampton is supplied by Enbridge Gas Distribution and Peel Water.

The pilot project proceeded in the following phases: market segmentation, customer engagement, data collection and analysis, workshops, and measurement and verification. Each phase was summarized in a separate milestone report prepared at the phase conclusion. This final report summarizes the milestone phases, lessons learned and overall conclusions and recommendations coming out of the pilot project.

3 MARKET SEGMENTATION

3.1 Determining markets

Enerlife created a database of potential participants within the Brampton, Halton Hills and Milton LDC service areas. The electricity, natural gas and water utilities identified and categorized a target group of customers within the pilot area. A letter was sent to these customers inviting them to join the pilot. A data release letter covering all utilities for participants was produced.

The master database of potential participants with contact information was a key first step in the pilot project. It had been assumed that the master database could be compiled from utility company records, but that proved not to be the case. It had not been appreciated that the utilities could not share customer information, nor were they able to segment customers by sector. Compilation of the master database was critical but time-consuming.

Table 5 Recruitment

Building type	Potential customers in LDC service areas	Project participants
Art & cultural centre	3	3
Fire station	22	3
Maintenance	16	3
Town Hall	2	2
Library	6	2
Community centre/Pool/Arena	42	27
School	221	157
Branch	102	
Office	15	6
Retail	101	
Enclosed mall	12	
Hospital	3	1
Meeting hall	6	
City Hall	1	1
Multi-use	8	
Storage facility	2	
University	2	
Warehouse	5	
Totals	569	205

3.2 Lessons learned

1. Allow more time for buy-in from utilities

Prior to the kickoff meeting for the project, the natural gas and electric utilities were already familiar with the intent and general scope of the pilot project. The water utilities were less familiar with PBC and pilot projects like this one. Gaining earlier buy-in from water utilities would have aided the water utility representatives in contributing to this phase of the pilot project.

2. Provide a draft master list of potential pilot participants

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Having first developed a draft of a master list of potential pilot participants from other sources proved successful in developing the final master list. Utility representatives were able to take the draft back to staff to augment, rather than start from customer lists for each utility.

3. LDCs were not able to identify big energy users

LDCs were not able to identify big energy users, nor share the information with other utilities or the pilot administrators.

4 CUSTOMER ENGAGEMENT

4.1 Engagement process

Engagement of customers was initially led by the local utilities with the most connected market outreach teams (Union Gas and Alectra), supported by TRCA and Enerlife. REALPAC and BOMA could offer little assistance because of the small size of the catchment area and the small number of commercial office customers. The designated utility reached out to identified organizations including governments, banks, school boards and retail chains. A second wave of recruitment targeted specifically at private-sector organizations was led by TRCA's Partners in Project Green, including a targeted brochure, phone calls to their participants and a recruitment webinar aimed at commercial customers.

4.2 Participants

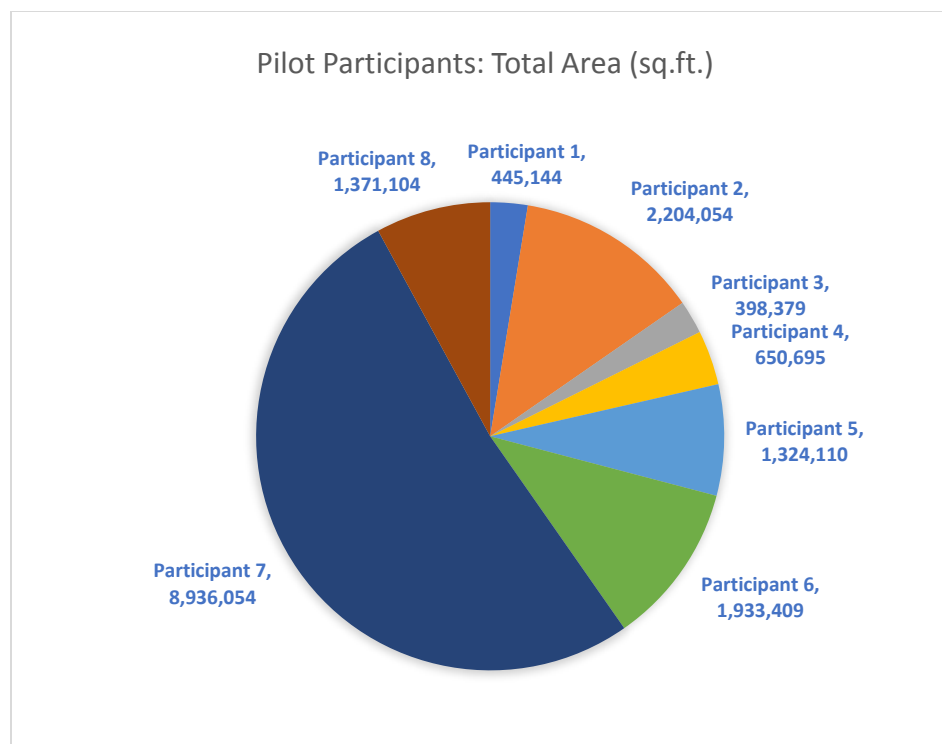
The engagement efforts resulted in eight eligible customers with 205 buildings to actively participate in the Performance-Based Conservation pilot. The figures below show the participants and numbers of buildings by building type.

Table 6 PBC pilot participants

Participant	Total Buildings	Total Area (sq.ft.)	Admin / Office	Courthouse	Community Centre	Theatre and Performing Arts	Fire Station	Transit and Operation Centre	Library	School	Hospital
1	2	445,144	1	1							
2	28	2,204,054	4	1	19	1		2	1		
3	10	398,379	1		3	1	3	1	1		
4	7	650,695	1		5	1					
5	17	1,324,110								17	
6	30	1,933,409								30	
7	110	8,936,054								110	
8	1	1,371,104									1
Total	205	17,262,949	7	2	27	3	3	3	2	157	1

Figure 5 Total building area by pilot participant

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4.3 Lessons learned

1. Provide more information and training to utility representatives in charge of recruitment

Utility representatives participated in stakeholder meetings to help understand the data available, develop the data request form and the engagement letter and determine the recruitment strategy. However, the utility staff responsible for recruitment were not involved in the stakeholder meetings and therefore were not able to contribute to the recruitment process, nor did they fully understand the intent of the pilot. This took time to explain one on one, and the staff didn't benefit from collective discussion to learn from one another. Front line staff would have benefited from more training at the outset and at regular intervals.

2. Allow more time for drafting and approving the data release letter

The data release letter had to be approved prior to customer engagement, so the letter could be sent out with the recruitment material. Drafting and multi-party review of the data release letter took a significant amount of time, which could have been avoided if a standard data release form had already existed.

3. Prepare for utility representative turnover

There was turnover of utility representatives both at the stakeholder and recruitment stages of the project. This required additional training and time and contributed to the slow pace of recruitment.

4. Allow more time for review of master list of potential pilot participants

The review and debate to determine likely potential pilot participants took much longer than expected. The master list was not fully reviewed by all utilities and new customer contact details were still being added six months later.

5. Importance of pre-existing relationships

Recruitment of participants was most successful when there was already a connection to the utility company and/or TRCA.

6. Small pilot area a deterrent to private-sector building owners/managers

The biggest challenge was in the efforts to engage private-sector commercial building owners. Despite outreach by the utilities and TRCA staff, as well as a focused recruitment drive and free webinar, no commercial building owners joined the pilot. Feedback from building owners indicated that the pilot area was too small and therefore too few of their buildings could sign up, so it was not worth their time. Some interest was expressed by a few industrial building owners whose building type was not eligible for this pilot.

5 ENERGY AND WATER DATA COLLECTION AND ANALYSIS

5.1 Energy and water data collection

Monthly utility data were obtained for all 205 buildings, with electricity, natural gas and water data sent directly by the respective utility company. Weather data was obtained from Environment Canada. A high-level screening was done to identify buildings with medium to large opportunities for natural gas, electricity or water savings. Weather normalization was applied to benchmark buildings and monitor savings trends over the past two years.

Customers provided permission to share data with project partners, including LDCs, natural gas and water utilities and the IESO, when they signed the data agreement.

A building information template for each building type was developed to capture the building details and data required for ENERGY STAR Portfolio Manager and for target setting and normalization.

5.2 Data analysis

Standard good practice (top-quartile) energy and water targets were established from other Performance-Based Conservation programs and are provided in Appendix B. The targets for individual buildings were normalized for key building parameters including heating and cooling degree-days, heating system type, ice rinks and pools in community centres and portable classrooms in schools. The difference between baseline energy and water use and the normalized target for each building determines its savings potential. Baseline energy and water use is calendar year 2016 for municipalities, the September 2015 – August 2016 school year for the school boards and calendar year 2017 for the hospital. Savings potential results are shown in the tables below (separately for the customers and for the utility companies).

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Table 7 Target savings potential by customer

Participant	Total buildings	Total area (sq.ft.)	Annual target savings potential							
			Electricity		Natural gas		Water		Total energy	GHG emissions tonnes/year
			kWh	%	m3	%	m3	%	\$	
1	2	445,144	718,498	12%	90,018	20%	2,631	11%	\$130,165	199
2	28	2,204,054	7,390,120	19%	1,252,301	27%	192,389	52%	\$1,811,476	2,660
3	10	398,379	859,380	12%	196,423	20%	10,372	49%	\$195,712	405
4	7	650,695	5,772,163	37%	343,228	31%	21,617	45%	\$948,047	879
5	17	1,324,110	963,770	10%	174,595	21%	11,860	26%	\$212,542	368
6	30	1,933,409	3,622,299	23%	870,820	43%	62,005	53%	\$889,072	1,789
7	110	8,936,054	2,850,703	16%	2,667,697	37%	107,578	36%	\$1,431,682	5,151
8	1	1,371,104	6,066,359	17%	1,033,228	20%	41,959	17%	\$1,372,232	2,193
Total	205	17,262,949	28,243,292	15%	6,628,309	29%	450,411	27%	\$6,990,928	13,644

Table 8 Target savings potential by utility company

Utility company	Total buildings	Total area (sq.ft.)	Annual target savings potential							
			Electricity		Natural gas		Water		GHG emissions	
			kWh	%	m3	%	m3	%	tonnes/year	
Alectra	141	12,956,356	17,025,679	12%					681	
Milton Hydro	34	2,646,947	9,335,966	30%					373	
Halton Hills Hydro	30	1,659,646	1,881,646	12%					75	
Enbridge	141	12,956,356			5,043,245	28%			9,522	
Union Gas	64	4,306,593			1,585,065	35%			2,993	
Region of Peel Water	141	12,956,356					344,556	35%		
Halton Region Water	64	4,306,593					105,854	16%		
Total			28,243,292	15%	6,628,309	29%	450,411	27%	13,644	

5.3 High-savings potential buildings

PBC focuses on high-savings potential buildings which provide the highest returns on investment for owners and utility companies alike. Table 3 presents the share of total energy, water and emissions savings for those buildings with targeted utility cost savings greater than \$20,000/year, showing that just 70 buildings (34%) account for 82% of the overall dollar savings potential. Similar findings apply to electricity, natural gas, water and emissions where the lion's shares of potential savings are found in a relatively manageable proportion of buildings.

Table 9 Savings potential of buildings with target savings greater than \$20,000 per year

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Participant	# of buildings with high savings potential	Electricity savings potential, kWh	Natural gas savings potential, m3	Water savings potential m3	Total savings potential, \$	GHG emissions tonnes/year
1	1	625,470	90,018	2,631	\$120,753	195
2	19	7,060,883	1,119,226	4,326	\$1,728,155	2,396
3	3	461,069	194,368	10,147	\$131,790	381
4	5	5,714,838	293,771	19,821	\$934,788	783
5	2	342,273	75,761	220	\$71,163	157
6	17	3,443,551	656,515	33,374	\$757,480	1,377
7	22	1,965,380	1,073,610	56,669	\$699,750	2,001
8	1	6,066,359	1,033,228	41,959	\$1,257,861	2,193
Total – High-savings potential buildings only	70	25,679,822	4,536,496	169,146	\$5,701,741	9,484
Total – all buildings	205	28,243,292	6,628,309	450,411	\$6,990,928	13,644

The corollary to high-savings potential buildings is that many buildings have little or no potential for delivering significant energy and/or water reductions. For this data set of 205 buildings with top-quartile targets applied, 45% of buildings show no electricity savings potential (indicating they are relatively efficient electricity users compared to their overall sector), with 20% showing no savings potential for natural gas, and one-third for water.

5.4 ENERGY STAR Portfolio Manager

The utilities and building data were also entered into and benchmarked against the dataset of buildings in ENERGY STAR's Portfolio Manager. For buildings that were able to obtain a score this was included in the analysis, otherwise the energy intensity compared to median performance was reported.

A building details template was created for each building type to collect all relevant building details for both ENERGY STAR Portfolio Manager and PBC target-setting. The template was sent to each participating organization for completion. Building details and energy and water data were collected in accordance with the requirements of ENERGY STAR Portfolio Manager.

Accounts have been created for each of the participating customers and profiles of each of the participating buildings have been produced with the building information and utility data provided by the participating organizations.

5.4 Energy Assessment Reports

An Energy Assessment Report was created for each participating organization (see Appendix A). The Energy Assessment Report presents the energy and water performance and savings potential for all of their participating buildings. The original pilot project intent to report only on a subset of buildings and leave the remainder as a control group was not well-received by initial participating customers, and since there were only eight participating organizations all buildings were included throughout the pilot.

5.5 Lessons learned

1. Energy and water data requests took longer for some utilities than others

Providing two years of monthly energy and water data was more challenging and time-consuming for some utilities than others. In most cases the pilot project utility contact was not the person who could provide the data. Knowing the contact person at each utility in advance, as well as reviewing what was needed and how long it would take to obtain, would have made this process run more smoothly.

2. Obtaining utility data was more difficult than expected

Commercial customer data were not available, nor could they be obtained (even anonymously) from the utilities until after a data agreement was signed. Institutional building data were more readily available but were often scanned or in pdf format and so were not easily compiled.

3. Calendar year vs school year

The data collection process should have considered both school and calendar year benchmarking. Data was collected from the utilities with a calendar year in mind and therefore the school year benchmarking was slightly more out of date. School energy and water data should always be collected and benchmarked on a school year basis (September to August) rather than on a calendar year basis (January to December).

4. Building information can be challenging to obtain

For some participants, retrieval of building characteristic details required for normalization and ENERGY STAR Portfolio Manager was challenging. The participant contact in a number of cases did not have access to this information, which required them to confirm the data with individual building managers, requiring a good deal of communication and coordination.

5. Opportunity for further research into water targets

Relatively little research has been done into water use benchmarks and targets, including the building characteristics that impact water use and what appropriate normalizations would be. This presents a good opportunity for further research.

6 TRAINING WORKSHOPS (CUSTOMERS AND UTILITIES)

6.1 Workshop design

The workshops provide the opportunity to engage with the customers enrolled in the program on use of the Energy Assessment Reports and identification of conservation opportunities, and to facilitate interaction with the utility companies. The workshops were held by sector, bringing organizations with similar building types together to compare performance. This meant individual workshops were designed for the school boards, the municipalities and the hospital. The design was reviewed by webinar and approved by utility companies prior to workshop delivery. Data for each organization were collected, focusing on the high-savings potential buildings, to provide a clear picture of comparative performance, what they were already working on and where they have opportunities for energy and water savings. Information was also collected from the utility companies on what incentives the participating customers had applied for as an indication of their preferred areas of activity and working relationships with the utilities.

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6.2 Workshop implementation

The three workshops for the school boards, municipalities and the hospital were held in November 2017 and May 2018. Utility company representatives and the IESO were invited to all workshops and most attended at least one workshop, with some attending two or all three. All customer participants attended the workshops, with the exception of Infrastructure Ontario, who was invited to the municipalities workshop.

Table 10 PBC pilot workshop details

Workshop	Date	Location	Participants	Utility Companies
1	Schools	November 6, 2017	Milton Hydro Office	Alectra
				Peel DSB
				Milton Hydro
				Halton DSB
				Enbridge
2	Municipalities	November 16, 2017	Milton Hydro Office	Union Gas
				Region of Peel Water
				Halton Region Water
				City of Brampton
				Alectra
3	Brampton Civic Hospital	May 8, 2018	Brampton Civic Hospital	Milton Hydro
				Union Gas
				Region of Peel Water
				Alectra
				Enbridge
				Region of Peel Water
				IESO

6.3 Participant survey

After the workshops, individual teleconference surveys of participants were held between March and April 2017 to review progress and get feedback on how the results of their workshop match their understanding of their buildings, and if they provided insight into where energy and water could be saved. The interviews also determined what energy and water efficiency measures they were already undertaking, if they will be doing things differently because of the workshop and what else they need to implement efficiencies including additional support from their utilities.

Survey teleconferences were conducted with five of the eight participating customers, with the other three indicating they were too busy to respond. The survey questions and participants' answers are included in Appendix D.

Generally, the participants found the energy assessment and workshops provided valuable insight into the performance of their buildings. All participants recognized the additional opportunities identified through the workshop but were not able to immediately assign resources or capital to identified operational improvements. A few organizations were focusing on getting organized around data first, and all were focused on making use of the Greenhouse Gas Reduction Fund capital made available during this time.

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6.4 Utility teleconferences

After the survey teleconferences with the participating customers, two follow-up teleconferences were held with the utilities to brief them on the feedback and discuss lessons learned and conclusions.

6.5 Lessons learned

1. Holding a stakeholder teleconference before the workshops was critical

Holding the stakeholder teleconference, eight days before the first workshop, provided a key opportunity for the utilities to critique the workshop content before it was presented, ask questions ahead of time, and see the value of the material being presented prior to discussing it with participants. The utility representatives also were more invested as they had contributed to the development of the workshops and were able to answer participant questions.

2. Obtain list of incentives applied for by each organization well in advance

A comparison of incentives applied for by each organization was incorporated in the workshops. Some utilities were able to provide this easily while others were unable to do so. This information was important in establishing what kinds of work the organizations were doing prior to the pilots. Participants were asked in the workshops about what kinds of projects they were working on to augment this information.

Table 11 PBC pilot participants' current energy efficiency activities

Measure	Participant 2	Participant 3	Participant 4	Participant 8	Participant 7	Participant 5	Participant 6
Lighting	62	9	1	1	46	7	9
Audit/study		6		1	2		
High-Performance New Construction					1		
HVAC retrofit	4	2			4	2	
Building Automation System (BAS)	1					1	
Controls	2						
Variable frequency drives (VFD)	1						
Boiler retrofit		4	3				
Demand-controlled ventilation		1			4		
Ice rink retrofit	4						
Other	1	1			4		
Total	75	23	4	2	61	10	9

3. Be prepared for utility representative turnover

Throughout the course of the pilot, turnover in utility staff and utility company restructuring had a significant impact on the schedule of the pilot, access to data, and contribution to the pilot development. One of the utilities did not have a representative in place while the workshops were being held and therefore could not provide support for participants and learn from the workshops.

4. Use more recent data

More sophisticated participating customers that track their energy and water data closely expressed concern that using the previous year's data for the analysis missed more recent improvements and did not reflect their current reality. However, most participants had not previously seen this type of data

analysis and found it very helpful, and all participants reported finding something new and useful in their results.

7 MONITORING AND VERIFICATION

7.1 Methodology

Ongoing utility data were obtained from the utility companies, or directly from a data hub, for all the participating buildings. Weather-normalized savings results were processed using Enerlife's online Green Building Performance System (GBPS). The new data were also uploaded into ENERGY STAR Portfolio Manager.

The Green Building Performance System (GBPS) is a web-based application that allows owners to keep track of energy and water consumption in their buildings, make year-to-year comparisons of weather-normalized energy use and benchmark (anonymously) the energy performance of their buildings against other comparable buildings. In order to report accurately on energy savings, adjustments are required for weather variations between the baseline (comparison) period and the current (performance) period. The International Performance Measurement and Verification Protocol (IPMVP) provides consensus guidance on baseline setting, and the GBPS analysis is based on this protocol.

Baselines for each utility type and meter for all participating buildings were set up in the GBPS with appropriate regressions, balance temperatures, slopes and intercepts for heating and cooling seasons. Monthly savings reports were run in the GBPS, normalized for degree-days and billing periods.

7.2 Results

Monthly savings results were reported to the participating customers for all of their buildings (see Appendix C). The table below summarizes the actual weather-normalized savings for all participating customers relative to the baselines from January 2018 (immediately following the workshop) to date (July 2018), except for the school boards whose savings periods are from September 2017 to date (school year).

Overall, energy and water savings were achieved: 2.9% for electricity, 2.3% for natural gas, and 9.2% for water. This translates into almost \$997,000 worth of energy and water savings and has resulted in greenhouse gas emissions reduction of over 1,000 tonnes CO₂e. Results for the different participating customers vary considerably.

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Table 12 Year-to-date actual savings compared to targets, by customer

Participant	Total buildings	Total area (sq.ft.)	Electricity				Natural gas				Water				Actual total energy savings, \$	Actual GHG emissions reduction, tonnes CO2e
			Actual savings, kWh	Actual savings, %	Target savings, %	% of buildings with savings	Actual savings, m3	Actual savings, %	Target savings, %	% of buildings with savings	Actual savings, m3	Actual savings, %	Target savings, %	% of buildings with savings		
1	2	445,144	-161,338	-4.7%	11.6%	0%	-32,911	-8.7%	20.2%	50%	303	2.2%	11.0%	100%	-\$31,551	-69
2	28	2,204,054	756,207	3.5%	18.6%	68%	80,638	2.6%	26.9%	54%	13,780	7.8%	52.0%	50%	\$171,401	182
3	10	398,379	291,665	6.9%	11.9%	70%	69,624	12.7%	19.8%	50%	1,211	5.6%	49.0%	30%	\$65,355	143
4	7	650,695	764,253	8.5%	36.5%	57%	-228,221	-32.1%	30.5%	29%	603	-11.6%	45.0%	29%	\$40,339	-400
5	17	1,324,110	-650,538	-6.9%	9.7%	35%	41,768	4.4%	20.9%	59%	3,453	8.3%	26.4%	41%	-\$68,185	53
6	30	1,933,409	-20,469	-0.1%	22.9%	67%	37,569	1.6%	42.9%	37%	21,885	19.7%	52.7%	77%	\$74,061	70
7	110	8,936,054	3,771,662	7.1%	15.6%	83%	646,180	7.3%	36.7%	68%	55,680	14.5%	36.0%	62%	\$888,927	1,371
8	1	1,371,104	-577,522	-2.1%	17.1%	0%	-127,970	-3.3%	19.8%	0%	-8,095	-4.4%	17.2%	0%	-\$143,530	-265
Totals	205	17,262,949	4,173,921	2.9%	15.3%	72%	486,677	2.3%	29.0%	58%	88,822	9.2%	27.0%	57%	\$996,818	1,086

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The table below shows actual savings to date by utility company.

Table 13 Year-to-date actual savings compared to targets, by utility company

Utility company	Total buildings	Total area (sq.ft.)	Electricity			Natural gas			Water			GHG emissions reduction, tonnes CO2e
			Actual savings, kWh	Actual savings, %	Target savings, %	Actual savings, m3	Actual savings, %	Target savings, %	Actual savings, m3	Actual savings, %	Target savings, %	
Alectra	141	12,956,356	3,789,009	3.5%	12.4%							152
Milton Hydro	34	2,646,947	-133,909	-0.5%	29.9%							-5
Halton Hills Hydro	30	1,659,646	518,820	4.1%	12.1%							21
Enbridge	141	12,956,356				565,937	3.3%	27.6%				1,068
Union Gas	64	4,306,593				-79,259	-1.8%	34.7%				-150
Region of Peel Water	141	12,956,356							61,668	8.1%	35.0%	
Halton Region Water	64	4,306,593							27,153	13.1%	15.6%	
Total			4,173,921	2.9%	15.3%	486,677	2.3%	29.0%	88,822	9.2%	27.0%	1,086

7.3 Follow-up participant survey

Follow-up teleconference surveys were held in November and December 2018 with four of the participating customers to discuss the savings (and increases) recorded and determine what actions may have contributed to their individual building and overall results to date. The other four organizations did not respond within the required timelines.

The survey's questions and participants' answers are included in Appendix D.

Overall, the participants saw improvements in results. As with the workshops and energy assessment reports, the participants found the savings reports useful. Only a few of the participants were integrating the workshop findings and savings target results into their energy improvement plans and for those that did, it is too soon to see results. Most had been continuing with existing improvement plans. For one participant, normalization for use patterns and additional portables would be required to reflect results.

7.4 Conclusions so far

Conclusions drawn from the savings results to date and participant teleconferences are as follows:

- A majority of the high-potential buildings recorded more than 5% savings in electricity (>70%), natural gas (>50%) and water (>50%).
- A significant proportion of the high-potential buildings recorded increases in electricity, natural gas and/or water use, indicating that they were not being prioritized.
- A few high-potential buildings came close to (within 25%) of their top-quartile targets set for this pilot project for electricity, natural gas and/or water use.
- Reported measures implemented in buildings showing significant savings are generally consistent with the actions identified through the workshops, in particular operational and controls improvements.
- A significant percentage of buildings recorded increases in electricity (28%), natural gas (42%) and/or water (41%) use. In a few cases, substantial increases resulted from identified material changes to the buildings, including addition of a CHP plant to a community centre, renovations and additions and a substantial increase in the numbers of electrically-heated portable classrooms. However, in most cases, increases were unexplained and generally attributed to unspecified operational and maintenance issues.

7.5 Comparison with other buildings in the sectors

As mentioned in Section 5.4, the original pilot project intent to maintain a control group of participating buildings could not be followed and all buildings were included throughout the pilot. With the small number of participating organizations (8) and no private commercial participants, there was not enough comparison data to have both active and control groups within the pilot. As well, participant feedback indicates that it takes time to adjust capital planning and operational practices to respond to new information, and only limited changes had been made during the Monitoring and Verification Period. As the actual savings continue to unfold for the participating customers, ongoing surveys will help clarify the PBC influence on results, while provincially mandated public reporting of annual energy use will allow tracking of province-wide savings trends for different commercial building segments.

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7.6 Lessons learned

1. The early savings results are informative of current projects and practices of the different participating customers, but do not provide definitive information on the impact of the PBC interventions. It takes time for public sector organizations to adjust their capital plans and management processes to new information.
2. Participants found the savings reports provided to be informative and motivational for staff involved in their energy efficiency efforts.
3. Normalization of savings reports for material variances (in addition to weather) such as numbers of portable classrooms is necessary.
4. Customers vary in size, capability, resources and commitment to energy efficiency. The savings results correlate with the observed degree of engagement of the different customers participating in the pilot.
5. Left unattended, energy use in buildings tends to rise as equipment malfunctions and deteriorates and unproductive operational changes are made. To achieve the intended overall energy and emissions reductions it is necessary to address whole portfolios, not just individual buildings and projects.

8 CONCLUSIONS

The primary conclusions from the pilot project are:

1. Customer engagement proved more challenging than expected.
 - a. The pilot was ultimately effective in supporting engagement of public-sector customers and addressing all of their buildings in the LDC service areas rather than just individual projects;
 - b. Private-sector commercial and retail owners were also actively recruited but did not join the pilot;
 - c. School board participants, each of which span multiple LDCs, found it challenging to work with only the subset of their buildings served by the 3 LDCs taking part in the pilot;
 - d. The collaborative involvement of the electric, natural gas and water utilities was effective in customer recruitment, training and identification of measures.
2. Savings are greater than thought, and the biggest savings are found in a small number of buildings.
 - a. The pilot identified achievable energy and water savings potential which is considerably greater than owners or utility companies had previously thought;
 - b. The lion's share of savings potential is found in a relatively small number of buildings which should be the focus of attention and investment;
 - c. High-potential buildings, and the identified measures with the greatest savings potential and the best economic returns, were not previously being prioritized;
 - d. It takes time for public-sector organizations to realign their projects and practices, and definitive evidence of higher savings due to the project has not yet been seen;
 - e. Ongoing savings reporting is informative and motivational, supporting learning and guiding continuous improvement.
3. Performance-based conservation methodology is useful for quantifying savings potential and identifying the best savings opportunities.
 - a. Participants and utility companies found the data analytics and training useful in making the business case for action and focusing their efforts on the best energy and water savings opportunities;
 - b. The larger participating owners with well-developed in-house energy efficiency programs reported being able to incorporate the pilot results into their planning and processes;
 - c. Smaller participants lack resources and would welcome utility company support in identifying and implementing the best measures.
4. Performance-Based Conservation methodology aligns well with current electric CDM programs but not with gas DSM programs.

The introduction of the provincial saveONenergy Energy Performance Program and Toronto Hydro's OPsaver program, which include core principles of multi-year agreements, savings measured at the meter and recognition of operational savings, aligns well with Performance-Based Conservation methodology. Those principles do not work well within the current DSM framework for the natural gas utilities.

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5. Left unattended, energy and water use increases caused by operational issues significantly offset savings achieved through conservation action.

A substantial proportion of buildings recorded increases in energy use, which can be primarily attributed to operational, maintenance and controls issues. While high-savings potential buildings have to be prioritized for achieving deep savings, a robust management and operations plan needs to be in place for the remaining buildings so that the savings achieved are not offset by general increases elsewhere.

9 RECOMMENDATIONS

Recommendations arising from the pilot project are:

1. Ongoing engagement and reporting

It is recommended that the utility companies continue to provide technical and incentive support to the pilot participants through 2019-20 to help them adopt new projects and practices and achieve the identified conservation potential, while adding more to the lessons learned.

The pilot project has identified and prioritized a large electricity, natural gas and water savings potential and established a community of interest among the participating owners and utility company representatives. Continuing support in measure identification and implementation can contribute to the utility companies' conservation targets while helping their customers meet their conservation goals. This ongoing engagement and lessons learned can also inform CDM/DSM frameworks and program design after the current frameworks end in 2020.

For the school board participants, the other LDCs serving their buildings should be invited to join the ongoing effort so that their whole portfolios are covered.

2. Private-sector engagement

It is recommended that senior level discussions be held with leading private-sector owners to explore their energy efficiency and climate goals and current practices and determine if and how Performance-Based Conservation principles may be useful to them.

A growing number of large commercial office owners are already using the PBC methodology to manage their energy efficiency programs, and it will be useful to understand reasons for non-participation of private-sector owners in this pilot project.

3. Program design

It is recommended that the IESO and the Ontario Energy Board work with the province's utility companies to accommodate Performance-Based Conservation in the post-2020 CDM/DSM frameworks and conservation program design, including program cost sharing and attribution of savings.

The experience of the pilot project, and of the existing sectoral programs referred to in Section 2 Background and Introduction, can be built upon to design powerful new integrated programs to deliver the considerable electricity, natural gas and water conservation potential which has been identified through Performance-Based Conservation. Key principles for consideration are:

- Collaboration among utilities
- Multi-year engagement rather than one-time projects
- Identification and prioritization of high-potential owners and buildings
- Training for customers and utility company representatives
- Executive-level customer engagement combined with facility-level technical support
- Continuing monitoring of actual savings measured at the meter for whole portfolios, not just individual buildings
- Graduated incentives based on attainment of targeted performance

Performance-Based Conservation Pilot Project: Final Report

APPENDIX A: ENERGY ASSESSMENT REPORTS



Participant 1 – Energy Performance and Opportunities

Your 2016 Performance – Knowing where your buildings are

Benchmarking your buildings against similar buildings across the country shows the relative energy performance of your individual buildings and helps to establish conservation targets for your entire portfolio. The following table show the total energy performance of your buildings from January – December 2016, weather normalized to Toronto 2012 weather conditions (i.e. the year of data from which the targets were established). This is compared with the adjusted target energy performance by building type. Note that values highlighted in red are above target and values highlighted in green are below target.

Administrative Office	2016 Electricity Use (kWh/ft ²)	2016 Gas Use (ekWh/ft ²)	2016 Weather Normalized Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target* (ekWh/ft ²)
Building #1	14.0	11.2	25.2	21.0
Building #2	13.5	5.9	19.4	18.1

**Adjusted for unique building characteristics such as heat pumps and electric heat*

Your Energy Targets Explained

The energy targets are good practice energy use intensities from Enerlife's Green Building Performance System (GBPS) database. They are readily attainable and are already being met or surpassed by a number of buildings. The following is the breakdown of target performance by electricity and gas that makes up the total energy intensity target.

These targets are based on administrative office buildings with conventional heating systems, before adjustments for weather and site-specific characteristics.

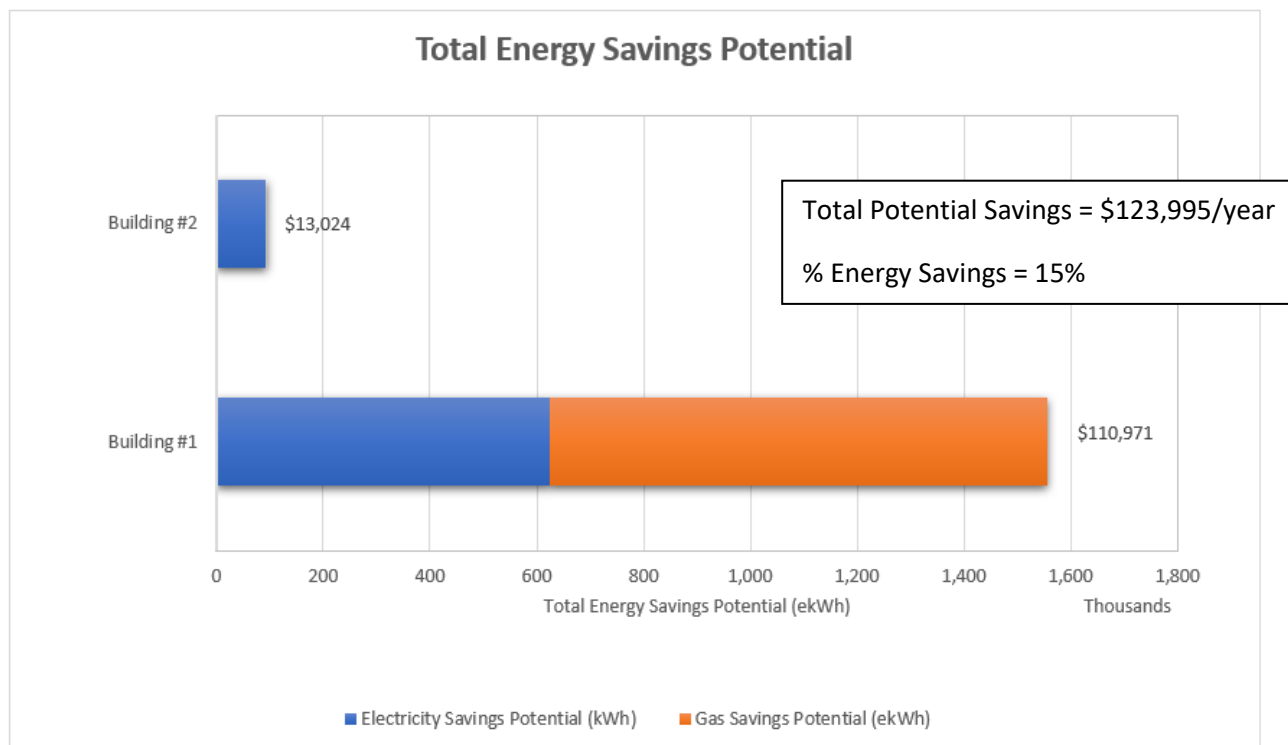
Targets			
Building Type	Electricity kWh/ft ²	Natural Gas ekWh/ft ²	Total Energy ekWh/ft ²
Office Building	11.96	8.96	20.12

Where to Begin

Frequently, it is difficult to determine where to focus your conservation efforts to achieve the greatest cost savings. When the good practice targets are compared with the actual energy use of each building, indicators emerge which point to the greatest opportunities for improvement. This comes from comparing each building's utility performance against the target, normalized for site-specific characteristics such as air conditioning, water- and ground-source heat pumps, data centers and other high energy intensity space



types. The graph below shows the savings opportunities for your buildings, and where to focus your conservation efforts.



By focusing conservation efforts on the buildings with the greatest energy and cost savings potential, your organization can achieve deep reductions in energy use.

Your 2016 Water Use Performance

The following table shows the January 2016 – December 2016 water performance of your buildings against the REALpac 2011 Top Quartile for Administrative Office (56.0 liters/ft²/year) *.

Building	January - December 2016 Water Use	Administrative Office Top Quartile	Comparison
Building #1	63.0 litres/ft ²	56.0 litres/ft ²	12% above top quartile
Building #2	23.7 litres/ft ²		58% below top quartile

*http://c.ymcdn.com/sites/www.realpac.ca/resource/resmgr/industry_sustainability_-_water_benchmarking/rp_water_report_05_hr_final.pdf

As with energy, you should focus efforts on the buildings with the greatest water savings potential, in this case the Peel Courthouse building.



Energy Star – Portfolio Manager

Your buildings have been entered into Energy Star’s Portfolio Manager in order to compare and benchmark them against other similar buildings. Because the two buildings share one electricity meter, we have set up the properties as a Campus (parent property) on Portfolio Manager. Then, two single buildings (child property) have been set up with their own individual gas meter.

Portfolio Manager provides a score from 1-100 comparing your building against a database of similar Canadian buildings, where 1 represents the worst performing buildings and 100 represents the best performing buildings. A score of 50 indicates that a building is performing at the national median, considering its size, location, and operating parameters. Scores can often be improved with more details about the operation, use and population of the buildings.

Currently, in Canada just a few buildings types can have an Energy Star Score. To receive a score, more than 50% of the Gross Floor Area must be made up of a Property type that is eligible to receive a score. The breakdown of your property’s gross floor area as entered is:

- 15% Office, Building #2 space use
- 85% Building #1, not eligible for Energy Star Score

Your property does not have a score, therefore the weather-normalized Site EUI (the site energy use divided by property square foot) is evaluated against the national median on Energy Star data base and by comparing your current and baseline use.

Weather Normalized Site Energy Use Intensity EUI					
	Site EUI		National Median Site EUI		Comparison
Building #1 & #2	82.7 kBtu/ft ²	24.2 kWh/ft ²	94.6 kBtu/ft ²	27.72 kWh/ft ²	14% Better than median

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Participant 2 – Energy Performance and Opportunities

Your 2016 Performance – Knowing where your buildings are

Benchmarking your buildings against similar buildings across the country shows the relative energy performance of your individual buildings and helps to establish conservation targets for your entire portfolio. The following tables show the total energy performance of your buildings from January – December 2016, weather normalized to Toronto 2012 weather conditions (i.e. the year of data from which the targets were established). This is compared with the adjusted target energy performance by building type. Note that values highlighted in red are above target and values highlighted in green are below target.

Community & Recreational Centre	2016 Electricity Use (kWh/ft ²)	2016 Gas Use (ekWh/ft ²)	2016 Weather Normalized Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target* (ekWh/ft ²)
Building #4	25.4	74.5	99.8	91.4
Building #25	25.4	47.5	72.9	41.0
Building #3	22.1	49.8	71.9	70.4
Building #17	15.9	45.1	61.0	51.3
Building #28	26.8	33.3	60.1	40.6
Building #27	26.8	31.9	58.8	39.8
Building #19	18.9	38.7	57.5	42.9
Building #13	20.3	23.0	43.3	37.3
Building #15	21.7	21.0	42.7	39.7
Building #11	18.6	23.0	41.6	31.2
Building #7	20.3	19.6	39.9	37.8
Building #14	17.0	17.9	34.9	21.8
Building #2	17.7	15.8	33.5	33.5
Building #21	13.1	18.3	31.3	23.1
Building #12	24.6	6.9	31.5	24.3
Building #6	14.1	14.8	28.9	26.0
Building #9	10.8	17.9	28.7	20.8
Building #5	12.4	12.3	24.6	21.2
Building #1	12.6	11.6	24.2	24.2

*Adjusted for unique building characteristics, such as ice pads and swimming pools



Administrative Office	2016 Electricity Use (kWh/ft ²)	2016 Gas Use (ekWh/ft ²)	2016 Weather Normalized Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target* (ekWh/ft ²)
Building #22	19.1	9.4	28.5	21.4
Building #23	13.9	12.5	26.4	20.5
Building #20	11.1	13.6	24.7	17.1
Building #10	11.9	11.9	23.8	19.2
Building #16	12.1	9.3	21.4	19.5

Transit Facility	2016 Electricity Use (kWh/ft ²)	2016 Gas Use (ekWh/ft ²)	2016 Weather Normalized Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target* (ekWh/ft ²)
Building #24	11.2	44.1	55.3	46.1
Building #8	13.2	24.4	37.5	34.5

Library	2016 Electricity Use (kWh/ft ²)	2016 Gas Use (ekWh/ft ²)	2016 Weather Normalized Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target* (ekWh/ft ²)
Building #18	16.8	11.4	28.2	18.0

Theater	2016 Electricity Use (kWh/ft ²)	2016 Gas Use (ekWh/ft ²)	2016 Weather Normalized Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target* (ekWh/ft ²)
Building #26	35.0	21.6	56.6	18.1

*Adjusted for unique building characteristics such as heat pumps and electric heat

Your Energy Targets Explained

The energy targets are good practice energy use intensities from Enerlife's Green Building Performance System (GBPS) database. They are readily attainable and are already being met or surpassed by a number of buildings. Note that the base energy targets for community and recreational centres are the top quartile energy intensity for the 'base' facility (i.e. facility without indoor ice rinks or indoor pools) and with conventional heating systems, before adjustments for weather and site-specific characteristics.

The following table presents base energy targets for each building type. It shows the breakdown of target performance by electricity and gas that makes up the total energy intensity target.



Targets			
Building Type	Electricity kWh/ft ²	Natural Gas ekWh/ft ²	Total Energy ekWh/ft ²
Administrative Office	11.96	8.16	20.12
Community & Recreational Centre	10.23	11.54	21.77
Transit Facility	15.40	33.40	48.80
Library	11.50	7.29	18.79
Theater	12.30	5.00	17.30

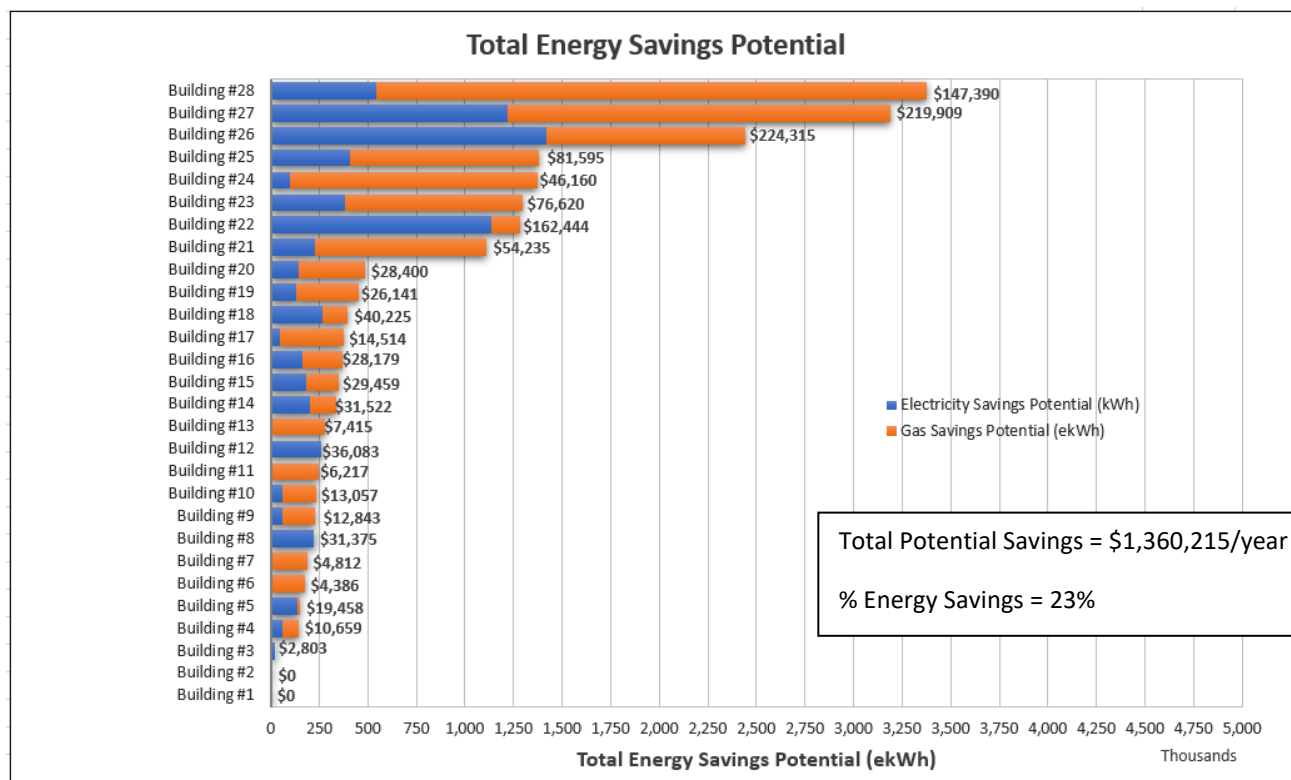
The target for each individual building has then been adjusted for (if applicable):

- energy source (purchased heat, chilled water, electric heat, heat pumps, air conditioning)
- additional space types and equipment, based on good energy efficient system design and operational practice for food services, indoor/outdoor ice rinks and indoor/outdoor swimming pools

The result is an individual, customized target (as shown in the table on previous pages) for each facility based on its energy profile and building characteristics.

Where to Begin

Frequently, it is difficult to determine where to focus your conservation efforts to achieve the greatest cost savings. When the good practice targets are compared with the actual energy use of each building, indicators emerge which point to the greatest opportunities for improvement. This comes from comparing each building's utility performance against the target, normalized for site-specific characteristics such as air conditioning, water- and ground-source heat pumps, data centers and other high energy intensity space types. The graph below shows the savings opportunities for your buildings, and where to focus your conservation efforts.



By focusing conservation efforts on the buildings with the greatest energy and cost savings potential, your organization can achieve deep reductions in energy use.

Your 2016 Water Use Performance

The following table shows the January 2016 – December 2016 water performance of your buildings against the REALpac 2011 Top Quartile for Administrative Offices (56.0 liters/ft²/year) *.

Building	2016 Normalized Water Use (Liters/ft ²)	Administrative Office Top Quartile	Comparison
Building #26	327.6	56.0 litres/ft ²	485% above top quartile
Building #18	110.3		97% above top quartile
Building #22	84.0		50% above top quartile
Building #10	79.3		42% above top quartile
Building #23	40.6		28% below top quartile
Building #16	27.2		51% below top quartile
Building #20	53.5		4% below top quartile



*http://c.ymcdn.com/sites/www.realpac.ca/resource/resmgr/industry_sustainability_-_water_benchmarking/rp_water_report_05_hr_final.pdf.

The following table shows January 2016 – December 2016 water performance of your community centers against the target performance of top quartile of the 20 community centers participating in the pilot.

Building	2016 Normalized Water Use (Liters/ft2)	Community Centre Top Quartile	Comparison
Building #25	707.5	112.59 litres/ft2	528% above top quartile
Building #3	577.7		413% above top quartile
Building #2	392.0		248% above top quartile
Building #4	360.6		220% above top quartile
Building #27	303.6		170% above top quartile
Building #12	303.1		169% above top quartile
Building #15	259.0		130% above top quartile
Building #19	251.3		123% above top quartile
Building #7	219.3		95% above top quartile
Building #21	216.7		92% above top quartile
Building #28	192.9		71% above top quartile
Building #11	134.0		19% above top quartile
Building #13	113.1		At the top quartile
Building #17	111.1		1% below top quartile
Building #6	75.2		33% below top quartile
Building #5	70.0		38% below top quartile
Building #1	60.3		46% below top quartile

Note: FCCC Senior Centre & Building #9, the water consumption is for the entire campus. There is no sub-meter for water in these buildings, so they have not been included in the water benchmark.

For your transit and operation buildings, the following table shows January 2016 – December 2016 water performance against the top quartile of the transit buildings participating in the pilot.

Building	2016 Normalized Water Use (Liters/ft2)	Transit Facility Top Quartile	Comparison
Building #8	49.7	33.16 litres/ft2	50% above top quartile
Building #24	60.6		83% above top quartile

As with energy, you should focus efforts on the buildings with the greatest water savings potential.



Energy Star – Portfolio Manager

Your buildings were previously entered into Energy Star’s Portfolio Manager in order to compare and benchmark them against other similar buildings. Portfolio Manager provides a score from 1-100 comparing your building against a database of similar Canadian buildings, where 1 represents the worst performing buildings and 100 represents the best performing buildings. A score of 50 indicates that a building is performing at the national median, considering its size, location, and operating parameters. Scores can often be improved with more details about the operation, use and population of the buildings. Note that values highlighted in red are below the LEED EB: O+M 2009 certification requirements.

Building	Current Energy Star Score
Building #16	97
Building #1	79
Building #22	74
Building #23	68
Building #20	65
Building #11	47
Building #12	41
Building #28	Not Available
Building #24	Not Available
Building #15	Not Available
Building #7	Not Available
Building #25	Not Available
Building #2	Not Available
Building #21	Not Available
Building #17	Not Available
Building #19	Not Available
Building #26	Not Available
Building #8	Not Available
Building #6	Not Available
Building #13	Not Available
Building #27	Not Available
Building #4	Not Available
Building #10	Not Available
Building #18	Not Available
Building #5	Not Available
Building #3	Not Available



Currently, in Canada just a few buildings types can have an Energy Star Score. To receive a score, more that 50% of the Gross Floor Area must be made up of a property type that is eligible to receive a score. In your case, just office buildings and ice rinks are eligible to receive a score.

For the properties that do not have a score, weather-normalized Site EUI (the site energy use divided by property square footage) is evaluated against the national median from the Energy Star database and by comparing your current and baseline use.

2016 Weather Normalized Site Energy Use Intensity EUI					
Building	Site EUI (kBtu/ft ²)	Site EUI (kWh/ft ²)	National Median Site EUI (kBtu/ft ²)	National Median Site EUI (kwh/ft ²)	Comparison
Building #19	296	86.62	80.9	23.67	266% above the median
Building #17	287.6	84.16	84.6	24.76	240% above the median
Building #25	252.7	73.95	79.1	23.15	219% above the median
Building #4	300.1	87.82	152.3	44.57	97% above the median
Building #3	249.1	72.89	126.9	37.13	96% above the median
Building #24	191	55.89	98.3	28.76	94% above the median
Building #8	159.8	46.76	87.7	25.66	82% above the median
Building #28	209.2	61.22	115.8	33.89	81% above the median
Building #27	201.3	58.91	113.9	33.33	77% above the median
Building #2	118	34.53	69.1	20.22	71% above the median
Building #26	190.9	55.86	132.2	38.68	44% above the median
Building #6	100.5	29.41	71	20.78	42% above the median
Building #13	160.4	46.94	113.5	33.21	41% above the median
Building #15	146.1	42.75	109.5	32.04	33% above the median
Building #7	143.1	41.87	112.3	32.86	27% above the median
Building #12	111.4	32.60	104.4	30.55	7% above the median
Building #11	150.1	43.92	142.1	41.58	6% above the median
Building #21	106.6	31.19	118.1	34.56	10% below the median
Building #22	95.9	28.06	107.7	31.52	11% below the median
Building #20	83.9	24.55	94.3	27.59	11% below the median
Building #23	91.3	26.72	108.6	31.78	16% below the median
Building #10	81.2	23.76	100.6	29.44	19% below the median
Building #5	85.9	25.14	109.7	32.10	22% below the median
Building #18	95.8	28.03	134	39.21	29% below the median
Building #1	81	23.70	127.3	37.25	36% below the median
Building #16	74.1	21.68	120.8	35.35	39% below the median

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Participant 3 – Energy Performance and Opportunities

Your 2016 Performance – Knowing where your buildings are

Benchmarking your buildings against similar buildings across the country shows the relative energy performance of your individual buildings and helps to establish conservation targets for your entire portfolio. The following tables show the total energy performance of your buildings from January – December 2016, weather normalized to Toronto 2012 weather conditions (i.e. the year of data from which the targets were established). This is compared with the adjusted target energy performance by building type. Note that values highlighted in red are above target and values highlighted in green are below target.

Community & Recreational Centre	2016 Electricity Use (kWh/ft ²)	2016 Gas Use (ekWh/ft ²)	2016 Weather Normalized Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target* (ekWh/ft ²)
Building #10	24.1	57.8	81.9	72.2
Building #9	27.0	29.5	56.5	36.5
Building #5	17.5	19.3	36.8	29.6

**Adjusted for unique building characteristics, such as ice pads and swimming pools*

Administrative Office	2016 Electricity Use (kWh/ft ²)	2016 Gas Use (ekWh/ft ²)	2016 Weather Normalized Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target* (ekWh/ft ²)
Building #3	14.9	6.4	21.4	20.3

Fire Station	2016 Electricity Use (kWh/ft ²)	2016 Gas Use (ekWh/ft ²)	2016 Weather Normalized Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target* (ekWh/ft ²)
Building #8	18.0	3.6	21.6	11.5
Building #6	14.6	11.2	25.8	19.1
Building #2	10.4	16.3	26.7	23.8

Transit Facility	2016 Electricity Use (kWh/ft ²)	2016 Gas Use (ekWh/ft ²)	2016 Weather Normalized Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target* (ekWh/ft ²)
Building #4	18.4	12.0	30.4	28.4



Library	2016 Electricity Use (kWh/ft ²)	2016 Gas Use (ekWh/ft ²)	2016 Weather Normalized Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target* (ekWh/ft ²)
Building #1	13.9	2.4	16.3	12.8

Theater	2016 Electricity Use (kWh/ft ²)	2016 Gas Use (ekWh/ft ²)	2016 Weather Normalized Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target* (ekWh/ft ²)
Building #7	13.6	0.5	14.1	11.5

*Adjusted for unique building characteristics such as heat pumps and electric heat

Your Energy Targets Explained

The energy targets are good practice energy use intensities from Enerlife's Green Building Performance System (GBPS) database. They are readily attainable and are already being met or surpassed by a number of buildings. Note that the base energy targets for community and recreational centres are the top quartile energy intensity for the 'base' facility (i.e. facility without indoor ice rinks or indoor pools) and with conventional heating systems, before adjustments for weather and site-specific characteristics.

The following table presents base energy targets for each building type. It shows the breakdown of target performance by electricity and gas that makes up the total energy intensity target.

Targets			
Building Type	Electricity kWh/ft ²	Natural Gas ekWh/ft ²	Total Energy ekWh/ft ²
Administrative Office	11.96	8.96	20.12
Community & Recreational Centre	10.23	11.54	21.77
Fire Station	8.50	16.40	24.90
Transit Facility	15.40	33.40	48.80
Library	11.50	7.29	18.79
Theater	12.30	5.00	17.30

The target for each individual building has then been adjusted for (if applicable):

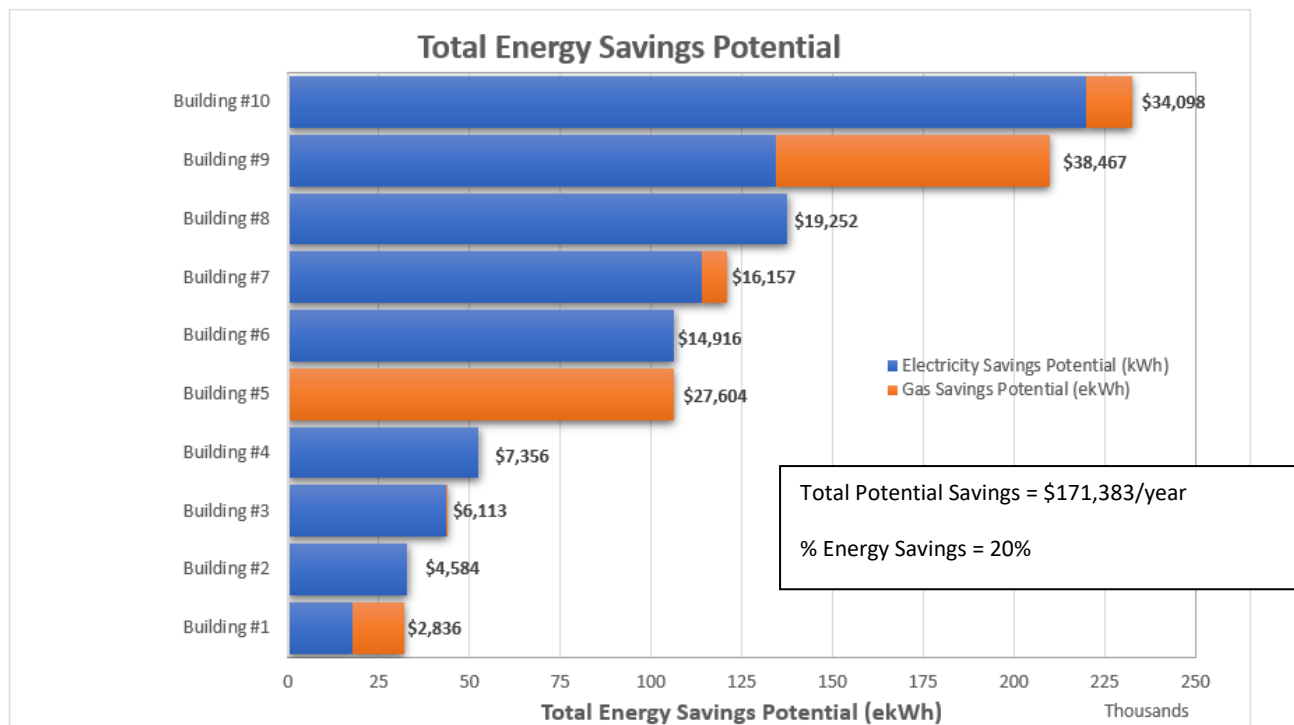


- energy source (purchased heat, chilled water, electric heat, heat pumps, air conditioning)
- additional space types and equipment, based on good energy efficient system design and operational practice for food services, indoor/outdoor ice rinks and indoor/outdoor swimming pools

The result is an individual, customized target (as shown in the table on previous pages) for each facility based on its energy profile and building characteristics.

Where to Begin

Frequently, it is difficult to determine where to focus your conservation efforts to achieve the greatest cost savings. When the good practice targets are compared with the actual energy use of each building, indicators emerge which point to the greatest opportunities for improvement. This comes from comparing each building's utility performance against the target, normalized for site-specific characteristics such as air conditioning, water- and ground-source heat pumps, data centers and other high energy intensity space types. The graph below shows the savings opportunities for your buildings, and where to focus your conservation efforts.



By focusing conservation efforts on the buildings with the greatest energy and cost savings potential, your organization can achieve deep reductions in energy use.



Your 2016 Water Use Performance

The following table shows the January 2016 – December 2016 water performance of your buildings against the REALpac 2011 Top Quartile for Administrative Offices (56.0 liters/ft²/year) *.

Building	2016 Normalized Water Use (Liters/ft ²)	Administrative Office Top Quartile	Comparison
Building #3	34.3	56.0 litres/ft ²	39% below top quartile
Building #1	14.6		74% below top quartile
Building #7	12.9		77% below top quartile

*http://c.ymcdn.com/sites/www.realpac.ca/resource/resmgr/industry_sustainability_-_water_benchmarking/rp_water_report_05_hr_final.pdf.

The following table shows January 2016 – December 2016 water performance of your community centers against the target performance of top quartile of the 20 community centers participating in the pilot.

Building	2016 Normalized Water Use (Liters/ft ²)	Community Centre Top Quartile	Comparison
Building #9	273.51	112.59 litres/ft ²	143% above top quartile
Building #10	188.32		67% above top quartile
Building #5	106.6		5% below top quartile

For your operation building, the following table shows January 2016 – December 2016 water performance against the top quartile of the transit buildings participating in the pilot.

Building	2016 Normalized Water Use (Liters/ft ²)	Transit Facility Top Quartile	Comparison
Building #4	16.6	33.16 litres/ft ²	5% below top quartile

Building	2016 Normalized Water Use (Liters/ft ²)	Fire Station Best Performance	Comparison
Building #6	9.4	9.4 Litres/ft ²	Best Performer
Building #8	17.1		182% above best performer
Building #2	21.3		226% above best performer

As with energy, you should focus efforts on the buildings with the greatest water savings potential.



Energy Star – Portfolio Manager

Your buildings have been entered into Energy Star’s Portfolio Manager in order to compare and benchmark them against other similar buildings. Portfolio Manager provides a score from 1-100 comparing your building against a database of similar Canadian buildings, where 1 represents the worst performing buildings and 100 represents the best performing buildings. A score of 50 indicates that a building is performing at the national median, considering its size, location, and operating parameters. Scores can often be improved with more details about the operation, use and population of the buildings. Note that values highlighted in red are below the LEED EB: O+M 2009 certification requirements.

Building	Current Energy Star Score
Building #3	91
Building #9	46
Building #5	37
Building #2	Not Available
Building #6	Not Available
Building #8	Not Available
Building #10	Not Available
Building #7	Not Available
Building #1	Not Available
Building #4	Not Available

Currently, in Canada just a few buildings types can have an Energy Star Score. To receive a score, more that 50% of the Gross Floor Area must be made up of a property type that is eligible to receive a score. In your case, just office buildings and ice rinks are eligible to receive a score.

For the properties that do not have a score, weather-normalized Site EUI (the site energy use divided by property square footage) is evaluated against the national median from the Energy Star database and by comparing your current and baseline use.



2016 Weather Normalized Site Energy Use Intensity EUI					
Building	Site EUI (kBtu/ft ²)	Site EUI (kWh/ft ²)	National Median Site EUI (kBtu/ft ²)	National Median Site EUI (kwh/ft ²)	Comparison
Building #10	275.4	80.6	130.1	38.1	112% above the median
Building #4	102.6	30.0	73.3	21.5	40% above the median
Building #2	132.9	38.9	108.7	31.8	22% above the median
Building #5	134.3	39.3	113.9	33.3	18% above the median
Building #9	105.2	30.8	103.6	30.3	2% above the median
Building #8	74.2	21.7	76.9	22.5	4% below the median
Building #6	86.0	25.2	89.6	26.2	4% below the median
Building #3	72.6	21.2	111.2	32.5	35% below the median
Building #1	55.2	16.2	114.7	33.6	52% below the median
Building #7	49.2	14.4	108.3	31.7	55% below the median

This document was prepared by Enerlife Consulting on behalf of Toronto and Region Conservation. For additional information, please contact:

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Participant 4 – Energy Performance and Opportunities

Your 2016 Performance – Knowing where your buildings are

Benchmarking your buildings against similar buildings across the country shows the relative energy performance of your individual buildings and helps to establish conservation targets for your entire portfolio. The following tables show the total energy performance of your buildings from January – December 2016, weather normalized to Toronto 2012 weather conditions (i.e. the year of data from which the targets were established). This is compared with the adjusted target energy performance by building type. Note that values highlighted in red are above target and values highlighted in green are below target.

Community & Recreational Centre	2016 Electricity Use (kWh/ft ²)	2016 Gas Use (ekWh/ft ²)	2016 Weather Normalized Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target* (ekWh/ft ²)
Building #3	34.3	44.2	78.5	61.7
Building #2	29.7	24.9	54.6	21.9
Building #1	28.7	19.5	48.2	32.6
Building #7	15.3	19.1	34.4	27.9
Building #5	17.3	14.8	32.1	20.7

*Adjusted for unique building characteristics, such as ice pads and swimming pools

Administrative Office	2016 Electricity Use (kWh/ft ²)	2016 Gas Use (ekWh/ft ²)	2016 Weather Normalized Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target* (ekWh/ft ²)
Building #4	18.4	4.3	22.7	16.6

*Adjusted for unique building characteristics such as heat pumps and electric heat

Theater	2016 Electricity Use (kWh/ft ²)	2016 Gas Use (ekWh/ft ²)	2016 Weather Normalized Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target* (ekWh/ft ²)
Building #6	14.2	8.5	22.7	19.1

*Adjusted for unique building characteristics such as heat pumps and electric heat

Your Energy Targets Explained

The energy targets are good practice energy use intensities from Enerlife's Green Building Performance System (GBPS) database. They are readily attainable and are already being met or surpassed by a number of buildings. Note that the base energy targets for community and recreational centres are the top quartile energy intensity for the 'base' facility (i.e. facility without indoor ice rinks or indoor pools) and with conventional heating systems, before adjustments for weather and site-specific characteristics.



The following table presents base energy targets for each building type. It shows the breakdown of target performance by electricity and gas that makes up the total energy intensity target.

Targets			
Building Type	Electricity kWh/ft ²	Natural Gas ekWh/ft ²	Total Energy ekWh/ft ²
Administrative Office	11.96	8.96	20.12
Community & Recreational Centre	10.23	11.54	21.77
Theater	12.30	5.00	17.30

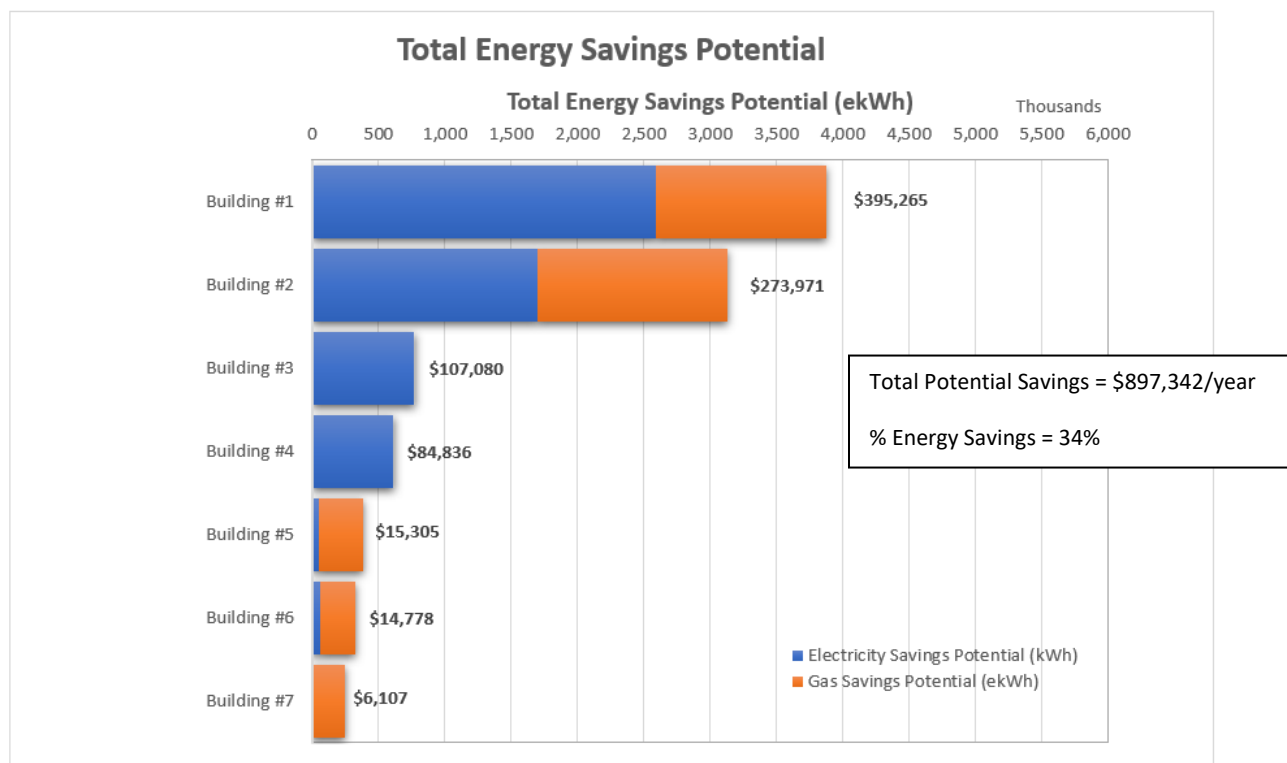
The target for each individual building has then been adjusted for (if applicable):

- energy source (purchased heat, chilled water, electric heat, heat pumps, air conditioning)
- additional space types and equipment, based on good energy efficient system design and operational practice for food services, indoor/outdoor ice rinks and indoor/outdoor swimming pools

The result is an individual, customized target (as shown in the table on previous pages) for each facility based on its energy profile and building characteristics.

Where to Begin

Frequently, it is difficult to determine where to focus your conservation efforts to achieve the greatest cost savings. When the good practice targets are compared with the actual energy use of each building, indicators emerge which point to the greatest opportunities for improvement. This comes from comparing each building's utility performance against the target, normalized for site-specific characteristics such as air conditioning, water- and ground-source heat pumps, data centers and other high energy intensity space types. The graph below shows the savings opportunities for your buildings, and where to focus your conservation efforts.



By focusing conservation efforts on the buildings with the greatest energy and cost savings potential, your organization can achieve deep reductions in energy use.

Your 2016 Water Use Performance

The following table shows the January 2016 – December 2016 water performance of your buildings against the REALpac 2011 Top Quartile for Administrative Offices (56.0 liters/ft²/year) *.

Building	2016 Normalized Water Use (Liters/ft ²)	Administrative Office Top Quartile	Comparison
Building #6	75.9	56.0 litres/ft ²	35% above top quartile
Building #4	75.4		35% above top quartile

*http://c.ymcdn.com/sites/www.realpac.ca/resource/resmgr/industry_sustainability_-_water_benchmarking/rp_water_report_05_hr_final.pdf.

The following table shows January 2016 – December 2016 water performance of your community centers against the target performance of top quartile of the 20 community centers participating in the pilot.



Building	2016 Normalized Water Use (Liters/ft2)	Community Centre Top Quartile	Comparison
Building #3	452.0	112.59 litres/ft2	301% above top quartile
Building #5	169.5		51% above top quartile
Building #1	114.5		2% above top quartile
Building #7	90.2		20% below top quartile
Building #2	14.9		87% below top quartile

As with energy, you should focus efforts on the buildings with the greatest water savings potential.

Energy Star – Portfolio Manager

Your buildings have been entered into Energy Star’s Portfolio Manager in order to compare and benchmark them against other similar buildings. Portfolio Manager provides a score from 1-100 comparing your building against a database of similar Canadian buildings, where 1 represents the worst performing buildings and 100 represents the best performing buildings. A score of 50 indicates that a building is performing at the national median, considering its size, location, and operating parameters. Scores can often be improved with more details about the operation, use and population of the buildings. Note that values highlighted in red are below the LEED EB: O+M 2009 certification requirements.

Building	Current Energy Star Score
Building #4	77
Building #7	29
Building #1	13
Building #5	10
Building #6	Not Available
Building #2	Not Available
Building #3	Not Available

Currently, in Canada just a few buildings types can have an Energy Star Score. To receive a score, more that 50% of the Gross Floor Area must be made up of a property type that is eligible to receive a score. In your case, just office buildings and ice rinks are eligible to receive a score.

For the properties that do not have a score, weather-normalized Site EUI (the site energy use divided by property square footage) is evaluated against the national median from the Energy Star database and by comparing your current and baseline use.



2016 Weather Normalized Site Energy Use Intensity EUI					
Building	Site EUI (kBtu/ft ²)	Site EUI (kWh/ft ²)	National Median Site EUI (kBtu/ft ²)	National Median Site EUI (kwh/ft ²)	Comparison
Building #3	277.2	81.12	117.7	34.44	136% above the median
Building #2	183.4	53.67	107.5	31.46	71% above the median
Building #1	167.9	49.13	117	34.24	44% above the median
Building #5	113.1	33.10	85.6	25.05	32% above the median
Building #7	127.4	37.28	115.0	33.65	11% above the median
Building #4	76.4	22.36	96.7	28.30	21% below the median
Building #6	79.0	23.12	131.9	38.60	40% below the median

This document was prepared by Enerlife Consulting on behalf of Toronto and Region Conservation. For additional information, please contact:

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Participant 5 – Energy Performance and Opportunities

Your 2016 Performance – Knowing where your schools are

Benchmarking your schools against similar schools across the country shows the relative energy performance of your individual schools and helps to establish conservation targets for your entire portfolio. The following tables show the total energy performance of your schools from September 2015 – August 2016. This is compared with the target energy performance which is the top quartile of all schools in Ontario as determined in the 2017 Sustainable Schools Top Energy Performing School Boards Report*. The target is then adjusted for weather and site-specific characteristics.

Note that values highlighted in red are above target and values highlighted in green are below target.

Secondary Schools	Sep 2015 - Aug 2016 Electricity Use (kWh/ft ²)	Sep 2015 - Aug 2016 Gas Use (ekWh/ft ²)	Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target** (ekWh/ft ²)
Building #17	10.6	9.9	20.5	15.0
Building #15	9.1	5.2	14.3	13.1
Building #2	6.1	5.1	11.2	11.2

Elementary Schools	Sep 2015 - Aug 2016 Electricity Use (kWh/ft ²)	Sep 2015 - Aug 2016 Gas Use (ekWh/ft ²)	Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target** (ekWh/ft ²)
Building #16	4.5	15	19.4	10.5
Building #14	7.5	8.6	16.1	11.1
Building #13	7.9	7.7	15.6	12.8
Building #12	7.9	7.1	15.0	12.6
Building #8	9.7	5.3	15.0	11.9
Building #11	9.0	5.6	14.6	12.5
Building #9	7.9	6.3	14.3	12.6
Building #7	7.4	6.7	14.1	11.1
Building #10	6.7	6.5	13.1	11.2
Building #6	6.2	6.9	13.1	11.5
Building #5	7.2	4.7	11.9	11.0
Building #4	5.5	4.2	9.6	9.6
Building #3	4.6	4.9	9.4	9.4
Building #1	4.8	4.3	9.1	9.1

** Adjusted for unique building characteristics, such as heating system, heat pumps, portables, and swimming pools



Grey – Milton Hydro, Yellow – Halton Hills Hydro

**<http://sustainableschools.ca/wp-content/uploads/2013/07/2017-SUS-Top-Energy-Performing-Boards-report.pdf>.*

Your Energy Targets Explained

The energy targets are good practice energy use intensities from the benchmarked dataset of all reported schools in Ontario. They are readily attainable and are already being met or surpassed by a number of schools. The following is the breakdown of target performance by electricity and gas that makes up the total energy intensity target.

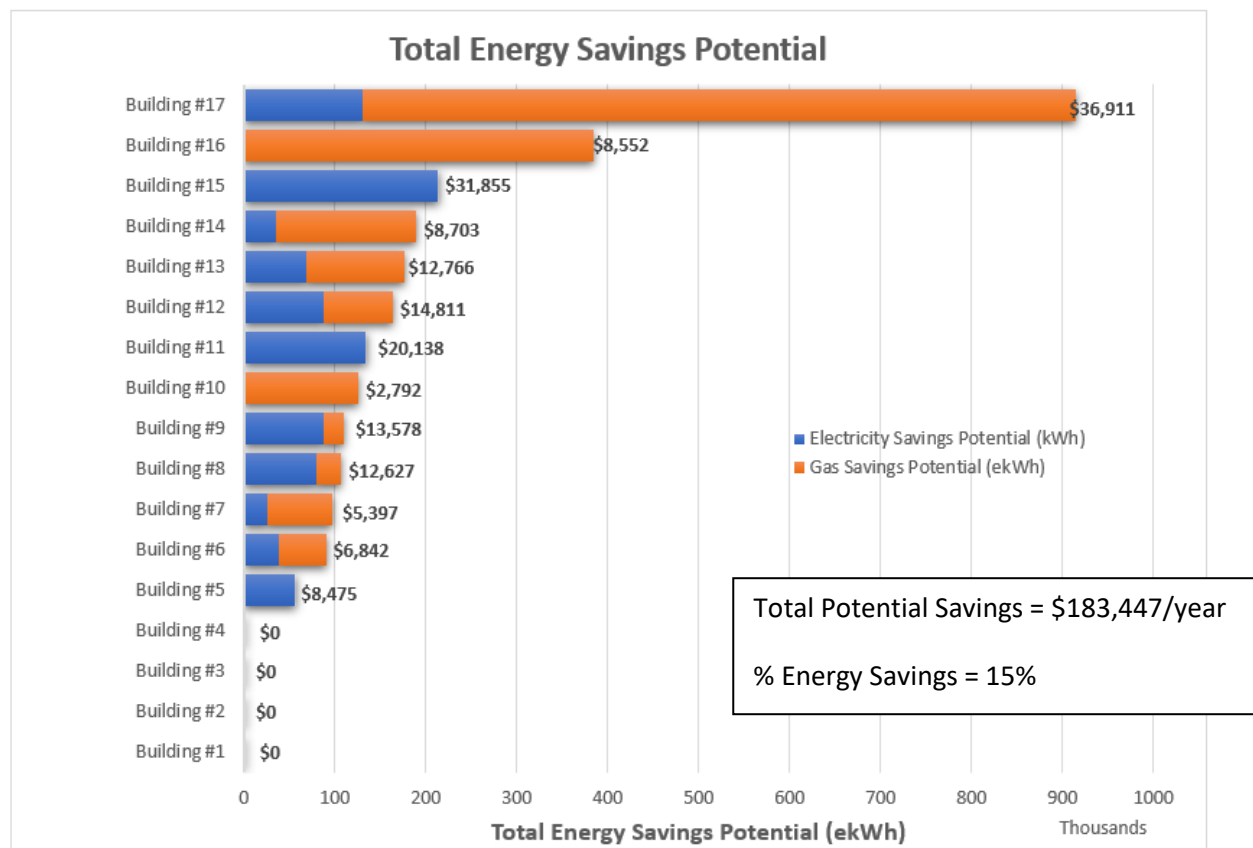
These targets are based on schools with conventional heating systems, before adjustment for weather and site-specific characteristics.

Targets			
Building Type	Electricity kWh/ft ²	Natural Gas ekWh/ft ²	Total Energy ekWh/ft ²
Elementary School	5.5	6.5	12.0
Secondary School	7.5	7.5	15.0

Where to Begin

Frequently, it is difficult to determine where to focus your conservation efforts to achieve the greatest cost savings. When the good practice targets are compared with the actual energy use of each school, indicators emerge which point to the greatest opportunities for improvement. This comes from comparing each school's utility performance against the target, normalized for site-specific characteristics (such as portables, water- and ground-source heat pumps, and swimming pools).

The graph below shows the savings opportunities for your schools, and where to focus your conservation efforts.



By focusing conservation efforts on the schools with the greatest energy and cost savings potential, your school board can achieve deep reductions in energy use.

Your 2016 Water Use Performance

The following table shows the September 2015 – August 2016 water performance of your schools against the target performance of top quartile of the 33 elementary schools and 7 secondary schools participating in the pilot.

Building	Sep 2015 - Aug 2016 Water Use (litres/ft2)	Elementary School Top Quartile	Comparison
Building #16	87.2 litres/ft2	36.9 litres/ft2	136% above top quartile
Building #7	70.0 litres/ft2		90% above top quartile
Building #1	65.5 litres/ft2		78% above top quartile
Building #8	47.7 litres/ft2		29% above top quartile
Building #6	44.7 litres/ft2		21% above top quartile



Building	Sep 2015 - Aug 2016 Water Use (litres/ft2)	Elementary School Top Quartile	Comparison
Building #14	39.6 litres/ft2		7% above top quartile
Building #12	29.6 litres/ft2		20% below top quartile
Building #4	18.0 litres/ft2		51% below top quartile
Building #3	17.7 litres/ft2		52% below top quartile

Building	Sep 2015 - Aug 2016 Water Use (litres/ft2)	Secondary School Top Quartile	Comparison
Building #17	37.3 litres/ft2	18.1 litres/ft2	106% above top quartile
Building #2	18.1 litres/ft2		at top quartile
Building #15	15.6 litres/ft2		14% below top quartile

As with energy, you should focus efforts on the schools with the greatest water savings potential (i.e. those schools using more water than the target usage (top quartile)).

Energy Star – Portfolio Manager

Your buildings have been entered into Energy Star's Portfolio Manager in order to compare and benchmark them against other similar buildings. Portfolio Manager provides a score from 1-100 comparing your building against a database of similar Canadian buildings, where 1 represents the worst performing buildings and 100 represents the best performing buildings. A score of 50 indicates that a building is performing at the national median, considering its size, location, and operating parameters. Scores can often be improved with more details about the operation, use and population of the buildings.

Building	Energy Star Score Sep 2015 - Aug 2016
Building #2	98
Building #3	84
Building #15	77
Building #4	77
Building #1	61
Building #6	50
Building #5	45
Building #10	39
Building #17	37
Building #7	32
Building #9	24



Building	Energy Star Score Sep 2015 - Aug 2016
Building #14	19
Building #13	16
Building #8	16
Building #11	13
Building #12	9
Building #16	5

This document was prepared by Enerlife Consulting on behalf of Toronto and Region Conservation. For additional information, please contact:

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Participant 6 – Energy Performance and Opportunities

Your 2016 Performance – Knowing where your schools are

Benchmarking your schools against similar schools across the country shows the relative energy performance of your individual schools and helps to establish conservation targets for your entire portfolio. The following tables show the total energy performance of your schools from September 2015 – August 2016. This is compared with the target energy performance which is the top quartile of all schools in Ontario as determined in the 2017 Sustainable Schools Top Energy Performing School Boards Report*. The target is then adjusted for weather and site-specific characteristics.

Note that values highlighted in red are above target and values highlighted in green are below target.

Elementary Schools	Sep 2015 - Aug 2016 Electricity Use (kWh/ft ²)	Sep 2015 - Aug 2016 Gas Use (ekWh/ft ²)	Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target** (ekWh/ft ²)
Building #24	5.0	29.3	34.3	11.1
Building #25	11.9	15.8	27.7	12.3
Building #26	15.6	11.4	27.0	14.3
Building #27	8.8	17.8	26.6	13.1
Building #12	6.9	16.0	22.9	12.3
Building #20	10.2	12.4	22.6	12.1
Building #17	5.4	15.1	20.5	11.4
Building #8	7.4	12.5	19.9	11.5
Building #19	4.4	14.9	19.4	10.5
Building #21	11.9	6.7	18.6	13.1
Building #16	4.1	13.4	17.5	10.1
Building #10	3.7	13.6	17.2	9.7
Building #18	11.8	5.3	17.1	11.1
Building #13	4.3	12.3	16.6	10.3
Building #14	4.8	11.2	16.0	10.8
Building #22	13.3	2.7	16.0	9.4
Building #6	8.1	7.1	15.2	12.2
Building #9	8.2	6.8	15.0	11.5
Building #5	5.2	9.8	15.0	11.2
Building #3	8.1	6.5	14.6	12.6
Building #15	11.4	2.9	14.3	10.3
Building #7	9.5	4.4	13.8	11.3
Building #11	10.7	3.0	13.7	10.4
Building #4	3.7	8.8	12.5	9.7
Building #1	4.6	4.8	9.3	9.3
Building #2	1.7	6.3	8.1	7.7



Secondary Schools	Sep 2015 - Aug 2016 Electricity Use (kWh/ft ²)	Sep 2015 - Aug 2016 Gas Use (ekWh/ft ²)	Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target** (ekWh/ft ²)
Building #30	7.7	20.1	27.8	18.1
Building #29	10.7	10.8	21.5	15.2
Building #23	7.6	12.1	19.7	14.4
Building #28	6.4	13.0	19.3	13.3

** Adjusted for unique building characteristics, such as heating system, heat pumps, portables, and swimming pools

Grey – Milton Hydro, Yellow – Halton Hills Hydro

*<http://sustainableschools.ca/wp-content/uploads/2013/07/2017-SUS-Top-Energy-Performing-Boards-report.pdf>.

Your Energy Targets Explained

The energy targets are good practice energy use intensities from the benchmarked dataset of all reported schools in Ontario. They are readily attainable and are already being met or surpassed by a number of schools. The following is the breakdown of target performance by electricity and gas that makes up the total energy intensity target.

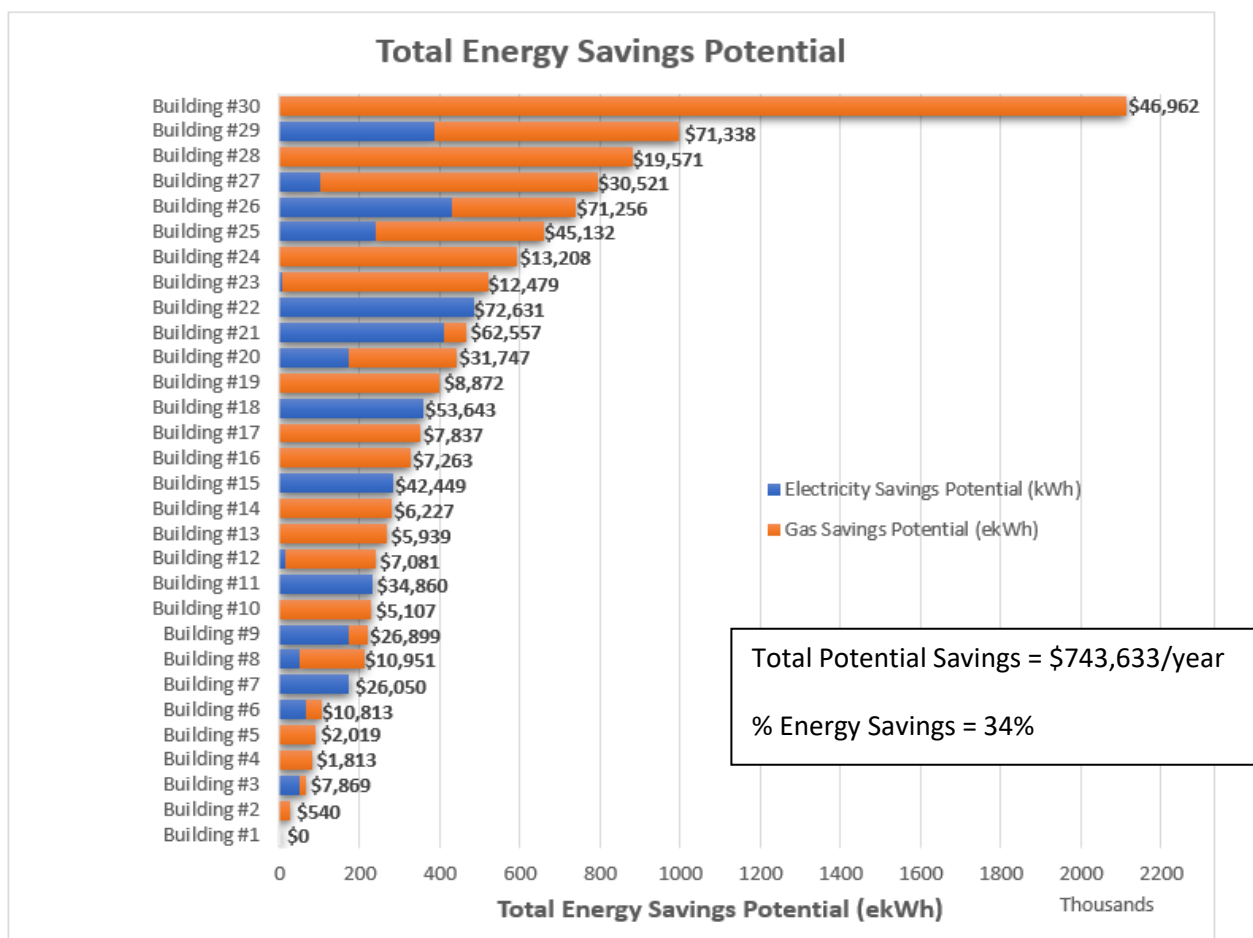
These targets are based on schools with conventional heating systems, before adjustment for weather and site-specific characteristics.

Targets			
Building Type	Electricity kWh/ft ²	Natural Gas ekWh/ft ²	Total Energy ekWh/ft ²
Elementary School	5.5	6.5	12.0
Secondary School	7.5	7.5	15.0

Where to Begin

Frequently, it is difficult to determine where to focus your conservation efforts to achieve the greatest cost savings. When the good practice targets are compared with the actual energy use of each school, indicators emerge which point to the greatest opportunities for improvement. This comes from comparing each school's utility performance against the target, normalized for site-specific characteristics (such as portables, water- and ground-source heat pumps, and swimming pools).

The graph below shows the savings opportunities for your schools and where to focus your conservation efforts.



By focusing conservation efforts on the schools with the greatest energy and cost savings potential, your school board can achieve deep reductions in energy use.

Your 2016 Water Use Performance

The following table shows the September 2015 – August 2016 water performance of your schools against the target performance of top quartile of the 33 elementary schools and 7 secondary schools participating in the pilot.

Building	Sep 2015 - Aug 2016 Water Use (litres/ft2)	Elementary School Top Quartile	Comparison
Building #14	151.2 litres/ft2	36.9 litres/ft2	310% above top quartile
Building #5	150.8 litres/ft2		309% above top quartile
Building #12	137.9 litres/ft2		274% above top quartile
Building #4	128.3 litres/ft2		248% above top quartile
Building #10	114.2 litres/ft2		210% above top quartile
Building #6	112.3 litres/ft2		204% above top quartile



Building	Sep 2015 - Aug 2016 Water Use (litres/ft2)	Elementary School Top Quartile	Comparison
Building #11	103.7 litres/ft2		181% above top quartile
Building #3	97.2 litres/ft2		163% above top quartile
Building #20	93.3 litres/ft2		153% above top quartile
Building #18	84.3 litres/ft2		128% above top quartile
Building #24	80.0 litres/ft2		117% above top quartile
Building #17	70.1 litres/ft2		90% above top quartile
Building #8	69.3 litres/ft2		88% above top quartile
Building #22	62.6 litres/ft2		70% above top quartile
Building #13	54.0 litres/ft2		46% above top quartile
Building #19	47.7 litres/ft2		29% above top quartile
Building #2	47.2 litres/ft2		28% above top quartile
Building #27	45.3 litres/ft2		23% above top quartile
Building #21	43.5 litres/ft2		18% above top quartile
Building #26	34.1 litres/ft2		7% below top quartile
Building #25	33.4 litres/ft2		9% below top quartile
Building #15	28.1 litres/ft2		24% below top quartile
Building #9	27.2 litres/ft2		26% below top quartile
Building #7	22.8 litres/ft2		38% below top quartile

Building	Sep 2015 - Aug 2016 Water Use (litres/ft2)	Secondary School Top Quartile	Comparison
Building #23	90.3 litres/ft2	18.1 litres/ft2	399% above top quartile
Building #30	45.2 litres/ft2		150% above top quartile
Building #29	43.5 litres/ft2		141% above top quartile
Building #28	32.0 litres/ft2		77% above top quartile

As with energy, you should focus efforts on the schools with the greatest water savings potential (i.e. those schools using more water than the target usage).

Energy Star – Portfolio Manager

Your buildings have been entered into Energy Star's Portfolio Manager in order to compare and benchmark them against other similar buildings. Portfolio Manager provides a score from 1-100 comparing your building against a database of similar Canadian buildings, where 1 represents the worst performing buildings and 100 represents the best performing buildings. A score of 50 indicates that a building is performing at the national



median, considering its size, location, and operating parameters. Scores can often be improved with more details about the operation, use and population of the buildings.

Building	Energy Star Score Sep 2015 - Aug 2016
Building #2	100
Building #1	89
Building #4	79
Building #28	55
Building #5	53
Building #30	42
Building #23	41
Building #10	39
Building #13	33
Building #14	31
Building #29	28
Building #3	24
Building #16	23
Building #6	19
Building #9	17
Building #19	15
Building #11	13
Building #7	13
Building #8	11
Building #15	9
Building #17	9
Building #12	6
Building #18	3
Building #21	2
Building #22	2
Building #24	1
Building #27	1
Building #26	1
Building #25	1
Building #20	1

This document was prepared by Enerlife Consulting on behalf of Toronto and Region Conservation. For additional information, please contact:

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Participant 7 – Energy Performance and Opportunities

Your 2016 Performance – Knowing where your schools are

For this final energy performance study, we analyzed your 110 buildings schools which are in Brampton area.

Benchmarking your schools against similar schools across the country shows the relative energy performance of your individual schools and helps to establish conservation targets for your entire portfolio. The following tables show the total energy performance of your schools from September 2015 – August 2016. This is compared with the target energy performance which is the top quartile of all schools in Ontario as determined in the 2017 Sustainable Schools Top Energy Performing School Boards Report*. The target is then adjusted for weather and site-specific characteristics.

Note that values highlighted in red are above target and values highlighted in green are below target.

Secondary Schools	Sep 2015 - Aug 2016 Electricity Use (kWh/ft ²)	Sep 2015 - Aug 2016 Gas Use (kWh/ft ²)	Total Energy Use (kWh/ft ²)	Adjusted Total Energy Target** (kWh/ft ²)
Building #3	7.4	15.1	22.5	14.4
Building #1	5.6	15.7	21.3	12.5
Building #4	7.8	13.3	21.1	14.5
Building #2	6.5	13.7	20.2	13.5
Building #13	7.2	10.9	18.1	14.1
Building #5	8.3	9.5	17.8	14.9
Building #8	7.8	9.5	17.3	14.5
Building #9	6.9	9.9	16.8	13.8
Building #40	7.6	8.8	16.4	14.5
Building #36	9.0	7.2	16.2	14.6
Building #45	8.4	7.4	15.8	14.4
Building #31	5.6	8.7	14.3	12.6
Building #79	7.0	7.6	14.6	13.9
building #102	7.7	5.9	13.6	13.6
Building #90	4.6	7.3	11.9	11.5

Elementary Schools	Sep 2015 - Aug 2016 Electricity Use (kWh/ft ²)	Sep 2015 - Aug 2016 Gas Use (kWh/ft ²)	Total Energy Use (kWh/ft ²)	Adjusted Total Energy Target** (kWh/ft ²)
Building #10	4.7	24.8	29.5	10.7
Building #12	5.8	20.0	25.8	11.5
Building #21	7.6	16.8	24.4	12.3
Building #17	7.5	15.8	23.3	11.5



Elementary Schools	Sep 2015 - Aug 2016 Electricity Use (kWh/ft ²)	Sep 2015 - Aug 2016 Gas Use (kWh/ft ²)	Total Energy Use (kWh/ft ²)	Adjusted Total Energy Target** (kWh/ft ²)
Building #18	11.8	10.3	22.1	11.5
Building #11	4.3	17.0	21.3	10.3
Building #7	6.4	14.9	21.3	11.5
Building #39	5.9	15.3	21.2	11.5
Building #20	5.4	15.8	21.2	11.4
Building #34	6.8	14.3	21.1	12.0
Building #6	4.9	15.7	20.6	10.9
Building #15	4.5	15.8	20.3	10.5
Building #14	5.5	13.5	19.0	11.5
Building #48	7.7	11.2	18.8	11.5
Building #23	7.5	10.8	18.3	12.2
Building #25	4.9	13.3	18.3	11.0
Building #35	4.9	13.3	18.2	10.9
Building #32	4.1	14.1	18.2	10.1
Building #24	3.8	14.2	18.0	9.8
Building #16	5.6	11.9	17.5	11.5
Building #44	5.7	11.5	17.2	11.7
Building #22	4.6	12.4	17.0	10.6
Building #30	5.0	11.9	16.9	11.0
Building #27	5.3	11.4	16.7	11.3
Building #26	4.6	12.0	16.5	10.6
Building #49	7.9	8.2	16.1	11.9
Building #19	3.8	12.2	16.1	9.8
Building #42	6.5	9.5	16.0	11.8
Building #76	7.1	8.8	15.9	11.7
Building #29	6.3	9.6	15.8	11.5
Building #55	6.7	9.1	15.8	11.5
Building #43	6.3	9.3	15.7	12.1
Building #38	4.9	10.8	15.7	10.9
Building #47	6.5	9.1	15.6	12.0
Building #41	4.8	10.7	15.5	10.8
Building #46	6.6	8.9	15.5	11.5
Building #28	5.2	10.3	15.5	11.2
Building #61	6.3	9.0	15.3	11.8
Building #75	4.5	10.7	15.1	10.5
Building #54	5.2	9.8	15.0	11.2
Building #65	8.7	6.0	14.7	12.1
Building #69	6.4	8.3	14.6	12.0

Elementary Schools	Sep 2015 - Aug 2016 Electricity Use (kWh/ft ²)	Sep 2015 - Aug 2016 Gas Use (ekWh/ft ²)	Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target** (ekWh/ft ²)
Building #77	5.1	9.5	14.6	11.1
Building #68	6.3	8.3	14.6	12.0
Building #50	4.7	9.8	14.6	10.7
Building #52	4.9	9.7	14.5	10.9
Building #33	4.3	10.2	14.5	10.3
Building #80	4.3	10.2	14.5	10.3
Building #58	5.6	8.9	14.5	11.5
Building #57	6.9	7.5	14.5	11.9
Building #51	5.7	8.6	14.3	11.5
Building #71	5.3	8.9	14.2	11.3
Building #67	5.0	9.1	14.1	11.0
Building #64	6.7	7.2	13.9	11.8
Building #86	7.9	6.0	13.9	12.4
Building #60	3.9	10.0	13.9	9.9
Building #70	5.2	8.7	13.9	11.2
Building #66	3.5	10.4	13.9	9.5
Building #82	5.7	7.9	13.6	11.7
Building #74	7.8	5.8	13.6	11.7
Building #83	6.6	6.9	13.5	12.1
Building #81	6.1	7.3	13.4	11.8
Building #62	5.2	8.1	13.4	11.3
Building #53	4.4	8.8	13.2	10.4
Building #37	3.9	9.2	13.1	9.9
Building #91	6.4	6.7	13.1	12.4
Building #56	4.5	8.4	13.0	10.6
Building #88	5.1	7.8	13.0	11.1
Building #73	4.6	8.2	12.8	10.6
Building #78	5.1	7.7	12.8	11.1
Building #72	5.0	7.7	12.8	11.0
Building #97	6.2	6.0	12.2	12.0
Building #100	6.1	6.0	12.1	12.1
Building #89	4.9	7.0	11.8	10.9
Building #84	4.3	7.4	11.7	10.3
Building #95	6.1	5.5	11.7	11.4
Building #85	4.6	7.0	11.6	10.6
Building #107	6.3	5.1	11.5	11.5
Building #99	5.6	5.7	11.3	11.2
Building #92	6.3	5.0	11.3	10.8



Elementary Schools	Sep 2015 - Aug 2016 Electricity Use (kWh/ft ²)	Sep 2015 - Aug 2016 Gas Use (ekWh/ft ²)	Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target** (ekWh/ft ²)
Building #96	6.8	4.2	11.0	10.8
Building #94	4.6	6.4	11.0	10.6
Building #106	5.2	5.7	10.9	10.9
Building #93	6.3	4.5	10.8	10.4
Building #105	4.9	5.7	10.5	10.5
Building #101	5.5	5.0	10.5	10.5
Building #110	6.2	4.1	10.3	10.3
Building #98	5.8	4.4	10.2	10.0
Building #104	5.4	4.7	10.1	10.1
Building #108	4.5	5.3	9.8	9.8
Building #103	4.6	4.5	9.1	9.1
Building #109	4.6	4.3	8.9	8.9

** Adjusted for unique building characteristics, such as heating system, heat pumps, portables, and swimming pools

<http://sustainableschools.ca/wp-content/uploads/2013/07/2017-SUS-Top-Energy-Performing-Boards-report.pdf>

Administrative Office	Sep 2015 - Aug 2016 Electricity Use (kWh/ft ²)	Sep 2015 - Aug 2016 Gas Use (ekWh/ft ²)	Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target** (ekWh/ft ²)
Building #59	27.9	0	27.9	20.1
Buildings #63	12.2	17.7	29.9	19.1
Building #87	8.8	16.7	25.6	15.7

**Adjusted for unique building characteristics, such as heating system (all-electric)

Your Energy Targets Explained

The energy targets are good practice energy use intensities from the benchmarked dataset of all reported schools in Ontario. They are readily attainable and are already being met or surpassed by a number of schools. These targets are based on schools with conventional heating systems, before adjustment for weather and site-specific characteristics.

The following is the breakdown of target performance by electricity and gas that makes up the total energy intensity target:

Targets			
Building Type	Electricity kWh/ft ²	Natural Gas ekWh/ft ²	Total Energy ekWh/ft ²
Elementary School	5.5	6.5	12.0
Secondary School	7.5	7.5	15.0



Targets			
Building Type	Electricity kWh/ft ²	Natural Gas ekWh/ft ²	Total Energy ekWh/ft ²
Administrative Building	13.0	7.0	20.0

The target for each individual school has then been adjusted for (if applicable):

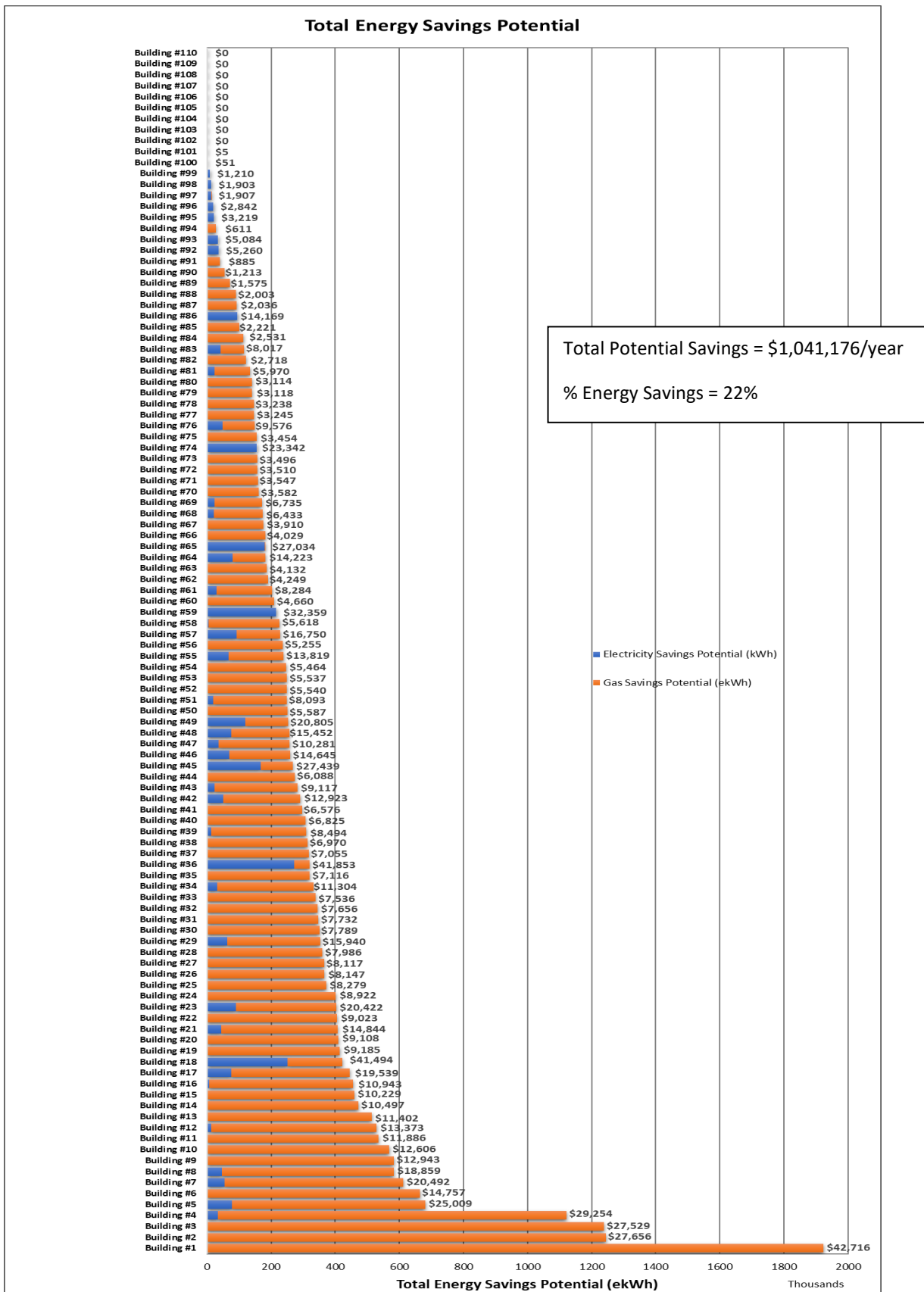
- energy source (heating system, all-electric, heat pumps, air conditioning)
- additional space types and equipment, based on good energy efficient system design and operational practice for indoor swimming pools and portables

The result is an individual, customized target (as shown in the table on previous pages) for each school based on its energy profile and building characteristics.

Where to Begin

Frequently, it is difficult to determine where to focus your conservation efforts to achieve the greatest cost savings. When the good practice targets are compared with the actual energy use of each school, indicators emerge which point to the greatest opportunities for improvement. This comes from comparing each school's utility performance against the target, normalized for site-specific characteristics (such as portables, water- and ground-source heat pumps, and swimming pools).

The graph below shows the savings opportunities for your schools and where to focus your conservation efforts.





By focusing conservation efforts on the schools with the greatest energy and cost savings potential, your organization can achieve deep reductions in energy use.

Your 2016 Water Use Performance

The following table shows the September 2015 – August 2016 water performance of your schools against the target performance of top quartile of the 88 elementary schools and 15 secondary schools participating in the pilot.

Secondary School	Sep 2015 - Aug 2016 Water Use (litres/ft2)	Secondary School Top Quartile	Comparison
Building #1	110.2	18.1 litres/ft2	509% above top quartile
Building #4	88.1		387% above top quartile
Building #31	76.6		323% above top quartile
Building #13	74.6		312% above top quartile
Building #3	69.8		286% above top quartile
Building #8	33.6		271% above top quartile
Building #45	60.9		236% above top quartile
Building #40	51.3		183% above top quartile
building #102	46.6		158% above top quartile
Building #9	45.5		152% above top quartile
Building #79	41.6		130% above top quartile
Building #5	40.3		123% above top quartile
Building #36	39.0		116% above top quartile
Building #2	26.6		47% above top quartile
Building #90	13.5		26% below top quartile

Elementary School	Sep 2015 - Aug 2016 Water Use (litres/ft2)	Elementary School Top Quartile	Comparison
Building #70	167.1	36.9 litres/ft2	353% above top quartile
Building #14	112.2		204% above top quartile
Building #48	108.2		193% above top quartile
Building #66	99.8		171% above top quartile
Building #51	85.3		131% above top quartile
Building #10	81.5		121% above top quartile
Building #55	78.3		112% above top quartile
Building #68	76.2		107% above top quartile
Building #7	73.6		100% above top quartile



Elementary School	Sep 2015 - Aug 2016 Water Use (litres/ft2)	Elementary School Top Quartile	Comparison
Building #20	71.1	36.9 litres/ft2	93% above top quartile
Building #22	70.0		90% above top quartile
Building #74	68.2		85% above top quartile
Building #71	66.7		81% above top quartile
Building #103	66.2		79% above top quartile
Building #52	65.5		78% above top quartile
Building #25	65.2		77% above top quartile
Building #95	64.9		76% above top quartile
Building #54	62.1		68% above top quartile
Building #18	59.2		60% above top quartile
Building #80	57.5		56% above top quartile
Building #26	55.3		50% above top quartile
Building #42	54.9		49% above top quartile
Building #44	54.4		47% above top quartile
Building #12	54.4		47% above top quartile
Building #65	52.7		43% above top quartile
Building #50	52.6		43% above top quartile
Building #21	52.3		42% above top quartile
Building #72	51.0		38% above top quartile
Building #77	50.2		36% above top quartile
Building #99	49.9		35% above top quartile
Building #6	48.9		33% above top quartile
Building #34	47.2		28% above top quartile
Building #78	46.4		26% above top quartile
Building #57	46.1		25% above top quartile
Building #105	43.9		19% above top quartile
Building #35	43.5		18% above top quartile
Building #15	43.5		18% above top quartile
Building #75	42.6		15% above top quartile
Building #69	42.2		14% above top quartile
Building #82	42.0		14% above top quartile
Building #29	41.3		12% above top quartile
Building #47	40.9		11% above top quartile
Building #32	40.6		10% above top quartile
Building #53	40.2		9% above top quartile

Elementary School	Sep 2015 - Aug 2016 Water Use (litres/ft2)	Elementary School Top Quartile	Comparison
Building #83	39.9	36.9 litres/ft2	8% above top quartile
Building #97	38.5		4% above top quartile
Building #106	36.9		at top quartile
Building #67	36.4		1% below top quartile
Building #76	36.2		2% below top quartile
Building #62	35.8		3% below top quartile
Building #39	35.2		4% below top quartile
Building #88	34.4		7% below top quartile
Building #108	34.2		7% below top quartile
Building #100	33.1		10% below top quartile
Building #17	32.9		11% below top quartile
Building #38	32.5		12% below top quartile
Buildings #11	31.4		15% below top quartile
Building #28	30.8		16% below top quartile
Building #27	30.7		17% below top quartile
Building #23	30.6		17% below top quartile
Building #61	29.7		20% below top quartile
Building #85	28.6		23% below top quartile
Building #98	28.3		23% below top quartile
Building #96	28.0		24% below top quartile
Fletchers Creek Sr. PS	27.7		25% below top quartile
Building #43	27.2		26% below top quartile
Building #107	27.2		26% below top quartile
Building #73	26.6		28% below top quartile
Building #60	26.4		29% below top quartile
Building #81	26.3		29% below top quartile
Building #24	26.3		29% below top quartile
Building #89	26.1		29% below top quartile
Building #56	25.9		30% below top quartile
Building #64	25.8		30% below top quartile
Building #91	25.5		31% below top quartile
Building #33	24.9		33% below top quartile
Building #104	24.7		33% below top quartile
Building #16	24.6		33% below top quartile
Building #30	24.5		34% below top quartile



Elementary School	Sep 2015 - Aug 2016 Water Use (litres/ft2)	Elementary School Top Quartile	Comparison
Building #84	23.6		36% below top quartile
Building #101	21.5		42% below top quartile
Building #46	20.4		45% below top quartile
Building #110	15.9		57% below top quartile
Building #94	13.9		62% below top quartile
Building #92	13.6		63% below top quartile
Building #86	10.0		73% below top quartile
Building #41	6.7		82% below top quartile
Building #49	3.0		92% below top quartile

Note: 2015 water consumption is missing for Building #93. Their water analysis will be included on the second group of schools.

The following table shows the September 2015 – August 2016 water performance of your administrative office buildings against the REALpac 2011 Top Quartile for Administrative Office (56.0 liters/ft2/year) *.

Building	Sep 2015 - Aug 2016 Water Use (litres/ft2)	Administrative Office Top Quartile	Comparison
Building #59	62.6	56.0 litres/ft2	12% above top quartile
Building #87	16.1		71% below top quartile

*http://c.ymcdn.com/sites/www.realpac.ca/resource/resmgr/industry_sustainability_-_water_benchmarking/rp_water_report_05_hr_final.pdf

As with energy, you should focus efforts on the schools with the greatest water savings potential (i.e. those schools using more water than the target usage).

Energy Star – Portfolio Manager

Your buildings have been entered into Energy Star's Portfolio Manager in order to compare and benchmark them against other similar buildings. Portfolio Manager provides a score from 1-100 comparing your building against a database of similar Canadian buildings, where 1 represents the worst performing buildings and 100 represents the best performing buildings. A score of 50 indicates that a building is performing at the national median, considering its size, location, and operating parameters. Scores can often be improved with more details about the operation, use and population of the buildings. Note that values highlighted in red are below the LEED EB: O+M 2009 certification requirements.

Building	Current Energy Star Score
Building #5	100
Building #104	98
Building #109	98

Building	Current Energy Star Score
Building #103	97
Building #24	97
Building #90	96
Building #108	95
Building #102	93
Building #105	93
Building #106	93
Building #85	93
Building #94	93
Building #79	92
Building #101	92
Building #98	92
Building #84	91
Building #37	91
Building #93	87
Building #107	87
Building #92	87
Building #13	86
Building #56	86
Building #99	86
Building #72	85
Building #80	85
Building #78	85
Building #73	83
Building #60	83
Building #66	83
Building #96	81
Building #100	81
Building #110	80
Building #53	80
Building #88	80
Building #45	79
Building #62	79
Building #64	78
Building #9	78
Building #89	78
Building #40	77
Building #70	77
Building #33	77
Building #97	76

Building	Current Energy Star Score
Building #75	75
Building #67	75
Building #50	74
Building #82	74
Building #77	74
Building #81	72
Building #51	71
Building #8	70
Building #74	70
Building #19	70
Building #71	69
Building #36	68
Building #69	67
Building #41	67
Building #68	67
Building #52	66
Building #91	66
Building #28	65
Building #43	62
Building #26	62
Building #38	61
Building #42	57
Building #57	57
Building #1	56
Building #4	55
Building #30	55
Building #61	54
Building #2	52
Building #46	52
Building #29	52
Building #95	51
Building #83	51
Building #35	51
Building #22	51
Building #27	51
Building #54	49
Building #55	49
Building #32	48
Building #44	48
Building #47	45



Building	Current Energy Star Score
Building #76	45
Building #16	44
Building #65	43
Fletchers Creek Sr. PS	43
Building #25	43
Building #86	42
Building #49	41
Buildings #63	39
Buildings #11	30
Building #20	30
Building #15	29
Building #6	26
Building #39	25
Building #7	24
Building #48	23
Building #87	20
Building #14	18
Building #59	17
Building #23	13
Building #34	13
Building #21	12
Building #17	12
Building #3	10
Building #12	5
Building #10	5
Building #18	3

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Participant 8 – Energy Performance and Opportunities

Your 2017 Performance – Knowing where your building is

Benchmarking your building against similar buildings across the country shows the relative energy performance of your individual building and helps to establish conservation targets. The following table shows the total energy performance of your building from January – December 2017, weather normalized to Toronto City weather conditions (i.e. the year of data from which the targets were established). This is compared with the adjusted target energy performance by hospital space type and uncommon building systems. Note that values highlighted in red are above target and values highlighted in green are below target.

Hospital	2017 Electricity Use (kWh/ft ²)	2017 Gas Use (ekWh/ft ²)	2017 Weather Normalized Total Energy Use (ekWh/ft ²)	Adjusted Total Energy Target* (ekWh/ft ²)
Building #1	25.9	39.4	65.3	52.9

Your Energy Targets Explained

The energy targets are good practice energy use intensities from Enerlife's Green Building Performance System (GBPS) database. They are readily attainable and are already being met or surpassed by a number of hospitals. Note that the base energy targets for acute hospitals are the top quartile energy intensity of buildings with conventional heating systems, normalized to Toronto City weather. Adjustments are then made based on different hospital spaces within the building such as research or long-term care, as well as uncommon building systems.

The following table presents base energy targets for your hospital type. It shows the breakdown of target performance by electricity and gas that makes up the total energy intensity target.

Targets			
Building Type	Electricity kWh/ft ²	Natural Gas ekWh/ft ²	Total Energy ekWh/ft ²
Acute Hospital	21.5	31.6	53.1

The target for each individual building includes adjustments for (if applicable):

- energy source (purchased heat, heat recovery chiller absorption cooling)

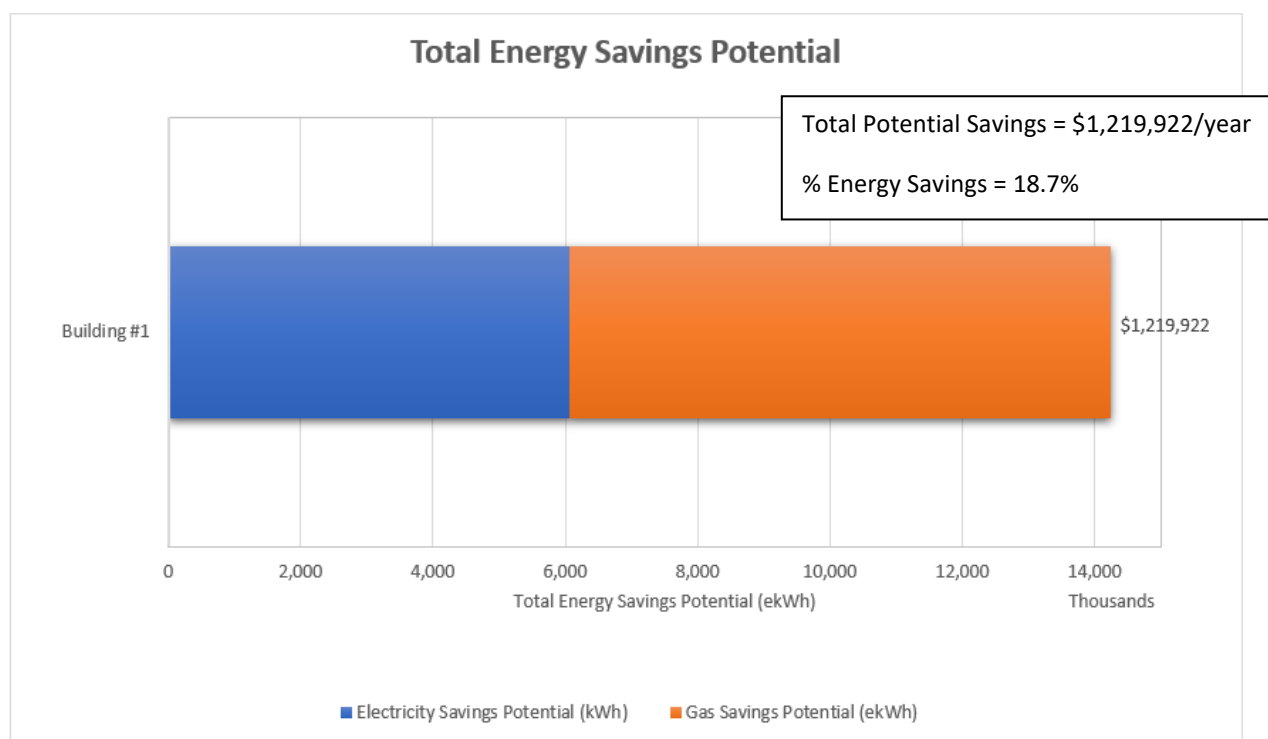


- Non-acute space types such as continuing care, long-term care, medical building, research space, and enclosed parking garage.

The result is an individual, customized target (as shown in the table on previous pages) for each facility based on its energy profile and building characteristics.

Where to Begin

Frequently, it is difficult to determine where to focus your conservation efforts to achieve the greatest cost savings. When the good practice targets are compared with the actual energy use of each building, indicators emerge which point to the greatest opportunities for improvement. This comes from comparing each building's utility performance against the target, normalized for site-specific characteristics such as purchased heat, uncommon systems, and differing energy intensity space types. The graph below shows the savings opportunities for your buildings, and where to focus your conservation efforts.



By focusing conservation efforts on the buildings with the greatest energy and cost savings potential, your organization can achieve deep reductions in energy use.



Your 2017 Water Use Performance

The following table shows the January 2017 – December 2017 water consumption of your building as well as the top quartile target performance of the acute care hospital's database. Water use is separated into two components; the water used for cooling and the rest that is unrelated to weather. The target is the combined top quartile use of these two components.

Building	2017 Water Use (Litres/ft ²)	Target Water Use (Litres/ft ²)	Savings Potential
Building #1	177.7	147.1 litres/ft ²	17.2 %

Energy Star – Portfolio Manager

Your hospital has been entered into Energy Star's Portfolio Manager in order to compare and benchmark them against other similar buildings. Portfolio Manager provides a score from 1-100 comparing your building against a database of similar Canadian buildings, where 1 represents the worst performing buildings and 100 represents the best performing buildings. A score of 50 indicates that a building is performing at the national median, considering its size, location, and operating parameters. Scores can often be improved with more details about the operation, use and population of the buildings. Note that values highlighted in red are below the LEED EB: O+M 2009 certification requirements.

Building	Current Energy Star Score Dec 2017
Building #1	49

This document was prepared by Enerlife Consulting on behalf of Toronto and Region Conservation. For additional information, please contact:

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APPENDIX B: STANDARD ENERGY AND WATER TARGETS

The PBC pilot project used standard good practice (top-quartile) energy and water targets for specific building types. Energy targets were established through Toronto and Region Conservation Authority's schools, municipal, and hospital programs. These programs use the Performance-Based Conservation methodology and are programs of The Living City delivered across Canada by TRCA with technical direction by Enerlife Consulting. Water targets were established as noted in the table below.

Building type	Electricity intensity target kWh/sq.ft.	Natural gas intensity target ekWh/sq.ft.	Total energy intensity target ekWh/sq.ft.
Administrative Office / Courthouse	11.96	8.16	20.12
Community & Recreational Centre	10.23	11.54	21.77
Transit Facility	15.40	33.40	48.80
Library	11.50	7.29	18.79
Theatre	12.30	5.00	17.30
Fire Station	8.50	16.40	24.90
Elementary School	5.50	6.50	12.00
Secondary School	7.50	7.50	15.00
Acute Hospital	21.50	31.60	53.10

Building type	Water intensity target liters/sq.ft.	Source
Administrative Office / Courthouse	56	REALPAC
Community & Recreational Centre	112.59	PBC pilot participants, top-quartile performance
Transit Facility	33.16	PBC pilot participants, top-quartile performance
Library	56	REALPAC
Theatre	56	REALPAC
Fire Station	9.4	PBC pilot participants, best performance
Elementary School	36.9	PBC pilot participants, top-quartile performance
Secondary School	18.1	PBC pilot participants, top-quartile performance
Acute Hospital	147.1	Greening Health Care program

Mayors' Megawatt Challenge (MMC)

<https://trca.ca/conservation/community-transformation/mayors-megawatt-challenge/>

The Mayors' Megawatt Challenge brings together municipalities from across Canada to lower energy use, emissions, and operating costs in their own facilities, while demonstrating leadership in taking action towards more sustainable communities. Members manage data, assess their energy and environmental performance, set targets and track savings, using the largest online municipal database in Canada. They share knowledge and best practices through webinars and networking to help plan, implement and verify improvements.

Sustainable Schools

<http://sustainableschools.ca/>

The Sustainable Schools program assists school boards in evaluating their energy performance, monitoring progress, and informing the business case and strategy for investment of resources to make substantial and lasting improvements. Since 2007, Sustainable Schools has been reporting on top

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performing school boards across Canada, establishing the magnitude of energy savings potential and directing school boards and utility companies to where the savings are to be found.

Greening Health Care

<https://trca.ca/conservation/community-transformation/greening-health-care/>

Greening Health Care is the largest program of its kind in North America, helping hospitals work together to lower their energy costs, raise their environmental performance and contribute to the health and wellbeing of their communities. Members manage data, assess their performance and track savings using a powerful online system. They share knowledge and best practices through workshops, webinars and networking to help plan, implement and verify improvements.

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APPENDIX C: SAVINGS REPORTS

Not included on this version of the Report

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APPENDIX D: PARTICIPANT FEEDBACK

Follow-up telephone survey #1	
March-April 2018	
<i>Purpose: to determine whether complete energy opportunity picture matches their understanding of the performance of their portfolio or building, follow up on identified opportunities, determine what measures they are in the process of implementing already.</i>	
Respondent	Response
1. Does the summary of energy and water opportunities presented in the workshop match your understanding of your buildings?	
Participant 5	Yes, overall. Data alone doesn't tell the whole story as to why the opportunities are there, but they match understanding of performance in the buildings.
Participant 7	Yes, consistent. Harder to connect GHG savings potential to energy efficiency measures.
Participant 3	Yes, overall. Library uses a lot more gas than expected.
Participant 4	Yes.
Participant 2	Some buildings' energy intensity was surprising. Now taking action on the opportunities presented.
2. Did this information give additional insight into where to take action on saving energy or water?	
Participant 5	This supports our current initiatives that focus on performance. Currently working through putting interval meters on the water meters with alarms – so far implemented in 75% of the schools saving \$100,000.
Participant 7	The utility data was too out of date. Actions are taken all the time, so immediate feedback on current energy use is needed. Currently have 35 schools set up with interval meters to track in real time but working toward 256. Looking forward to having that level of detail in the data to conduct the kind of analysis done in the pilot on all schools.
Participant 3	Yes, with community centres and arenas.
Participant 4	Yes, but haven't done anything yet.
Participant 2	This approach helps us focus on the buildings with opportunities. Already in the process of tendering ASHRAE Level II audits and taking a different approach. Now focusing on 5 highest savings-potential buildings. Auditors were given the identified target energy use reduction before conducting the audit, so will focus on the indicated reduction opportunities.
3. What energy and water efficiency measures are you already implementing or about to implement?	
Participant 5	Already accomplished a lot and focusing on performance measurement. There is interval metering on all schools. Water interval meters added to 75% of the schools and has already saved \$100,000. Looking at right-sizing water meters. Some of the other initiatives include: Working on more variable frequency drives on glycol heating pumps;

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	• Better indoor environmental control (adding occupancy sensors); • LED lighting retrofits; • Considering wifi controllers on portables; • Removing energy wheels; • Inventories of portables, and • Virtual metering
Participant 7	Right now, focusing on getting performance data sorted out and BAS upgrades for almost 200 schools. Starting with operational savings, with 35 schools targeted initially. The focus is on operational measures such as outside air intake and demand control ventilation. Participated in Enbridge's Run it Right program. Will be conducting a round of commissioning because BAS not well commissioned in the past. Will have interval meter data for all schools soon (through Carma, funded through Greenhouse Gas Reduction Fund). 6-7 schools will have LED lighting upgrades. Ongoing boiler replacements, DHW replacements. Pre-cooling in schools through BAS.
Participant 3	Working on lighting retrofits; considering dehumidifier. Exploring geothermal for Town Hall. Getting energy assessments done.
Participant 4	Projects include: • LED lighting retrofits; • replacing equipment at end of life; and • testing and rebalancing makeup air units in buildings with heat pumps, which are using more gas than they should. Have done a number of things at ice rinks and swimming pools: low-e ceilings, ice temperature management controls, laser controls on ice machines, VFD controls on swimming pools.
Participant 2	Measures completed recently: - o Lighting - o More scheduling - o More training - o More BAS
4. From the information provided in the workshop, will you be changing what you investigate, take a deeper look at different buildings, or change your energy and water efficiency plan in any way? What gets in the way?	
Participant 5	Currently 95% of the energy projects are already determined for the year but always considering projects with short paybacks. The challenge is resourcing projects and although we always incorporate incentives in projects, the incentive application process is challenging and time consuming.
Participant 7	Found the analysis methodology very useful for the base/heating thermal chart, electricity breakdown chart. Day/night interval data analysis very valuable as well. Want to focus on nighttime use and daytime demand, especially fan power. Gas consumption – not sure how to alarm big increases. Needed: additional resources, good targets for real-time use. The board has relatively large resources with full-time controls staff, energy specialist, utility data analyst being hired.

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Participant 3	Data is really useful for identifying what to look at. Has limited resources – no energy manager – so it is great to have a summary of performance. Committed to sustainability and green so helpful to have priorities outlined. Cost savings potential is helpful with the business case. Helps to have the GHG emissions information.
Participant 4	Resources are an issue (one person looking after the energy). As a first step, diagnostics are helpful. Need resources/external help to provide assessment and cost. Day-to-day tasks get in the way.
Participant 2	The approach is consistent with what we are doing. Need more focus on training operators.
5. What would your organization need to invest in the energy efficiency changes? How can utilities help?	
Participant 5	While economics make sense, more resources internally are needed. Utilities can help by providing data and making the business case. Currently, incentives require a lot of work, onerous documentation before and after, which takes time even for small schools. Utilities can help by streamlining the process and providing help in making sure contractors do their job properly.
Participant 7	Could use more resources to help with work. Setting good targets for real time use would be helpful. Only deal with utilities if there are problems.
Participant 3	Lack of resources is an issue (don't have an energy manager). Need BAS/better/more immediate information – interval metering on larger buildings. Very close relationship with Hydro. Don't deal much with Gas.
Participant 4	Utilities could provide a report indicating how the building is performing and what actions should be taken, with cost of project, energy reduction and GHG reduction. Then this would go to the council. Need help and funding for boilers and pumps at Leisure Centre; energy assessment for Sports Centre.
Participant 2	Incentive programs: incentives come after projects are completed, but still have to fully fund the projects upfront. Incentives don't come to the facilities department, so not a motivating factor. In-house training with IESO was very helpful. Customized \$ to Sense workshops. Would like to see more training and awareness incentives/funding, as operators move between buildings and need to be re-trained.
6. Any other feedback for us or the utilities?	
Participant 5	It would be great for utilities to fund research into areas of interest for multiple customers. For example, wifi controllers with interval reading capability on portables.
Participant 7	More up-to-date data is needed. Not helpful for the pilot to look only at a subset of our data. Communicating energy performance to staff, students very important. Working on this.
Participant 3	Feel it would be useful to be part of a collaborative approach and learn from other municipalities.

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	Don't hear much from water utilities and that would be useful because always an issue. Many buildings are on wells, so water capacity limited.
Participant 4	Will investigate water savings opportunities, do an internal investigation first and then approach Halton Region.
Participant 2	Would be helpful to have more training (including specific – BAS), promotional materials, funding for a refrigeration expert. Incentives are more for new construction, but even new buildings are not as efficient as they could be.

Follow-up telephone survey #2 November-December 2018 <i>Purpose: to follow up on the Energy and Savings Report, explore identified opportunities, and determine what measures were or are being implemented.</i>	
Respondent	Response
1. Review Energy and Water Savings Report with the participant	
Participant 5	Great that the energy assessment report normalizes for portables but unfortunate that doesn't normalize savings report for portables. Natural gas is creeping up (maintenance issues). Some schools had additions done, portables added.
Participant 7	Consistent with what we have been seeing.
Participant 4	Useful feedback.
Participant 1	Changes have been going on in the building with boiler replaced in 2017. Spike in gas use may be learning curve with new equipment or commissioning issue.
2. For high savings buildings – what has been done to achieve these savings?	
Participant 5	Savings masked by increase in population and intensified use.
Participant 7	X office was converted to gas. Rooftop unit installed. BAS upgraded in 200 buildings; real-time metering for over 200 schools (electricity, gas, and water). Outdoor lighting operation was optimized, photo cells were installed, and tied to security switch. Occupancy sensors were installed on gymnasium to control both fans and lighting Lighting retrofit: four schools were done last year (just re-lamping); three more planned One school applied for Energy Star certification.
Participant 4	- Sports Centre – installed new cogeneration so electricity decreased, and gas increased - Leisure Centre – working on better operations. Shutting electricity off at night. Next year looking at LED lighting retrofit. - Wanted to do high efficiency equipment replacement projects but didn't have the money. Planned for next year.

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	• BAS controls. Working to help set up setbacks and more preventative maintenance. Changing to more outcomes-based contracts with BAS to get better results in the buildings • Centre for the Arts. Working with BAS contractor on setbacks and better control • Old arena. Shutting down this building in the summer and building new Community Centre • Equipment. Bought 2 new electric ice resurfacers to save on gas and reduce exhaust fan use with no fumes. • Water use a. Problem somewhere in Town Hall, seeing huge water savings. b. Leisure Centre. Not sure where electricity savings coming from.
Participant 1	New boiler was installed in winter 2017 may have contributed to Land Registry gas savings.
3. For buildings that have increased in energy use – what has happened in these buildings that might have affected the energy use?	
Participant 5	Building hours of use and population have grown. Numbers of portables have increased; hours of operation; student population up which might be affecting water use.
Participant 7	• Commissioning required • Dampers not working properly • Overheating
Participant 4	• Cycling Centre – Lighting on all the time when Team Canada practicing. Temperature at 24 when practicing and 27 during competitions. • Trying to do setbacks but can't do too much because need pre-heat before use. • Working on better control in shoulder months. • Water control valves were installed at all arenas, but operators don't like them and have been broken off and damaged, so water just flows unchecked. Staff education needed. • In pools, working on preventative maintenance. Regular leak checks for piping, fixtures. • Cycling Centre: Huge need for humidity especially in winter to keep wood track in optimum condition Future plans: start holding regular meetings to brainstorm how to better manage buildings; training for new operations staff to bring them up to speed and ensure they know how things are done.
Participant 1	Learning curve with boiler operation and commissioning issues.
4. If you conducted work in these buildings, did you apply for or receive any incentives?	
Participant 5	Yes; \$120,000 worth of incentives. Last year, applied for all projects done in summer 2017/2018 (included LED retrofits, heat pumps, some VFDs, some condensing boiler/DHW replacements)
Participant 7	Applied for IESO incentives for 40 schools, specific for lighting (EPP) Cap and Trade funding
Participant 4	No incentives applied for this year. Will consider applying for incentives for Leisure Centre (BAS replacement/upgrade being planned).
Participant 1	No.

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5. Was this analysis (savings report) useful?	
Participant 5	Validated own analysis (which is weather-normalized). Not sure about the water data.
Participant 7	Don't like the format and would prefer to see the data in Excel.
Participant 4	Found this tool very useful. Great to see where we are at and terrific visual aid for buildings staff. Got a lot out of whole pilot.
Participant 1	Interesting report.
6. Any further feedback for us or the utilities?	
Participant 5	Energy Star access will be useful.
Participant 7	
Participant 4	Great if utilities could sit down with Energy Savings report and help with how to address issues and get feedback to improve
Participant 1	

ENBRIDGE GAS INC.

Answer to Interrogatory from
Building Owners and Managers Association (BOMA)

Interrogatory

Reference:

EB-2019-0271, Page 2 of 5, paragraph #4.

Question:

Please file a copy of Performance-Based Conservation Pilot Project, Final Report: Executive Summary, December 2018 Revision 1, which both natural gas utilities participated in the IESO (our emphasis).

Response

Please see the response at Exhibit I.BOMA.2 Attachment 1, p. 1.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Building Owners and Managers Association (BOMA)

Interrogatory

Reference:

EB-2019-0271, Page 2 of 5, paragraph #4.

Question:

- a) BOMA expresses the following concerns in its comments on the Mid Term Review. BOMA's concerns stem from several facts:
- The current methodology for estimating natural gas conservation potential drastically underestimates the available savings and their cost-effectiveness.
 - The Technical Resource Manual, which the utilities must use to determine the cost-effectiveness of technologies, is based primarily on US data for electricity utilities, primarily in the southwestern US.
 - The current framework relies on estimates, assumptions, and deemed savings of typical buildings rather than actual metered data in the facility in question.
 - The current framework, based as it is on the traditional California Standard Practice, was developed for electricity utilities.
 - The current framework's evaluation approach fails to recognize the savings demonstrated at the meter, yet rewards utilities who convince customers to install equipment that may inadvertently increase gas consumption.
 - The current framework's focus on "net to gross" and "free ridership" could be replaced with a program concept which engages utility staff as customer advisors rather than promoters or subsidizers of specific equipment, resulting in greater proven and positive improvements for customers and the environment.
- b) Please indicate why the company believes the current DSM framework is satisfactory, particularly given the changes which were requested in the Mid Term Review.

Response

Issues raised and information sought through this interrogatory exceed the scope of Enbridge Gas's 2021 DSM Plans proceeding as defined within the OEB's Procedural Order No. 1 ("PO No. 1"):¹

"...the OEB does not expect material changes to the programs and no increase to the overall DSM budget to take place during the transition period from the current OEB-approved DSM plans. In light of the on-going policy consultation, parties are expected to focus their participation during this proceeding on ensuring that the OEB's previously-approved 2020 DSM plans will continue to deliver cost-effective savings in 2021, consistent with the OEB's January 20, 2016 Decision and Order and DSM Mid-Term Report. The OEB expects that submissions from parties should be directed to the best alignment of Enbridge Gas resources and effort available within the existing plan in order to maximize results.

Parties will continue to have the opportunity to provide input and feedback on any new policy objectives, program changes and all other facets of the new DSM framework as part of the ongoing consultation. The OEB is mindful of the costs and resources required to thoroughly review, critique and make material changes to the currently approved DSM plans and agrees with Enbridge Gas that resources are best directed to the policy consultation."

Accordingly, Enbridge Gas has provided limited responses to this interrogatory in an effort to be as responsive as reasonably possible considering the OEB's direction in this regard.

a) b)

In its Report of the Board on the 2015-2020 DSM Framework Mid-Term Review, issued approximately 14 months ago, the OEB considers the submissions of intervenors, including those of BOMA, and concludes that:²

"The current suite of natural gas conservation programs approved as part of the OEB's DSM Decision continue to be appropriate and effective. Verified program results from the 2015 and 2016 program years show strong performance and long-term natural gas reductions across the residential, commercial and industrial sectors. Therefore, the OEB concludes that

¹ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

² EB-2017-0127/EB-2017-0128, Report of the Ontario Energy Board Mid-Term Review of the Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020) (November 29, 2018), p. 5.

material changes to the DSM Framework and DSM Plans are not warranted at this time.”

In its written comments to the Board regarding the appropriate Principles, Goals and Objectives and Scope of the Post-2020 DSM Framework (June 2019), Enbridge Gas explained why the current (2015-2020) DSM Framework is satisfactory:³

“...Enbridge Gas maintains that the current 2015-2020 DSM Framework provides a solid platform on which to design and deliver a Post-2020 DSM Plan. The items proposed by Enbridge Gas for revision or reassessment as part of the Post-2020 DSM Framework, as set out in this submission, are guided by the knowledge and experience of the Utilities with consideration for the conservation goals of the Province of Ontario. These items do not constitute a major departure from the current 2015-2020 DSM Framework as the current Framework provides the necessary flexibility and stability to create and deliver an effective DSM Plan.”

Enbridge Gas goes on to state:⁴

“It is most important to focus time and effort on stakeholder consultation and development of Enbridge Gas’s Post-2020 Multi-Year DSM Plan as Enbridge Gas believes that the 2015-2020 DSM Framework is sufficiently Broad and provides the appropriate flexibility to enable full consideration for varied and comprehensive post-2020 DSM program development.

In Enbridge Gas’s view, most of the comments and issues raised by participants at the June 13, 2019 Stakeholder Meeting are matters that are more appropriately considered in the development of the Post-2020 Multi-Year DSM Plan and not as part of the development of the Post-2020 DSM Framework...”

In a letter to the OEB dated September 6, 2019, Enbridge Gas advised that:⁵

“...in the interest of maintaining continuity of DSM/conservation offerings across Ontario, Enbridge Gas has concluded that it is no longer reasonable to assume that a Post-2020 DSM Multi-Year Plan can be completed, reviewed and approved in time for the 2021 DSM program year. As a result, a 2021 Transition Plan is necessary to avoid interruption of DSM/conservation offerings and to bridge the gap between the current 2015-2020 DSM Plans

³ EB-2019-0003, Enbridge Gas Written Comments (June 27, 2019), p. 4.

⁴ EB-2019-0003, Enbridge Gas Written Comments (June 27, 2019), p. 18.

⁵ EB-2019-0003, Enbridge Gas Letter (September 6, 2019), p.1 – 2.

and a future Post-2020 DSM Plan. Accordingly, Enbridge Gas advises that it has commenced work on a 2021 Transition Plan.”

Notwithstanding Enbridge Gas’s Written Comments, on September 16, 2019, the OEB issued a letter stating that it planned to undertake a comprehensive review of the current 2015-2020 DSM Framework to inform the development of a Post-2020 DSM Framework.⁶ The OEB advised that it expected to continue its policy consultation on a new DSM framework in the fall of 2019 and into 2020. However, in the days leading up to the date of filing its 2021 DSM Plans application (filed November 27, 2019) no further correspondence or direction related to the OEB’s review or policy consultation had been issued. As a result, with little more than a year remaining before the DSM Framework and OEB-approved DSM Plans were to expire, considering the then present status of the Post-2020 DSM Framework consultative, and in the interest of maintaining continuity of DSM/conservation offerings across Ontario, Enbridge Gas determined it was prudent to request: (i) that the OEB issue an extension of the current 2015-2020 DSM Framework for one year (effective January 1, 2021 to December 31, 2021); and (ii) OEB approval to roll-forward the 2020 DSM plans into 2021.

Enbridge Gas’s 2021 DSM Plans application is focused upon ensuring continuance of DSM programming in the province under the current 2015-2020 DSM Framework which the Board concluded to be appropriate and effective as part of its Mid-Term Review. This is consistent with the scope of this proceeding established by the OEB within Procedural Order No.1.⁷ Accordingly, within its September 16, 2019 letter regarding the Post-2020 DSM Framework Consultation and reinforced within PO No. 1 in this proceeding, the OEB has established that the appropriate place to consider the changes suggested by BOMA, is the ongoing Post-2020 DSM Framework consultation and review.

⁶ EB-2019-0003, OEB Letter (September 16, 2019).

⁷ EB-2019-0271, Procedural Order No. 1 (February 24, 2020), p. 3.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Consumers Council of Canada (CCC)

Interrogatory

Question:

EGI has requested that the OEB issue an extension of the current 2015-2020 DSM Framework for one year by April 2, 2020. What are the implications for the 2021 budgets and targets if approval is granted by the OEB at a later date? What are the implications of an approval date of July 1, 2020?

Response

Enbridge Gas proposed April 2, 2020 as an appropriate target date for the Board to render a decision on Enbridge Gas's 2021 DSM Plans application to ensure the utility would have the requisite lead time necessary to maintain its full complement of DSM programming into 2021.¹ Further, as set out in its application:²

“...in order to avoid any lengthy or complicated consideration of DSM plans for a single year (i.e. 2021) and to allow for the full resources of Enbridge Gas and stakeholders to focus on the development of the next DSM framework, Enbridge Gas believes a simple roll-over of 2020 programs and budgets to 2021 governed by the extension of the current 2015-2020 DSM Framework is the most practical and effective path forward for all parties. This will, importantly, provide certainty and clarity for our customers.”

With respect to the timing and scope of this proceeding, in Procedural Order No. 1 the Board directed that:³

“...the OEB does not expect material changes to the programs and no increase to the overall budget to take place during the transition period...The OEB is mindful of the costs and resources required to thoroughly review, critique and make material changes to the currently approved DSM plans and agrees with Enbridge Gas that resources are best directed to the policy consultation.”

¹ EB-2019-0271, Application, Exhibit A, p. 3.

² EB-2019-0271, Application, Exhibit A, p. 6.

³ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

Procedural Order No. 1 also set out a procedural timeline extending to June 2, 2020. It appears reasonable therefore, that the OEB could render a decision on Enbridge Gas's application by July 1, 2020. Enbridge Gas expects the implications of receiving OEB approval by such date to be manageable.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Consumers Council of Canada (CCC)

Interrogatory

Question:

For each year 2015-2019 please provide the following:

- (a) A list of all of the residential programs provided by EGD and Union, targets for each of the programs, audited results, budgets and actual amounts spent;
- (b) For each residential program please provide the projected number of participants and the actual number of participants;
- (c) For each year please provide the total DSM costs allocated to the residential customer classes for both Union and EGD. Please include all costs – including program costs, overhead costs and shareholder incentive amounts.

Response

- a) For 2015 DSM program year residential targets, results, budgets and spends, please see the response at Exhibit.I.SEC.12 Attachment 1

For 2016 DSM program year residential targets, results, budgets and spends, please see the response at Exhibit.I.SEC.12 Attachment 2

For Draft 2017 DSM program year residential targets, results, budgets and spends (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit.I.SEC.12 Attachment 3.

For Draft 2018 DSM program year residential targets, results, budgets and spends (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit.I.SEC.12 Attachment 4.

For 2019 residential targets, please see the responses at Exhibit I.PP.7 Attachment 1 for 2019 scorecard targets and the response at Exhibit I.SEC.2 Attachment 1 for

2019 budget breakdown. For 2019 budgets, please see the OEB's Decision and Order on the utilities 2015-2020 multi-year DSM Plans.¹

As 2019 DSM program year result and spend details are still being compiled at the time of this submission, they are not currently available.

Please note that adaptive thermostat savings targets are included within the Resource Acquisition metrics.

- b) Enbridge Gas does not forecast results by program, rather results are forecast by OEB-approved scorecard metric. The only residential scorecard metric consisting of participants is the Home Efficiency Rebate ("HER") participant metric (homes). Tables 1 and 2 below detail HER target and actual participation from 2015 to 2019.

For adaptive thermostats, only results are available from 2015 to 2018, as set out in Table 3 below.

As 2019 DSM program year results are still being compiled at the time of this submission, they are not currently available.

Enbridge Gas began delivering adaptive thermostats in the EGD rate zone in 2016. Enbridge Gas began delivering adaptive thermostats in the Union rate zones in 2019.

Table 1
HER Participants (homes) – Union Rate Zones

Year	OEB 100% Target	Actual Participants
2015	1,245	2,529
2016	3,300	6,595
2017	6,859	13,729
2018	8,010	16,118
2019	8,308	N/A

NOTES:

2017/2018 DSM program year participation details are Draft as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB.

¹ EB-2015-0029 / EB-2015-0049, OEB Decision and Order (February 24, 2016), Schedule A.

Table 2
HER Participants (homes) – EGD Rate Zone

Year	OEB 100% Target	Actual Participants
2015	762	5,646
2016	8,259	12,986
2017	9,116	11,390
2018	9,235	14,413
2019	11,606	N/A

NOTES:

2017/2018 DSM program year participation details are Draft as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB.

Table 3
Adaptive Thermostats – EGD Rate Zone

Year	Actual Participants
2016	17,030
2017	14,288
2018	16,262
2019	N/A

NOTES:

2017/2018 DSM program year participation details are Draft as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB.

- c) For DSM costs allocated to residential customers please see the response at Exhibit I.OGVG 1 a) ii).

ENBRIDGE GAS INC.

Answer to Interrogatory from
Consumers Council of Canada (CCC)

Interrogatory

Reference:

Ex. A/p. 5

Question:

The evidence indicates that the 2021 budget for the EGD rate zone is \$67.7 million and the budget for the Union rate zone is \$64.3 million. Of those totals how please provide the allocation to each of the rate classes. What is the forecast number of residential customer participants for each rate zone for 2021? Do these budget totals include shareholder incentives?

Response

The 2021 budget that Enbridge Gas is seeking approval of is identical to the 2020 OEB-approved budget for all rate zones, including its allocation amongst rate classes. For details of the allocation of the 2020 OEB-approved budget by rate class, please see the response at Exhibit I.OGVG.1 b) ii).

Enbridge Gas does not forecast participants/results at the program or offering level, but rather at the scorecard metric level. Residential participation is included in two OEB-approved scorecard metrics (cumulative cubic meters and Home Efficiency Rebate participants) on the proposed 2021 Resource Acquisition scorecard. For details of 2021 scorecard targets, including the forecast for those 2021 metrics, please see the response at Exhibit I.PP.7 Attachment 1.

These budgets do not include shareholder incentives.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Consumers Council of Canada (CCC)

Interrogatory

Reference:

Ex. A/p. 5

Question:

Please provide a detailed breakdown of the 2021 budget of \$132 million. Please provide the budget for 2020 on the same basis. Please identify all DSM merger savings, the nature of those savings and where in the budget for 2021 those savings have been reflected. If savings have been achieved with respect to staff reductions, for example, is EGI proposing to spend more on programs?

Response

For budget breakdowns of the 2020 and 2021 DSM plans, please see the response at Exhibit I.SEC.2 Attachment 1.

For information on DSM savings and optimization, please see the response at Exhibit I.STAFF.4.

All optimization and efficiencies resulting in cost savings will either be directed to other areas of program spend to maximize overall DSM portfolio results or will be returned to ratepayers through the DSMVA as detailed in the response at Exhibit I.CME.2 c).

ENBRIDGE GAS INC.

Answer to Interrogatory from
Consumers Council of Canada (CCC)

Interrogatory

Question:

EGI is proposing the same annual shareholder incentives and methodologies that were approved for 2020. Please provide a schedule setting out the actual shareholder incentives for each rate zone for the years 2015-2019(forecast). What is the maximum shareholder incentive amount available for 2020 and 2021?

Response

For 2015 DSM program year actual shareholder incentive results, please see the response at Exhibit I.SEC.12 Attachment 1.

For 2016 DSM program year actual shareholder incentive results, please see the response at Exhibit I.SEC.12 Attachment 2.

For Draft 2017 DSM program year shareholder incentive claims (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For Draft 2018 DSM program year shareholder incentive claims (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

As 2019 DSM program year results are still being compiled at the time of this submission, they are not currently available. The forecasted shareholder incentive claim for 2019 is the 100% target (\$4.18M per rate zone).

The 2020 and 2021 maximum shareholder incentive amounts are \$10.45M per year, per rate zone.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Canadian Manufacturers & Exporters (CME)

Interrogatory

Reference:

Exhibit A, page 5 of 6

Question:

At Exhibit A, page 5 of 6, EGI provides the proposed 2021 budget totals for the EGD and Union rates zones.

- a) Please provide a table setting out granular detail on the individual DSM programs in each rate zone from 2015 to 2020. Please include:
- I. the annual budgets for each program;
 - II. actual spending on each program;
 - III. any variance between I. and II.;
 - IV. achieved DSM savings.

Response

- a) For 2015 DSM program year budget, expenditure and savings details, please see the response at Exhibit I.SEC.12 Attachment 1.

For 2016 DSM program year budget, expenditure and savings details, please see the response at Exhibit I.SEC.12 Attachment 2.

For Draft 2017 budget, expenditure and savings details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For Draft 2018 budget, expenditure and savings details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

OEB-approved 2019 and 2020 DSM program year budget details can be found in the OEB's Decision and Order on the utilities' 2015-2020 DSM Plans.¹

As 2019 DSM program year expenditure and savings detail is still being compiled at the time of this submission, they are not currently available. Please also see the response at Exhibit I.PP.1.

As the 2020 DSM program year is currently in progress, no expenditure or savings detail is currently available.

¹ EB-2015-0029 / EB-2015-0049 OEB Decision and Order (February 24, 2016), Schedule A.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Canadian Manufacturers & Exporters (CME)

Interrogatory

Reference:

EB-2017-0127/0128, Report of the Ontario Energy Board, Mid-Term Review of the Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020), November 29, 2018, p. 13.

Question:

In its Mid-Term Review of the Demand Side Management Framework, the Board stated that: "The OEB expects the natural gas utilities to continue to strive for cost efficiencies in its overheads and administration, including marketing and promotion costs, especially considering the merger of Enbridge Gas and Union Gas."

- a) Please provide all cost-savings and efficiency related initiatives that EGI has engaged in since the Board's report.
- b) For any answers to a) please provide any forecast savings and actual cost savings achieved.
- c) To the extent that savings have been achieved, please explain why it is EGI's view that the DSM budget for 2021 should remain the same as the budget for 2020.
- d) To the extent that EGI has not found any cost savings since the Board's report, please fully explain why not.

Response

a) b)

Please see the response at Exhibit I.STAFF.4 for discussion of integration efficiencies.

c) As set out in its application,

“Enbridge Gas's primary concern is to avoid any interruption of DSM/conservation offerings across Ontario. Program continuity is essential to a successful, sustained and prosperous energy conservation market.”¹

“In summary, in order to avoid any lengthy or complicated consideration of DSM plans for a single year (i.e. 2021) and to allow the full resources of Enbridge Gas and Stakeholders to focus on the development of the next DSM framework, Enbridge Gas believes a simple roll-over of 2020 programs and budgets governed by the extension of the current 2015-2020 DSM Framework is the most practical and effective path forward for all parties. This will importantly, provide certainty and clarity for our customers.”²

The current 2015-2020 DSM Framework and DSM plans do not allow for the shareholder to benefit from cost efficiencies, as DSM costs flow through to ratepayers. Variances between OEB-approved budgets and actual 2021 DSM spending by rate zone will be captured in the respective DSM Variance Accounts (“DSMVA”) for the EGD rate zone and Union rate zones consistent with approved 2021 Rates. Accordingly, any savings realized as a result of efficiencies achieved through integration or optimization of DSM resources or programming will either be made available to support programs to the benefit of participants (ratepayers), or returned to ratepayers through the DSMVAs at such time that Enbridge Gas files an application to dispose of 2021 DSM deferral and variance account balances. This approach is reasonable in that it simplifies the regulatory process for a rollover period, allowing stakeholders to focus on the development of the Post-2020 DSM Framework, consistent with the Board's direction in Procedural Order No. 1:³

¹ EB-2019-0271, EGI Application, Exhibit A, p. 3.

² EB-2019-0271, EGI Application, Exhibit A, p. 6.

³ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

“... the OEB does not expect material changes to the programs and no increase to the overall DSM budget to take place during the transition period from the current OEB-approved DSM plans.

“The OEB is mindful of the costs and resources required to thoroughly review, critique and make material changes to the currently approved DSM plans and agrees with Enbridge Gas that resources are best directed to the policy consultation.”

d) Please see the responses to parts a) and b) above.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit A

Preamble:

Enbridge's application in EB-2015-0049 included the following table at Exhibit B, Tab 2, Schedule 3, Page 7

Table 5: 2020 TRC-Plus and PAC Analysis and Ratios

Multi-Year TRC Scenarios	2020 Total Resource Acquisition & Low Income						TRC + 15% Societal Benefits			PACT + 15% Societal Benefits		
	Participants or Units Installed	Total NPV Benefits	Total Incremental Costs	Total Incentive Costs	Total Fixed Costs	Total Administrative Costs	TRC Total Costs	TRC Net Benefit	TRC Ratio	PACT Total Cost	PACT Net Benefit	PACT Ratio
Resource Acquisition & Low Income	55,121	\$248,761,523	\$81,836,574	\$41,151,041	\$10,092,613	\$10,752,509	\$102,681,696	\$146,079,828	2.42	\$61,996,163	\$186,765,361	4.01
Resource Acquisition	52,586	\$230,397,348	\$72,271,707	\$32,608,268	\$7,981,173	\$8,308,440	\$88,561,320	\$141,836,028	2.60	\$48,897,881	\$181,499,466	4.71
Low Income	2,535	\$18,364,176	\$9,564,867	\$8,542,773	\$2,111,440	\$2,444,070	\$14,120,376	\$4,243,800	1.30	\$13,098,282	\$5,265,894	1.40

Resource Acquisition TRC Scenarios	2020 Resource Acquisition						TRC + 15% Societal Benefits			PACT + 15% Societal Benefits		
	Participants or Units Installed	Total NPV Benefits	Total Incremental Costs	Total Incentive Costs	Total Fixed Costs	Total Administrative Costs	TRC Total Costs	TRC Net Benefit	TRC Ratio	PACT Total Cost	PACT Net Benefit	PACT Ratio
Large Customers												
Large Custom	787	\$116,492,346	\$36,242,847	\$5,787,634	\$1,416,049	\$0	\$37,658,896	\$78,833,450	3.09	\$7,203,683	\$109,288,663	16.17
Large Prescriptive	4,504	\$13,681,582	\$675,419	\$801,330	\$631,322	\$0	\$1,306,741	\$12,374,841	10.47	\$1,432,652	\$12,248,930	9.55
Small Customers												
Small Custom	117	\$6,865,266	\$5,394,348	\$467,753	\$424,635	\$0	\$5,818,984	\$1,046,282	1.18	\$892,389	\$5,972,878	7.69
Small Prescriptive	2,054	\$14,820,706	\$307,950	\$810,574	\$212,470	\$0	\$520,421	\$14,300,286	28.48	\$1,023,044	\$13,797,662	14.49
Small DI	1,760	\$12,703,463	\$263,958	\$3,852,058	\$1,381,056	\$0	\$1,645,014	\$11,058,449	7.72	\$5,233,114	\$7,470,348	2.43
Residential Thermostats	29,094	\$15,762,352	\$8,728,213	\$2,182,053	\$80,817	\$0	\$8,809,030	\$6,953,323	1.79	\$2,262,870	\$13,499,482	6.97
Residential CER	14,248	\$44,810,623	\$20,658,971	\$17,353,536	\$2,442,440	\$0	\$23,101,411	\$21,709,212	1.94	\$19,795,976	\$25,014,647	2.26
RA Overall TRC	52,586	\$230,397,348	\$72,271,707	\$32,608,268	\$7,981,173	\$8,308,440	\$88,561,320	\$141,836,028	2.60	\$48,897,881	\$181,499,466	4.71

Low Income TRC Scenarios	2020 Low Income						TRC + 15% Societal Benefits			PACT + 15% Societal Benefits		
	Participants or Units Installed	Total NPV Benefits	Total Incremental Costs	Total Incentive Costs	Total Fixed Costs	Total Administrative Costs	TRC Total Costs	TRC Net Benefit	TRC Ratio	PACT Total Cost	PACT Net Benefit	PACT Ratio
Multi-Family Homes - Part 3	270	\$12,381,475	\$5,540,329	\$2,935,841	\$1,031,512	\$0	\$6,571,841	\$5,809,634	1.88	\$3,967,353	\$8,414,122	3.12
Single Family Homes - Part 9	2,265	\$5,982,701	\$4,024,538	\$5,606,931	\$1,079,928	\$0	\$5,104,466	\$878,235	1.17	\$6,686,859	-\$704,158	0.89
LI Overall TRC	2,535	\$18,364,176	\$9,564,867	\$8,542,773	\$2,111,440	\$2,444,070	\$14,120,376	\$4,243,800	1.30	\$13,098,282	\$5,265,894	1.40

Question:

Please reproduce this table for 2021 for (i) the Union rate areas, (ii) the Enbridge rate areas, and (iii) all rate areas.

Response

Enbridge Gas has not produced a 2021 TRC-Plus forecast for the purposes of this proceeding. With respect to cost-effectiveness, Enbridge Gas proposes to execute DSM programming in 2021 similar to other years under the OEB's 2015-2020 DSM Framework; monitoring TRC-Plus results at a program level and making adjustments to programs as needed.

Please see the response at Exhibit I.ED.4, for discussion of the results expected from Enbridge Gas, as established by the OEB's 2015-2020 DSM Framework.

For 2021, the Union rate zones' Performance-Based Program will be adapted to account for cost-effectiveness results from prior years. This is described in more detail in the response at Exhibit I.SEC.14.

To gauge 2021 TRC-Plus, see Attachment 1 for the requested TRC-Plus table, based on Draft 2018 DSM program year results.

Source: 2018 Natural Gas Demand-Side Management Annual Verification Report (DNV GL)

Union *

					TRC-Plus				PAC			
Program / Offering	Participants or Units Installed	Total Incremental Costs	Total Incentive Costs	Total Fixed & Admin Costs	Total NPV TRC Benefits	TRC Total Costs	TRC Net Benefit	TRC Ratio	Total NPV PAC Benefits	PAC Total Cost	PAC Net Benefit	PAC Ratio
Resource Acquisition	3,775	\$91,651,000	\$34,725,000	\$11,421,000	\$211,610,000	\$103,072,000	\$108,538,000	2.05	\$177,846,000	\$46,146,000	\$131,700,000	3.85
Commercial & Industrial Custom	358	\$37,798,000	\$8,228,000	\$3,121,000	\$100,667,000	\$40,919,000	\$59,748,000	2.46	\$89,606,000	\$11,349,000	\$78,257,000	7.90
Commercial & Industrial Direct Install	222	\$1,136,000	\$1,339,000	\$309,000	\$10,144,000	\$1,445,000	\$8,699,000	7.02	\$10,135,000	\$1,648,000	\$8,487,000	6.15
Commercial & Industrial Prescriptive	3,195	\$14,123,000	\$3,868,000	\$2,065,000	\$42,743,000	\$16,188,000	\$26,555,000	2.64	\$39,082,000	\$5,933,000	\$33,149,000	6.59
Home Reno Rebate		\$38,594,000	\$21,290,000	\$5,926,000	\$58,056,000	\$44,520,000	\$13,536,000	1.30	\$39,023,000	\$27,216,000	\$11,807,000	1.43
Low Income	2,249	\$5,940,000	\$6,425,000	\$4,381,000	\$13,412,000	\$10,321,000	\$3,091,000	1.30	\$11,110,000	\$10,806,000	\$304,000	1.03
Home Weatherization	1,885	\$3,422,000	\$3,881,000	\$3,617,000	\$7,328,000	\$7,039,000	\$289,000	1.04	\$6,052,000	\$7,498,000	-\$1,446,000	0.81
Furnace End-of-Life	-	-	-	-	-	-	-	-	-	-	-	-
Indigenous	61	\$80,000	\$82,000	\$97,000	\$54,000	\$177,000	-\$123,000	0.31	\$45,000	\$179,000	-\$134,000	0.25
Multi-Family	303	\$2,438,000	\$2,462,000	\$667,000	\$6,030,000	\$3,105,000	\$2,925,000	1.94	\$5,013,000	\$3,129,000	\$1,884,000	1.60
Large Volume	43	\$6,309,000	\$2,341,000	\$481,000	\$16,745,000	\$6,790,000	\$9,955,000	2.47	\$15,187,000	\$2,822,000	\$12,365,000	5.38
Large Volume	43	\$6,309,000	\$2,341,000	\$481,000	\$16,745,000	\$6,790,000	\$9,955,000	2.47	\$15,187,000	\$2,822,000	\$12,365,000	5.38
Union Program Total	6,067	\$103,900,000	\$43,491,000	\$16,283,000	\$241,767,000	\$120,183,000	\$121,584,000	2.01	\$204,143,000	\$59,774,000	\$144,369,000	3.42

*Not all values may compute exactly due to rounding.

Enbridge *

					TRC-Plus				PAC			
Program / Offering	Participants or Units Installed	Total Incremental Costs	Total Incentive Costs	Total Fixed & Admin Costs	Total NPV TRC Benefits	TRC Total Costs	TRC Net Benefit	TRC Ratio	Total NPV PAC Benefits	PAC Total Cost	PAC Net Benefit	PAC Ratio
Resource Acquisition	33,692	\$58,000,000	\$33,775,000	\$9,385,000	\$152,598,000	\$67,385,000	\$85,213,000	2.26	\$133,014,000	\$43,160,000	\$89,854,000	3.08
Commercial & Industrial Custom	508	\$18,036,000	\$6,452,000	\$3,939,000	\$76,537,000	\$21,975,000	\$54,562,000	3.48	\$69,084,000	\$10,391,000	\$58,693,000	6.65
Commercial & Industrial Direct Install	353	\$1,515,000	\$1,362,000	\$798,000	\$12,366,000	\$2,313,000	\$10,053,000	5.35	\$11,703,000	\$2,160,000	\$9,543,000	5.42
Commercial & Industrial Prescriptive	2,131	\$3,116,000	\$794,000	\$649,000	\$8,985,000	\$3,765,000	\$5,220,000	2.39	\$7,398,000	\$1,443,000	\$5,955,000	5.13
Comprehensive Energy Management	-	-	-	-	-	-	-	-	-	-	-	-
Energy Leaders Initiative	3	\$1,032,000	\$324,000	\$227,000	\$6,228,000	\$1,259,000	\$4,969,000	4.95	\$5,615,000	\$551,000	\$5,064,000	10.19
Residential Adaptive Thermostats	16,262	\$4,683,000	\$1,328,000	\$581,000	\$15,377,000	\$5,264,000	\$10,113,000	2.92	\$9,365,000	\$1,909,000	\$7,456,000	4.91
Run-it-Right	22	\$23,000	\$635,000	\$497,000	\$34,000	\$520,000	-\$486,000	0.07	\$31,000	\$1,132,000	-\$1,101,000	0.03
Small Commercial New Construction	-	-	-	-	-	-	-	-	-	-	-	-
Home Energy Conservation	14,413	\$29,595,000	\$22,880,000	\$2,694,000	\$33,071,000	\$32,289,000	\$782,000	1.02	\$29,818,000	\$25,574,000	\$4,244,000	1.17
Low Income	2,766	\$7,157,000	\$6,179,000	\$5,058,000	\$28,288,000	\$12,215,000	\$16,073,000	2.32	\$25,123,000	\$11,237,000	\$13,886,000	2.24
Home Winterproofing	1,807	\$1,997,000	\$2,406,000	\$3,015,000	\$3,655,000	\$5,012,000	-\$1,357,000	0.73	\$3,075,000	\$5,421,000	-\$2,346,000	0.57
Multi Residential	959	\$5,160,000	\$3,773,000	\$2,043,000	\$24,633,000	\$7,203,000	\$17,430,000	3.42	\$22,048,000	\$5,816,000	\$16,232,000	3.79
Enbridge Program Total	36,458	\$65,157,000	\$39,954,000	\$14,443,000	\$180,886,000	\$79,600,000	\$101,286,000	2.27	\$158,137,000	\$54,397,000	\$103,740,000	2.91

*Not all values may compute exactly due to rounding.

TOTAL

					TRC-Plus				PAC			
Program / Offering	Participants or Units Installed	Total Incremental Costs	Total Incentive Costs	Total Fixed & Admin Costs	Total NPV TRC Benefits	TRC Total Costs	TRC Net Benefit	TRC Ratio	Total NPV PAC Benefits	PAC Total Cost	PAC Net Benefit	PAC Ratio
Union Program Total	6,067	\$103,900,000	\$43,491,000	\$16,283,000	\$241,767,000	\$120,183,000	\$121,584,000	2.01	\$204,143,000	\$59,774,000	\$144,369,000	3.42
Enbridge Program Total	36,458	\$65,157,000	\$39,954,000	\$14,443,000	\$180,886,000	\$79,600,000	\$101,286,000	2.27	\$158,137,000	\$54,397,000	\$103,740,000	2.91
TOTAL	42,525	\$169,057,000	\$83,445,000	\$30,726,000	\$422,653,000	\$199,783,000	\$222,870,000	2.12	\$362,280,000	\$114,171,000	\$248,109,000	3.17

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit A

Question:

- a) Please provide the total lifetime net benefits (\$) that Enbridge and Union have achieved for its customers from DSM from the inception of DSM to the latest-available results. Please provide a single figure for both former utilities.

Response

Enbridge Gas's Net TRC Benefits, or the net present value of all avoided natural gas, electricity, and water costs less the cost of delivering DSM programs and the incremental costs borne by customers, totaled from 1995 to 2018, are \$6.3 billion (\$3.4 billion from the Union rate zones and \$2.9 billion from the EGD rate zone).

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit A

Question:

- a) Please provide the total gross energy bill savings (\$) that Enbridge and Union have achieved for customers via DSM programs from the inception of DSM programs to the latest-available results (i.e. total gross lifetime avoided commodity costs). In other words, please indicate the estimated customer commodity savings that customers have achieved as a result of these programs. Please provide a single figure for both former. Commodity savings include gas, water, and electricity, but an answer only with respect to gas is sufficient if that is all that Enbridge can provide. Please explain the answer.

Response

- a) Enbridge Gas does not track total gross energy bill savings, but rather Net TRC Benefits. Net TRC benefits are the most appropriate representation of lifetime economic savings over the course of DSM history. For Enbridge Gas's Net TRC Benefits, please see the response at Exhibit I.ED.2.

Additionally, in its 2015-2020 DSM Framework, the OEB established the results that it expected from natural gas utilities:¹

“The Board expects the gas utilities will develop and propose balanced scorecards that appropriately direct the utilities’ efforts to achieve significant long-term natural gas savings as well as address other key priorities outlined in the DSM framework.”

This is discussed comprehensively in the response at Exhibit I.ED.4.

¹ EB-2014-0134, Report of the Ontario Energy Board Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020) (December 22, 2014), p. 13.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit A

Question:

- a) Procedural Order #1 indicates that this proceeding will address efforts “maximize results.” Please describe Enbridge’s planned efforts to maximize results and the expected lifetime (m3) savings?
- b) Please provide:
 - i. The total target gas savings in the 2020 DSM plans (m3) for 2020;
 - ii. The total target gas savings in the 2021 DSM plan (m3) for 2021, including Enbridge’s attempts to maximize results;
 - iii. The total target gas savings for 2021 in the Ontario Government’s Environment Plan¹.
- c) If there is a gap between (ii) and (iii), please discuss the other efforts Enbridge is considering to maximize results so as to close the gap with the Environment Plan targets.

Response

- a) In Procedural Order No. 1, the OEB states:²

“The OEB expects that submissions from parties should be directed to the best alignment of Enbridge Gas resources and effort available within the existing plan in order to maximize results.”

¹ The total target gas savings for 2021 in the Ontario Government’s Environment Plan.1

² EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

This statement by the Board needs to be considered in the context of the current 2015-2020 DSM Framework. In its 2015-2020 DSM Framework, the OEB established the results that it expected from natural gas utilities:³

“The Board expects the gas utilities will develop and propose balanced scorecards that appropriately direct the utilities’ efforts to achieve significant long-term natural gas savings as well as address other key priorities outlined in the DSM framework.”

Accordingly, the 2015-2020 Multi-Year DSM Plans and their accompanying OEB-approved scorecards were developed in response to the Board’s 2015-2020 DSM Framework and were designed to achieve significant long-term natural gas savings while also addressing key objectives and being responsive to the guiding principles directed by the Board. The OEB-approved balanced scorecards for each rate zone (EGD and Union), are:

- comprised of a number of metrics reflecting a multitude of program offerings, some of which do not directly generate quantifiable natural gas savings and/or are intended to support broad market participation or access to hard to reach customers; and
- intended to ensure a focus on achievement of long-term gas savings as well as to propel DSM activities which encourage broad market participation and/or provide opportunities for hard to reach customers across the full range of customer segments.

Enbridge Gas’s objective in 2021, consistent with all prior years governed under the 2015-2020 DSM Framework, is to maximize aggregate scorecard results from all customer segments across the full range of DSM programming objectives including expected lifetime (m³) savings, reflecting the full aims of the DSM Plans for all rate zones.

b)

- i. Enbridge Gas’s total forecasted 2020 gas savings target is 1.92 billion lifetime m³. This total forecasted 2020 gas savings target is the sum of all of the Union and EGD rate zone’s CCM metrics from all 2020 scorecards, at the forecasted 100% OEB target level. It should be noted that Enbridge Gas’s other DSM

³ EB-2014-0134, Report of the Ontario Energy Board Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020) (December 22, 2014), p.13.

activities, not reflected in a CCM metric (e.g. market transformation activities or other offerings with participation metrics), are not included in this target.

- ii. Enbridge Gas's total forecasted 2021 gas savings target is 1.94 billion lifetime m³. This total forecasted 2021 gas savings target is the sum of all of the Union and EGD rate zone's CCM metrics from all 2021 scorecards, at the forecasted 100% OEB target level. It should be noted that Enbridge Gas's other DSM activities, not reflected in a CCM metric (e.g. market transformation activities or other offerings with participation metrics), are not included in this target.

As articulated in the response to part a) above, Enbridge Gas's objective in 2021, consistent with all prior years governed under the OEB's 2015-2020 DSM Framework, is to maximize aggregate scorecard results from all customer segments across the full range of DSM programming objectives, including expected lifetime (m³) savings, reflecting the full aims of the OEB-approved 2015-2020 DSM Plans for all rate zones.

- iii) The Made-in-Ontario Environment Plan issued by the Ontario government on November 29, 2018 (the "Environment Plan"), included proposed 2030 targets for the reduction of greenhouse gas emissions and outlined proposed policies to put the province on the path to meet this 2030 target.⁴ The Environment Plan forecasts that 18% of the 18 megatonne emission reductions targeted by 2030, or 3.24 megatonnes are estimated to come from actions the government is proposing in the plan which relate to natural gas conservation. This would equate to estimated reductions of 1.728 billion m³ of gas by 2030.

In addition to calling for continuance and gradual expansion of natural gas conservation programs delivered by natural gas utilities, the Environment Plan proposes a number of actions directed toward energy use in homes and buildings to reduce emissions by 2030, including: an increase in the availability and accessibility of energy consumption information; encouraging voluntary display of energy efficiency information on real estate listings; ensuring Ontario's energy-efficiency standards for appliances and equipment are among the highest in North America; and, a review of Building Codes to support adoption of energy efficiency measures.

The Environment Plan does not provide the detail necessary to infer annual target emission reductions (or related natural gas savings) for 2021, nor does it specify what portion of targeted reductions in a given year are forecast to be tied to the respective actions listed above.

⁴ <https://www.ontario.ca/page/made-in-ontario-environment-plan>

- c) As set out above, the Environment Plan does not provide the details necessary to make a comparison between parts b) ii) and b) iii). Enbridge Gas cautions against speculation in this regard, as any attempt to draw conclusions from the limited information set out in the Environment Plan may contradict future government direction regarding carbon emissions and conservation. For a credible analysis to be completed, it is necessary to know, at a minimum, details about the Government's intentions to introduce and/or fund natural gas conservation programs and whether the federal government's carbon fuel levies in Ontario will continue.

Further, comparison of the Environment Plan to Enbridge Gas's 2021 DSM Plans serves little benefit considering the scope set out by the OEB in its Procedural Order No. 1.⁵ Please see the response at Exhibit I.BOMA.4 for discussion regarding the scope of this proceeding established by the OEB.

⁵ EB-2019-0271, Procedural Order No. 1 (February 24, 2020), p. 3.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit A

Question:

- (a) Please provide the projected gas savings in the 2021 DSM plan (m3), annual and cumulative over the measure lifetimes.
- (b) Please provide the gas savings achievable at the same budget level (i.e. the constrained scenario) in 2021 according to the Natural Gas Conservation Potential Study commissioned by the OEB in 2016².
- (c) Please explain ways in which prioritization, allocation, or other aspects of the 2016 potential study could be used to maximize results for Enbridge's 2021 plan within its existing budget.
- (d) Please provide the gas savings achievable in 2021 according to the Natural Gas Conservation Potential Study commissioned by the OEB in 2016 for achievable cost-effective DSM (i.e. the unconstrained achievable scenario)³.
- (e) Please provide the gas savings achievable at the same budget level (i.e. the constrained scenario) in 2021 according to the DSM potential study commissioned by the OEB and IESO in 2019⁴.
- (f) Please explain ways in which prioritization, allocation, or other aspects of the 2019 potential study could be used to maximize results for Enbridge's 2021 plan within its existing budget.
- (g) Please provide the gas savings achievable in 2021 according to the DSM potential study commissioned by the OEB and IESO in 2019 for achievable cost-effective DSM⁵.

² ICF International, *Natural Gas Conservation Potential Study*. July 7, 2016, submitted to the Ontario Energy Board.

³ ICF International, *Natural Gas Conservation Potential Study*. July 7, 2016, submitted to the Ontario Energy Board.

⁴ Navigant, *2019 Integrated Ontario Electricity and Natural Gas Achievable Potential Study*, September 13, 2019.

⁵ Navigant, *2019 Integrated Ontario Electricity and Natural Gas Achievable Potential Study*, September 13, 2019.

Response

While the questions posed by Environmental Defence (“ED”) may be helpful directionally in terms of post-2021 DSM planning, it is important to note that the questions exceed the scope of this proceeding as defined by the OEB. Enbridge Gas does not accept the premise of ED’s questions, that the Board’s Procedural Order No. 1 should be read narrowly only looking at specific words selectively chosen which have been taken out of context. For the sake of completeness, the findings of the Board in Procedural Order No. 1 are repeated in full below:⁶

“Findings

The OEB will proceed by way of a written hearing. The OEB announced that it is undertaking a comprehensive review of the DSM policy framework in a letter dated

September 16, 2019. As a result, the OEB does not expect material changes to the programs and no increase to the overall DSM budget to take place during the transition period from the current OEB-approved DSM plans. In light of the on-going policy consultation, parties are expected to focus their participation during this proceeding on ensuring that the OEB’s previously approved 2020 DSM plans will continue to deliver cost-effective savings in 2021, consistent with the OEB’s January 20, 2016 Decision and Order and DSM Mid-Term Report. The OEB expects that submissions from parties should be directed to the best alignment of Enbridge Gas resources and effort available within the existing plan in order to maximize results.

Parties will continue to have the opportunity to provide input and feedback on any new policy objectives, program changes and all other facets of the new DSM framework as part of the ongoing consultation. The OEB is mindful of the costs and resources required to thoroughly review, critique and make material changes to the currently approved DSM plans and agrees with Enbridge Gas that resources are best directed to the policy consultation.”

The Board’s findings make it clear that the Board does not expect material changes to the programs which it has already approved for 2020 during the 2021 roll-forward year. The Board has directed parties to focus their participation during this proceeding on ensuring that the OEB’s previously approved 2020 DSM plans will continue to deliver cost-effective savings in 2021, consistent with the OEB’s January 20, 2016, Decision and Order and DSM Mid-Term Report. In other words, the focus remains, for the purposes of this proceeding, on ensuring that existing OEB-approved DSM plans

⁶ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3

continue to deliver cost-effective savings in accordance with the existing 2015-2020 DSM Framework established by the Board (EB-2014-0134). Maximization of results in this instance is embodied by the OEB-approved scorecard and metrics within the scorecards that align the interests of Enbridge Gas with those of ratepayers.

There can be only two purposes of the questions asked by ED in this interrogatory. Either it wishes to rely on the responses for the purposes of proposing material changes to already approved DSM programs for 2021, which is contrary to the Board's findings, or it seeks responses for the purposes of the Post-2020 DSM Framework consultative, which again the Board has directed are not matters for this proceeding.

Notwithstanding the above and without waiving the right to further take the position that the questions posed by ED are out of scope, Enbridge Gas offers the following responses which it hopes the Board will find helpful in support of its decision to limit the scope of this proceeding and deal with such matters in the Post-2020 DSM Framework consultative,

a) For Enbridge Gas's 2021 lifetime gas savings forecast, please see the response at Exhibit I.PP.7 Attachment 1. Enbridge Gas does not forecast annual gas savings as OEB-approved scorecard metrics are based on lifetime gas savings.

b) - d)

The 2016 Conservation Potential Study ("2016 CPS") report published by ICF was published 4 years ago, with a base year dating back 6 years. It is not the most recently published study of its kind and incorporates many elements that are no longer relevant.

e) Please see the response at Exhibit I.PP.2 for discussion of the 2019 Achievable Potential Study ("APS").

The 2019 APS report published by Navigant does not provide a Constrained Potential value for 2021. While certain graphical figures in the 2019 APS report include representative values for 2021 it is not reasonable to derive an accurate value from these. Enbridge Gas leveraged the 2019 APS Data Appendix 1 - Forecast Potential and Consumption published on the IESO website to the APS' 2021 Constrained case forecast gas savings achievable at approximately 113.3 million m³ annually (based on a net budget of approximately \$80 million).

f) Please see the response at Exhibit I.PP.2 for discussion of the 2019 APS.

Enbridge notes that there were 75 natural gas measures, or groups of measures, that contributed towards the forecasted Constrained potential in the 2019 APS.

This potential represents the amalgamation of hundreds of thousands of lines of information depicted in Appendix 1 and Appendix 2 of the 2019 APS. Enbridge Gas is currently reviewing this data and will use the study as part of the efforts to maximize results under the current 2015-2020 DSM Framework which Enbridge Gas is incented to do by the OEB-approved scorecards and metrics. Enbridge Gas believes the 2019 APS represents just one input of many that should be considered in support of generating DSM forecasts and for the purposes of informing measure prioritization.

- g) Please see the response at Exhibit I.PP.2 for discussion of the 2019 APS. The question appears to be the same as e). Enbridge Gas believes the intention was to ask the following:

Please provide the **unconstrained** gas savings achievable in 2021 according to the DSM potential study commissioned by the OEB and IESO in 2019 for achievable cost-effective DSM⁷ **(i.e. the unconstrained achievable scenario)**.

The 2019 APS report published by Navigant does not provide Unconstrained Potential value for 2021. Enbridge Gas leveraged the 2019 APS Data Appendix 1 - Forecast Potential and Consumption published on the IESO website to determine 2021 gas savings achievable under the Unconstrained Potential scenario of approximately 264 million m³ annually (based on a net budget of ~\$438 million).

⁷ Navigant, 2019 Integrated Ontario Electricity and Natural Gas Achievable Potential Study (September 13, 2019).

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit A

Question:

- (a) Procedural Order #1 indicates that this proceeding will address efforts to “maximize results.” Could Enbridge reallocate its DSM budget for 2021 between programs to achieve greater gas savings (m3)? If yes, please detail what reallocations could be made and how much additional gas savings could be achieved (m3). If not, please explain why not. Please provide as much detail as possible.
- (b) Does Enbridge expect to need to cap customer participation in any of its programs in 2021 to remain within budget? If yes, please list those programs difference between the budget and the forecast demand.
- (c) If incremental gas savings could be achieved by reallocating funds between programs, please express these incremental gas savings as an approximate percentage of the incremental gas savings called for in the Ontario Government’s Environment Plan⁶.

Response

- a) Enbridge Gas continues to have the ability to re-allocate funds, in accordance with the Filing Guidelines to the 2015-2020 DSM Framework (the “Guidelines”). The Board intended that “This flexibility should ensure that the gas utilities can continuously react to and adapt with current and anticipated market developments.”³ Enbridge Gas’s objective in 2021 is to continue to maximize aggregate scorecard results, reflecting the full aims of the 2021 DSM Plans for all rate zones. Accordingly,

⁶ Ontario, *Preserving and Protecting our Environment for Future Generations: A Made-in-Ontario Environment Plan*, November 29, 2018, p. 23; for further details on the incremental DSM see Auditor General of Ontario, *2019 Annual Report (December 4, 2019)*, p. 142.

³ EB-2014-0134. OEB, Filing Guidelines to the Demand Side Management Framework for Natural Gas Distributors (2015-2020), (December 22, 2014), p. 15.

Enbridge intends to continue to monitor and adjust budget allocations within OEB-approved parameters established in the Guidelines to support successful program offerings in response to anticipated market developments. Any such budget re-allocations will be assessed to ensure consideration of a balanced effort to address the objectives and guiding principles set out in the OEB's 2015-2020 DSM Framework, as reflected in the weighted scorecards for the EGD and Union rate zones. Enbridge Gas has no immediate plans to re-allocated funds between programs but reserves its right to do so as set out by the 2015-2020 DSM Framework and Guidelines.

- b) Enbridge Gas does not currently foresee a need to cap customer participation in 2021 to remain within budget, considering:
- Historic results and current performance forecasts;
 - The flexibility provided by the 2015-2020 DSM Framework and Guidelines to re-allocate budget within prescribed parameters; and
 - The ability to spend up to 15% above the OEB-approved annual DSM budget to allow the pursuit of program offerings that prove to be successful (subject to the Guidelines).⁴
- c) Please see the response at Exhibit I.ED.4 b iii) and at Exhibit I.ED.4 c).

⁴ EB-2014-0134, OEB Filing Guidelines to the Demand Side Management Framework for Natural Gas Distributors (2015-2020) (December 22, 2014), p. 38.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit A

Preamble:

The Notice of Hearing for the 2015-2020 DSM plans stated as follows:

If its application is approved, the amount Union Gas Limited charges each month to the typical residential customer for demand side management (conservation) will be:

	2015	2016	2017	2018	2019	2020
Union South	\$0.68	\$1.58	\$1.60	\$1.81	\$1.86	\$1.92
Union North	\$0.76	\$1.80	\$1.83	\$2.07	\$2.13	\$2.20

If its application is approved, the amount Enbridge Gas Distribution Inc. charges each month to the typical residential customer for demand side management (conservation) will be:

	2015	2016	2017	2018	2019	2020
Enbridge	\$0.85	\$1.61	\$1.96	\$2.13	\$2.17	\$2.21

The Notice of Hearing for Enbridge's 2021 DSM plan states as follows:

Enbridge Gas is asking the Ontario Energy Board for approval to extend the current OEB-approved natural gas conservation programs (including budgets, targets and incentive structures) for 2021. The current programs expire at the end of 2020. If the application is approved as filed, the amount Enbridge Gas Inc. charges each month to a typical residential customer for conservation programs would continue to be:

Rate Zones	Monthly Bill
Union South	\$ 1.67
Union North	\$ 1.23
Enbridge	\$ 1.60

Question:

- (a) Please provide the weighted average monthly bill impact of the proposed 2021 programs for all Enbridge residential customers.

- (b) Please provide a table showing the weighted average monthly bill impact for all Enbridge residential customers for 2019, 2020, and 2021. Please explain any changes from 2020 to 2021.
- (c) If the average residential bill impact were to be \$2 per month for 2021, with the DSM investments for other sectors increased proportionally, what would the DSM budget for 2021 be?

Response

a) - b)

As set out in Table 1, there is no change between 2020 and 2021 in the average monthly bill impact based upon OEB-approved 2020 budgets. These amounts are based on the OEB-approved DSM budget included in 2020 rates and do not reflect actual spending which may include up to 15% DSM budget overspend, budget re-allocations or applicable shareholder incentive amounts as permitted by the OEB's 2015-2020 DSM Framework and Filing Guidelines to the same.

Table 1
Average Monthly DSM-Related Bill Impacts for Residential Customers

Line No.	Rate Zone (\$/month)	2019 (a)	2020 (b)	2021 (c)
1	Union South	1.69	1.67	1.67
2	Union North	1.22	1.23	1.23
3	EGD	1.57	1.60	1.60
4	Weighted Average (all rate zones)	1.58	1.59	1.59

- c) Consideration of increases to 2021 DSM budgets exceeds the scope of Enbridge Gas's 2021 DSM Plans proceeding as defined within the OEB's Procedural Order No. 1.¹ Please see the response at Exhibit I.BOMA.4 for discussion regarding the scope of this proceeding established by the OEB. Enbridge Gas has provided the following response in an effort to be as responsive as reasonably possible.

¹ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

As set out in Table 2 below, if the average residential bill impact were increased to \$2 per month for 2021 and DSM investments for other sectors were increased proportionally, the total DSM budget for 2021 would increase to \$166,172,223 for all rate zones combined. It is important to note that these calculations are based on residential bill impact values that do not include shareholder incentive amounts or any portion of the 15% allowable overspend permitted by the OEB's 2015-2020 DSM Framework and outlined in the Filing Guidelines to the same.

Table 2

2021 Proposed Budget - Union Rate Zones (same as OEB-approved 2020 Budget)	\$ 64,349,541	A
2021 Proposed Budget - EGD Rate Zone (same as OEB-approved 2020 Budget)	\$ 67,757,376	B
2021 Proposed Budget – Total ⁽¹⁾ (same as OEB-approved 2020 Budget)	\$ 132,106,917	C = A + B
Weighted Average Monthly Bill Impact (see the response at parts a) & b) above)	\$ 1.59	D
Monthly Bill Impact proposed by ED	\$ 2.00	E
Required Budget Increase to Achieve \$2/month Impact	\$ 0.41	F = E - D
Required % Budget Increase to Achieve \$2/month Impact	25.79%	G = F ÷ D
Projected 2021 Budget Increase @ \$2/month Impact	\$ 34,065,306	H = C × G
Projected 2021 Total Budget @ \$2/month Impact	\$ 166,172,223	I = C + H

NOTES:

- (1) Enbridge Gas identified an administrative error in the aggregate budget amount originally provided in evidence at Exhibit A, p. 5. \$132,106,917 is the corrected sum of the proposed \$64,349,541 2021 budget for the Union rate zones and \$67,757,376 2021 budget for the EGD rate zone.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit A

Question:

- (a) If Enbridge were to have access to the additional budget corresponding to a \$2/month residential bill impact to invest in its 2021 DSM programs, and Enbridge was required to maximize the lifetime m3 savings from this incremental investment, how much incremental gas could be saved (m3, 2021 and lifetime) and what cost-benefit ratio could be achieved?

Response

- a) In its Decision on the utilities' 2015-2020 Multi-Year DSM Plans, the Board approved budgets for the 2020 program year.¹ More recently, in its Mid-Term Review Report, the Board directed "budget levels will largely remain unchanged from the DSM Decision ensuring bill impacts remain stable."² Accordingly, Enbridge Gas's 2021 DSM Plans application requests approval of the same OEB-approved DSM 2020 budgets for 2021.

Furthermore, consideration of increases to 2021 DSM budgets inconsistent with the direction of the Board in that it exceeds the scope of Enbridge Gas's 2021 DSM Plans proceeding as defined in Procedural Order No. 1 which states:³

"...the OEB does not expect material changes to the programs and no increase to the overall DSM budget to take place during the transition period from the current OEB-approved DSM plans. In light of the on-going policy consultation, parties are expected to focus

¹ EB-2015-0029 / EB-2015-0049, OEB Decision and Order (February 24, 2016), Schedule A.

² EB-2017-0127 / EB-2017-0128, Report of the Ontario Energy Board Mid-Term Review of the Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020) (November 28, 2018), p. 12.

³ EB-2019-0271 OEB Procedural Order No. 1 (February 24, 2020), p. 3.

their participation during this proceeding on ensuring that the OEB's previously approved 2020 DSM plans will continue to deliver cost-effective savings in 2021, consistent with the OEB's January 20, 2016 Decision and Order and DSM Mid-Term Report. The OEB expects that submissions from parties should be directed to the best alignment of Enbridge Gas resources and effort available within the existing plan in order to maximize results.

Parties will continue to have the opportunity to provide input and feedback on any new policy objectives, program changes and all other facets of the new DSM framework as part of the ongoing consultation. The OEB is mindful of the costs and resources required to thoroughly review, critique and make material changes to the currently approved DSM plans and agrees with Enbridge Gas that resources are best directed to the policy consultation."

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit A

Question:

- (a) Procedural Order #1 indicates that this proceeding will address efforts to “maximize results.” If Enbridge is unable to achieve any incremental gas savings in 2021 over 2020 by maximizing its results, how much harder will it be to achieve the incremental DSM savings called-for in the Ontario Government’s Environment Plan by 2030?⁷
- (b) Procedural Order #1 indicates that this proceeding will address efforts to “maximize results.” If Enbridge is unable to achieve any incremental gas savings in 2021 over 2020 by maximizing its results, does Enbridge believe it will be possible to achieve the incremental DSM savings called-for in the Ontario Government’s Environment Plan by 2030?⁸

Response

- a) b)
Please see the response at Exhibit I.ED.4 b) iii).

⁷ Ontario, *Preserving and Protecting our Environment for Future Generations: A Made-in-Ontario Environment Plan*, November 29, 2018, p. 23; for further details on the incremental DSM see Auditor General of Ontario, *2019 Annual Report (December 4, 2019)*, p. 142.

⁸ Ontario, *Preserving and Protecting our Environment for Future Generations: A Made-in-Ontario Environment Plan*, November 29, 2018, p. 23; for further details on the incremental DSM see Auditor General of Ontario, *2019 Annual Report (December 4, 2019)*, p. 142.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit A

Question:

- (a) Please provide a table comparing the overall DSM budget for 2019 and 2020 with actual spending. If the spending was less, please explain, and please indicate the steps that can be taken to ensure that DSM investments are equal to the DSM budget in 2021. Please include all rate zones.

Response

- a) In 2019, DSM spending for both the EGD and Union rate zones exceeded OEB-approved budgets. Spending above OEB-approved budgets was made in accordance with the 2015-2020 DSM Framework and Filing Guidelines. Please see Tables 1 and 2 below for details:

Table 1
2019 DSM Budget vs. Spend (EGD Rate Zone)

2019 Spend (Pre-audit)	2019 Budget (OEB-approved)
\$72.8M	\$66.4M

Table 2
2019 DSM Budget vs. Spend (Union Rate Zones)

2019 Spend (Pre-audit)	2019 Budget (OEB-approved)
\$65.6M	\$63.3M

As the 2020 program year is in-progress actual 2020 spending is not available for comparison at this time.

Enbridge Gas always seeks to fully utilize its OEB-approved budget for DSM program expenditures in the most efficient and effective manner possible in accordance with the 2015-2020 DSM Framework and associated Filing Guidelines. Please also see the response at Exhibit I.ED.6, for discussion of Enbridge Gas's efforts to ensure that DSM investments are equal to OEB-approved DSM budget annually.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit A

Question:

- (a) Please provide the unaccounted-for gas (m3) in the Enbridge system in 2019 or the latest year for which the data exists, with a breakdown by type and source.
- (b) Could a greater emphasis on reducing unaccounted-for gas in the Enbridge system in 2021 help to achieve the Government of Ontario's carbon emission reduction targets for 2021 as outlined its Environment Plan.¹
- (c) Procedural Order #1 indicates that this proceeding will address efforts to “maximize results.” What opportunities exist to use maximize results by reducing lost gas and carbon emissions by a greater degree in relation to unaccounted for gas (which result in high CO2e)?

Response

Reducing unaccounted for gas (“UAF”) is not an activity that the Board has considered and approved as being appropriate for including in a utility’s DSM portfolio of program offerings. There is no program offering that involves direct efforts by Enbridge Gas to reduce UAF in its OEB-approved 2020 DSM Plans. The questions asked exceed the scope of this proceeding as defined by Procedural Order No. 1.² Please see the response at Exhibit I.BOMA.4 for discussion regarding the scope of this proceeding.

Despite this, and without waiving its ability to allege that the questions are out of scope, Enbridge Gas provides the following responses to ED’s questions solely in an effort to be helpful to the Board.

¹ Ontario, *Preserving and Protecting our Environment for Future Generations: A Made-in-Ontario Environment Plan*, November 29, 2018, p. 23.

² EB-2019-0271 OEB Procedural Order No. 1 (February 24, 2020), p. 3.

- a) Enbridge Gas's system operations for 2019 resulted in 278,246,380 m³ of UAF. The Union rate zones system operations accounted for 137,652,000 m³ of the total and EGD rate zone system operations accounted for 140,594,380 m³ of the total.

Details of the type and source of 2019 UAF is not readily available. However, in December 2019, Enbridge Gas filed a UFG/UAF Study (EB-2017-0306/0307) with the OEB.

- b) Emissions of methane to atmosphere make up a relatively small portion of UAF.³ As a result, efforts to reduce UAF are expected to have little-to-no impact on reducing carbon emissions from Enbridge Gas's operational activities. Only initiatives that specifically reduce the methane emission component of UAF, such as venting and fugitive emissions, could result in carbon emission reductions.
- c) No amount of incremental DSM programming is expected to materially impact methane emissions resulting from venting or fugitive sources in Enbridge Gas's operations.

³ ScottMadden Management Consultants, Report on Unaccounted for Gas (December 2019); <http://www.rds.oeb.ca/HPECMWebDrawer/Record/663033/File/document>.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit A

Preamble:

In the 2019-2020 carbon pricing case, the Board stated as follows:

“The Undertakings Enbridge Gas has made to the provincial government within which the OEB can permit Enbridge Gas to undertake new businesses on a case-by-case basis. Enbridge Gas can bring forward applications for the OEB’s consideration for new business activities to support the reduction of greenhouse gases.”

Question:

- (a) Would these new business activities be an opportunity to reduce carbon emissions in 2021 without increasing the DSM budget?
- (b) Does Enbridge plan to bring forward applications for the OEB’s consideration for new business activities to support the reduction of greenhouse gases? If yes, please provide details and discuss whether such activities might get underway in 2021.
- (c) Is Enbridge planning to apply for a geothermal program? Is yes, by when? If not, why not?

Response

The topics of Enbridge Gas’s Undertakings and new business activities exceed the scope of this proceeding as defined within the OEB’s Procedural Order No. 1.¹ Please see the response at Exhibit I.BOMA.4, for a discussion regarding the scope of this proceeding established by the OEB. Despite this and without waiving the right to continue to take the position that the questions asked are out of scope, Enbridge Gas

¹ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

has provided limited responses to ED's questions in this regard in an effort to be helpful to the Board.

- a) New business activities could include opportunities to reduce carbon emissions. However, the precise timing for the launch of new business activities, and thus any related carbon emission reductions, are presently undetermined.
- b) Enbridge Gas has already brought forward several applications for new business activities that support the reduction of greenhouse gases that will be effective in 2021. They include:
 - EB-2017-0319 Application for Renewable Natural Gas Enabling Program;
 - EB-2019-0294 Low Carbon Energy Project (Hydrogen blending initiative);
 - EB-2020-0066 Voluntary Renewable Natural Gas Program Application;
 - and
 - Ongoing Community Expansion Initiatives.
- c) Enbridge Gas Distribution Inc. ("EGD") filed an application for a Geothermal Energy Service Program in 2017, which was based on funding from the Ontario government through the GreenOn program. On June 26, 2018, EGD requested that the Board hold the portion of the application related to the Geothermal Energy Service Program in abeyance due to the pending closure of the GreenOn fund. On June 26, 2018, the Board granted EGD's request.

Enbridge Gas is continuing to assess market opportunities to advance a geothermal program and may apply to the OEB for approval of such in the future.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit A

Question:

- (a) Please provide a table showing the room left for potential DSMVA spending in 2019 and 2020 by program.
- (b) Please discuss the possibility of increasing gas savings within the existing approvals in 2021 by utilizing the DSMVA.

Response

- a) Maximum Demand-Side Management Variance Account ("DSMVA") spending is not determined by program, rather it is 15% of the total DSM budget for each rate zone. Therefore, DSMVA figures are set out by rate zone in Table 1 below.

Table 1
DSM Spending: Budget, Actual & Resulting Max DSMVA
Union Gas Rate Zones

2019 Spend (DRAFT) ⁽¹⁾	2019 Budget (OEB Approved)	2019 Budget + Max DSMVA	2019 Remaining DSMVA
A	B	$C = B \times 1.15$	$D = C - A$
\$65.6M	\$63.3M	\$72.8M	\$7.2M

EGD Rate Zone

2019 Spend (DRAFT) ⁽¹⁾	2019 Budget (OEB Approved)	2019 Budget + Max DSMVA	2019 Remaining DSMVA
A	B	$C = B \times 1.15$	$D = C - A$
\$72.8M	\$66.4M	\$76.4M	\$3.5M

NOTES:

- (1) 2019 DSM program year DSMVA spending details are still being finalized at the time of this submission.

As the 2020 DSM program year is currently in progress, actual 2020 spending detail is not currently available.

- b) Section 11.2 Demand-Side Management Variance Account of the Filing Guidelines to the Demand Side Management Framework for Natural Gas distributors (2015-2020) states:¹

“Accordingly, the natural gas utility will be permitted to recover from ratepayers up to 15% above its annual DSM budget recorded in its DSMVA provided that:

A) It had achieved its weighted scorecard target(s) (i.e., 100%) on a pre-audited basis for the program(s) prior to additional spending being made on those programs; and

B) The DSMVA funds were used to produce results in excess of those targets (i.e., in excess of 100%) on a pre-audited basis.”

Based on this guidance, to access additional budget, Enbridge Gas must be confident in its ability to achieve 100% of weighted scorecard targets in order to forecast accessing the DSMVA funds. In 2021, at such time that Enbridge Gas has determined that this is the case, there will be the potential to achieve results in excess of 100% weighted scorecard targets and potentially increase gas savings with allowable DSMVA funds.

¹ EB-2014-0134, OEB Filing Guidelines to the Demand Side Management Framework for Natural Gas Distributors (2015-2020) (December 22, 2014), p. 38.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit A

Preamble:

The DSM Framework states that:

“gas utilities may increase overall spending by up to 15%, consistent with the Board’s guidance as part of the gas utilities’ current, approved DSM plans, and use these additional funds to begin to incorporate and address the guiding principles and key priorities outlined in the DSM framework.”

Question:

- (a) Please provide a table showing the utilization of the above-referenced 15% spending room referred to the DSM Framework for each year over the 2016-2020 DSM plans as a total for all rate zones.
- (b) Please discuss the possibility of increasing gas savings within the existing approvals in 2021 by utilizing this 15% spending room.
- (c) Please confirm that an additional 15% would equal approximately \$20 million.
- (d) If Enbridge were to have access to an additional \$20 million in 2021 to invest in its existing 2021 DSM programs, and Enbridge was required to maximize the lifetime m3 savings from this investment, how much incremental gas could be saved (m3, 2021 and lifetime) and what cost-benefit ratio could be achieved?

- (e) Please compare the incremental gas savings from an additional \$20 million investment in DSM in 2021 with an estimate of the level of incremental gas savings called-for in the Government of Ontario's Environment Plan.¹
- (f) Please provide an additional answer to (d) with the assumption that Enbridge keeps the existing programs the same except for the possibility of increasing customer incentive levels.

Response

- a) Enbridge Gas has not produced the table requested by ED as the referenced provision within the 2015-2020 DSM Framework does not apply to the 2016-2020 DSM program years. This provision was included in the 2015-2020 DSM Framework by the Board to specifically address DSM activities in 2015 given that the utilities were directed to roll-forward their 2014 DSM plans into 2015. The Board uniquely provided spending increases in 2015 relative to 2014 OEB-approved budgets to allow the utilities to begin to incorporate and address the guiding principles and key priorities of the 2015-2020 DSM Framework despite the roll-forward required of 2014 DSM plans into 2015.² Please refer to response at Exhibit I.ED.13 part b), which addresses the more general allowance to spend 15% above the OEB approved budget in a given year as outlined in the Board's 2015-2020 DSM Framework and Filing Guidelines to the same.
- b) - f)
Please see the responses at part a) above and at Exhibit I.ED.4 b) iii).

¹ Ontario, *Preserving and Protecting our Environment for Future Generations: A Made-in-Ontario Environment Plan*, November 29, 2018, p. 23; for further details on the incremental DSM see Auditor General of Ontario, *2019 Annual Report (December 4, 2019)*, p. 142.

² EB-2014-0134, Report of the Board: Demand Side Management Framework for Natural Gas Distributors (2015-2020) (December 22, 2014), Section 15.1 DSM Activities in 2015, p. 37.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit A

Preamble:

The federal government has committed to “help homeowners and landlords pay for retrofits by giving them an interest-free loan of up to \$40,000.”¹²

Question:

- (a) Could Enbridge capitalize on this program to increase participation rates and therefore investments within its existing programs in 2021?
- (b) Would this program create an opportunity to use the additional 15% spending room provided for in the DSM Framework to achieve greater gas savings?
- (c) If this program is instituted, would Enbridge send out promotional materials to leverage these loans and increase participation rates?

Response

- a) Generally, when a complimentary conservation program becomes available, Enbridge Gas seeks to ensure that its ratepayers have access to the benefits of such programming. Unfortunately, while this commitment was made by the federal government during the election campaign last fall, it has not yet been made available to the public.
- b) Enbridge Gas assumes that ED is referring to the DSMVA in this interrogatory. Enbridge Gas confirms this program could provide an opportunity, subject to the provisions set out in the 2015-2020 DSM Framework and Filing Guidelines, to spend

¹² <https://www2.liberal.ca/wp-content/uploads/sites/292/2019/09/Forward-A-real-plan-for-the-middle-class.pdf>

the 15% amount allowed in excess of annual OEB-approved DSM budgets recorded in its DSMVA.

Please see the response at Exhibit I.ED.13, for further discussion of the allowance to spend 15% above the OEB-approved budget.

- c) Enbridge Gas endeavors to make its customers aware of all potential funding available to support their participation in conservation programs. If any such option becomes available to its ratepayers, Enbridge Gas would likely draw attention to this financing option in future DSM-related communications.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit A

Question:

- (a) The federal government is reported to be including significant climate-change related measures in its upcoming budget, details of which should be clearer when Enbridge is responding to these interrogatories. Please discuss whether these measures could be leveraged to increase participation rates and therefore investments within its existing programs in 2021?

Response

At the time of submitting this interrogatory response no budget announcements detailing climate-change measures have been made by the federal government as their 2020 budget announcement is still pending. Enbridge Gas continues to engage in on-going dialogues with Environment and Climate Change Canada ("ECCC"), Natural Resources Canada ("NRCan") and associations such as the Ontario Energy Association ("OEA") to promote synergies and alignment in energy efficiency programming aimed at optimizing market and customer participation in incentive programs, and education and awareness initiatives, particularly in Ontario.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit A

Question:

- (a) What is the maximum in incentive payments that Enbridge could earn in relation to its 2021 DSM plan?

Response

- a) Enbridge Gas has requested that the OEB issue an extension of the current 2015-2020 DSM Framework and approve Enbridge Gas's 2021 DSM Plans which roll-forward the OEB-approved 2020 DSM Plans, including all programs, scorecards and parameters (i.e. budgets, targets and incentive structure).

As set out in the 2015-2020 DSM Framework, "[t]he Board will make an annual shareholder incentive available to each Enbridge and Union that is equal to a total annual maximum of \$10.45 million."¹ Accordingly, the maximum shareholder incentive available to Enbridge Gas in 2021 would be \$20.9 million.

¹ EB-2014-0134, OEB Report of the Board: Demand Side Management Framework for Natural Gas Distributors (2015-2020) (December 22, 2014), p. 22.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Energy Probe (EP)

Interrogatory

Reference:

EB-2017-0127/0128 Mid-Term Review of the Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020), Figures 1-4

Preamble:

EP seeks summary data on the audited/verified 2015/2016 DSM Programs. If EGD has already prepared data containing the information requested by the Auditor please provide the response in the format(s) provided, to minimize additional work.

Question:

- a) For each of the Union and EGD DSM Resource Acquisition programs on the 2015 and 2016 Scorecard please provide the following for 2015 and 2016 in Excel spreadsheet format.
 - i. Participants
 - ii. Gross and Net Natural gas savings
 - iii. Target
 - iv. Target achievement
 - v. Budget Spend
 - vi. Efficiency
 - vii. Contribution to Shareholder Incentive
 - viii. Sectoral Totals
 - ix. Summary Total
- b) For each of the Union and EGD DSM Market Transformation programs on the 2015 and 2016 Scorecard please provide the following for 2015 and 2016 in Excel spreadsheet format.
 - i. Participants
 - ii. The Gross and Net Natural gas savings (if applicable)
 - iii. Targets
 - iv. Target achievement
 - v. Budget Spend
 - vi. Efficiency

- vii. Contribution to Shareholder Incentive
- viii. Sectoral Totals
- ix. Summary Total

- c) Provide the Lifetime savings achieved for each and the total with any explanatory notes.

Response

- a) - c)

For 2015 DSM program year details, please see the response at Exhibit I.SEC.12 Attachment 1.

For 2016 DSM program year details, please see the response at Exhibit I.SEC.12 Attachment 2.

Enbridge Gas has endeavored to be as responsive as possible. However, it is unclear from EP's questions what it means by: "vi. Efficiency" and "viii. Sectoral Totals".

ENBRIDGE GAS INC.

Answer to Interrogatory from
Energy Probe (EP)

Interrogatory

Reference:

Exhibit A, Page 4

Preamble:

Enbridge Gas proposes that it continue delivering the current DSM portfolios, as outlined in the OEB-approved DSM plans for 2020, similarly into 2021. Enbridge Gas proposes to roll-forward into 2021 the current 2020 Enbridge Gas Distribution Inc. ("EGD") and Union Gas Limited ("Union") DSM plans, including all programs, scorecards and parameters (i.e., budget, targets, incentive structure) as previously approved by the Board for 2020. This will facilitate a smooth evolution into the next DSM framework. EP requests the unaudited results for 2017, 2018 and if available, 2019.

Question:

- a) For each of the Union and EGD DSM Resource Acquisition programs on the 2017 - 2019 Scorecards please provide the following unaudited results for 2017-2019 in Excel spreadsheet format.
 - i. Participants
 - ii. Gross and Net Natural gas savings
 - iii. Target
 - iv. Target achievement
 - v. Budget Spend
 - vi. Efficiency
 - vii. Contribution to Shareholder Incentive (claim)
 - viii. Sectoral Totals
 - ix. Summary Total

- b) For each of the Union and EGD DSM Market Transformation programs on the 2015 and 2016 Scorecard please provide the following unaudited results for 2015 and 2016 in Excel spreadsheet format:
 - i. Participants
 - ii. The Gross and Net Natural gas savings (if applicable)

- iii. Targets Target achievement
- iv. Budget Spend
- v. Efficiency
- vi. Contribution to Shareholder Incentive (claim
- vii. Sectoral Totals
- viii. Summary Total

- c) Please provide a discussion at a program level as to whether EGD expects the 2020 Budgets and Targets will be achieved/ not achieved/over-achieved.
- d) Please provide a discussion at a program level as to whether EGD expects the 2021 Budgets and Targets will be achieved/ not achieved/over-achieved.

Response

a) b)

For 2015 DSM program year Resource Acquisition and Market Transformation program results, please see the response at Exhibit I.SEC.12 Attachment 1.

For 2016 DSM program year Resource Acquisition and Market Transformation program results, please see the response at Exhibit I.SEC.12 Attachment 2.

For Draft 2017 DSM program year Resource Acquisition and Market Transformation program results (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For Draft 2018 DSM program year Resource Acquisition and Market Transformation program results (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

As 2019 DSM program year results details are still being compiled at the time of this submission, they are not currently available. Please see the response at Exhibit I.PP.7 Attachment 1 for 2019 scorecard targets and the response at Exhibit I.SEC.2 Attachment 1 for 2019 budget breakdown.

c) In its November 2018 Mid-Term Report, the Board found,¹

“The current suite of natural gas conservation programs approved as part of the OEB’s DSM Decision continue to be appropriate and effective. Verified program results from the 2015 and 2016 program years show strong performance and long-term natural gas reductions across the residential, commercial and industrial sectors.”

As discussed in the response at Exhibit I.SEC.16, despite a strong start to the 2020 DSM program year, given COVID-19 related impacts on business activities throughout the province and globally, Enbridge Gas anticipates that it may be difficult to maintain comparable results for the balance of 2020 as program delivery in 2020 will be challenging.

Despite these challenges, Enbridge Gas intends to make every effort to achieve or exceed targets and assist ratepayers with identifying and executing on gas savings opportunities. Accordingly, Enbridge Gas has applied a working assumption that it will achieve the 100% scorecard targets for all metrics across the 2020 DSM scorecards.

d) Forecasting beyond 2020, given the uncertainties discussed in the response at part c) above, would be highly speculative at this time and thus provide limited benefit to the OEB. Accordingly, and consistent with the response at part c) above, Enbridge Gas has applied a working assumption that it will achieve the 100% scorecard targets for all metrics across the 2021 scorecards. Enbridge Gas will endeavor to reach or exceed this level of performance as circumstances allow, recognizing that it is incented to do so by the 2015-2020 DSM Framework and OEB-approved balanced scorecards.

¹ EB-2017-0127 / EB-2017-0128, Report of the Ontario Energy Board Mid-Term Review of the Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020) (November 29, 2018), p. 5.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Energy Probe (EP)

Interrogatory

Reference:

No reference

Question:

- a) Please provide the amount of Shareholder incentives awarded for 2015 and 2016. Indicate basis relative to Target(s).
- b) Please provide the amount of Shareholder Incentive claims for 2017-2019. Indicate basis relative to Target(s).

Response

a) b)

For 2015 DSM program year shareholder incentive details, please see the response at Exhibit I.SEC.12 Attachment 1.

For 2016 DSM program year shareholder incentive details, please see the response at Exhibit I.SEC.12 Attachment 2.

For Draft 2017 DSM program year shareholder incentive details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For Draft 2018 DSM program year shareholder incentive details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

As 2019 DSM program year shareholder incentive details are still being compiled at the time of this submission, they are not currently available.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Energy Probe (EP)

Interrogatory

Reference:

Exhibit A, Attachment 1

Preamble:

EP requests a detailed comparison of the eligible measures and incentives for the Union and EGD Home Conservation Programs.

Question:

- a) Please provide *detailed* information on the eligible measures and incentives for each of the Union and EGD Home Energy Conservation Programs. Provide the response in comparison Tables.
- b) If not provided in response to EP#2, please provide for 2015-2020
 - i. Targets for each of the programs,
 - ii. Budgets and Actual spend for 2015-2020 audited and unaudited,
 - iii. Shareholder contribution for each program (awarded and claimed).
- c) Please provide for 2021
 - i. Targets for each of the programs,
 - ii. Budgets,
 - iii. Shareholder contribution.
- d) Please provide a discussion as to why the Union and EGD HEC programs should not be harmonized for 2021 including partnership considerations.
- e) Please provide the average monthly bill impact of the proposed 2020 programs for all Enbridge residential customers.
- f) Please provide a table showing the average monthly bill impact for all Enbridge residential in 2021. Please explain any changes from 2020 to 2021.

Response

- a) In early 2018, the Enbridge Gas rate zone Home Energy Conservation (“HEC”) offer was revised to align with the Union rate zone Home Reno Rebate offer. Following amalgamation in early 2019, the aligned offer was fully harmonized and became the Home Efficiency Rebate (“HER”) across all rate zones. This change created a consistent customer-facing experience for all Enbridge Gas customers, which included consistent marketing collateral across both rate zones.

Figure 1 below illustrates the rebates available for across all rate zones effective January 1, 2020.

Figure 1

ENBRIDGE GAS INCENTIVES: at least two of these upgrades must be undertaken to qualify for incentives		
Air Sealing	\$100 • For reaching target on report \$150 • For reaching 10% above target on report	Note: Baseline calculation is done during the initial assessment.
Attic Insulation	\$500 • For increasing attic insulation to at least R60 from R35 or less • For increasing cathedral/flat roof insulation by at least R14	Note: Minimum 20% of total ceiling area must be upgraded. Rebates are pro-rated based on the total ceiling area % upgraded.
Basement Insulation	\$1,000 • For adding at least R23 to 100% of basement \$500 • For adding at least R12 to 100% of basement \$800 • For adding at least R23 to 100% of crawl space wall \$400 • For adding at least R10 to 100% of crawl space wall \$450 • For adding at least R24 to 100% of floor above crawl space	Note: Minimum 20% of total basement wall area must be upgraded. Rebates are pro-rated based on the total combined % area upgraded.
Exterior Wall Insulation	\$1,000 • Add at least R3.8 to 100% of building to achieve a minimum of R12 \$1,500 • Add at least R9 to 100% of building to achieve a minimum of R12 \$2,000 • Add at least R20 to 100% of building	Note: Minimum 20% of total wall area must be upgraded. Rebates are pro-rated based on the total wall area % upgraded. Homes with less than 2x4 structure are exempt from R12 minimum with photo documentation of wall structure.
Furnace/Boiler* * Comb unit will only count as one measure	\$750 • For replacing a natural gas furnace that is < 95% efficiency with a natural gas furnace that is 95% AFUE or higher • For replacing a natural gas boiler that is < 90% efficiency with an ENERGY STAR® condensing natural gas boiler that is 90% AFUE or higher	
Water Heater	\$200 • For replacing existing natural gas water heater with 0.80 EF or higher tank type ENERGY STAR® qualified natural gas water heater • For replacing existing natural gas water heater with 0.90 EF or higher tankless type ENERGY STAR® qualified natural gas water heater	
Window/Door/Skylight	\$40 • For each window, door or skylight replaced with an ENERGY STAR® Certified model	
ADDITIONAL BONUS INCENTIVES: AVAILABLE FOR DEEPER ENERGY SAVINGS AS PART OF THE MAXIMUM \$5,000 ENBRIDGE GAS INCENTIVES Install 3 upgrades - customer will receive additional \$250 Install 4 upgrades - customer will receive additional \$500 Install 5 upgrades - customer will receive additional \$750		

- b) For 2015 DSM program year details, please see the response at Exhibit I.SEC.12 Attachment 1

For 2016 DSM program year details, please see the response at Exhibit I.SEC.12 Attachment 2

For 2017 DSM program year details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For 2018 DSM program year details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

As 2019 DSM program year results details are still being compiled at the time of this submission, they are not currently available. Please see the response at Exhibit I.PP.7 Attachment 1 for 2019 scorecard targets and the response at Exhibit I.SEC.2 Attachment 1 for 2019 budget breakdown.

- c) Please see the response at Exhibit I.PP.7 Attachment 1 for forecast of 2021 Scorecard targets. Please see the response at Exhibit I.SEC.2 Attachment 1 for 2021 budget breakdowns. As discussed in the cover letter to this submission and at the response at Exhibit I.SEC.16, Enbridge Gas has assumed that all 2021 metrics will reach a level of 100% and that 2021 metrics are based on achieving 100% 2020 results.
- d) Please see the response at part a) above.
- e) f)

Table 1
Average Monthly DSM-Related Bill Impacts
for Residential Customers

Rate Zone	2020 \$/mth	2021 \$/mth
Union South	1.67	1.67
Union North	1.23	1.23
EGD	1.60	1.60

As set out in Table 1 above, there is no change between 2020 and 2021 in the average monthly bill impact based upon OEB-approved 2020 budgets. These amounts are based on the OEB-approved DSM budget included in 2020 rates and do not reflect actual spending which may include up to 15% DSM budget overspend, budget re-allocations or applicable shareholder incentive amounts as permitted by the OEB's 2015-2020 DSM Framework and Filing Guidelines to the same.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Energy Probe (EP)

Interrogatory

Reference:

No specific reference

Question:

- a) Please list all the Partners that will/are expected to participate in the EGI 2021 DSM Program Extension.
- b) For each Partner, provide the specific role, funding provided over the 2015-2020 program and the funding/cost sharing expected for the 2021 Program.

Response

- a) b)
Please see the response at Exhibit I.PP.4. Funding details and/or cost sharing details related to potential partners in 2021 are not currently known.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Federation of Rental-housing Providers of Ontario (FRPO)

Interrogatory

Preamble:

After reviewing the evidence and identifying the issues, we were aided by a number of parties submitting their interrogatories well ahead of March 16th. To be efficient, we went through the interrogatories of most parties and, as a result, recognize that our issues including an important issue we identified in our January 2nd request for intervention have been effectively canvassed by our colleagues. The remaining issues that we believe are not sufficiently covered is the segmentation of markets in relation to the respective programs in the former Union Gas and Enbridge Gas Distribution utilities/rates zones. We would like to understand better a breakdown of actual results for Low-income DSM programs between segmented by single family, social-housing and privately-owned multi-family buildings along with the respective sections of the building code.

Question:

For each of the respective utility programs, please provide the forecast and actual results for the programs for each of the years from 2015 to 2019 using the table in Attachment 1 – LI Comparison

- a) Please provide all results including those that have been unaudited or not approved with the appropriate designation.
- b) Please provide the information as segmented as possible but where not possible, please provide the higher-level data with explanatory note.
- c) What steps has EGI taken in the last few years to implement best practices in the LI programs initially between utilities and subsequently as a merged utility.
- d) Based upon a comparison of the results, what steps has EGI planned or will consider for 2021.
- e) Please provide an Excel file with working formulae for the response.

							ATTACHMENT 1: LI COMPARISON							
UTILITY:			Cumulative Natural Gas Savings											
YEAR	Section	201x	Lower Band	Target	Upper Band	Weight	Achievement	Percent of Metric	Weighted % of Scorecard Achieved	Shareholder Incentive (by % Contribution)	Budget Investment	Achievement per Budget	Actual Investment	Achievement per Actual
			m3	m ³	m ³	%	m ³	%	%	\$	\$	m ³ /\$	\$	m ³ /\$
Single-Family														
Social & Assisted	Part 3													
Multi-family	Part 9													
Privately-owned	Part 3													
Multi-family	Part 9													

Response

a) b)

Most of the information FRPO is requesting is only available at the offering, OEB metric, or OEB scorecard level, rather than at the delineated levels FRPO is requesting (e.g. the EGD rate zone does not have a market-rate multi-family OEB metric, therefore providing a Lower Band, Target, or Upper Band for the metric at a market-rate multi-family level is not possible).

In an effort to provide FRPO with relevant information, Enbridge Gas has created a reference table at Attachment 1. For each data point, the cell directs FRPO to one of the following:

- Exhibit I.SEC.12,¹ where the information is available at an offering, OEB metric, or OEB scorecard level;
- Exhibit I.SEC. 12,² where the relevant information is provided; or
- Table 1 below, where the relevant information is provided.

As 2019 DSM program year details are still being compiled at the time of this submission, they are not currently available.

Best efforts were made to split results between private buildings and social/assisted buildings in Table 1 below, as projects were not initially tracked in this manner for the EGD rate zone.

¹ Exhibit I.SEC.12 Attachment 1 for 2015 information; Exhibit I.SEC.12 Attachment 2 for 2016 information; Exhibit I.SEC.12 Attachment 3 for Draft 2017 information; and Exhibit I.SEC.12 Attachment 4 for Draft 2018 information.

² Ibid.

Table 1
2015-2018 EGD Rate Zone Low Income Multi-Family CCM Results

	2015	2016	2017	2018
Multi Family – Private	30,234,908 m ³	39,805,482 m ³	17,015,729 m ³	57,876,344 m ³
Multi Family - Social	33,734,445 m ³	44,923,099 m ³	52,348,038 m ³	56,292,557 m ³
Total	63,969,353 m³	84,728,581 m³	69,363,767 m³	114,168,901 m³

- c) Historically, both Enbridge Gas Distribution Inc. (“EGD”) and Union Gas Limited (“Union”) continuously looked for opportunities to implement best practices.

Some examples of this include:

- EGD rate zone delivery agents were organized geographically to effectively utilize industry resources, allowing EGD to deliver offerings across all low income market sectors.
- After a successful demonstration project with a small number of market rate buildings (i.e., privately owned low income housing), a market rate component was introduced in the Union rate zones to increase customer access to DSM activities.
- In the EGD rate zone and Union rate zones, additional measures were introduced to the Low Income offerings, such as exterior cladding and smart thermostats.
- Both EGD and Union collaborated with industry associations, intake agencies, and municipalities to identify new opportunities in the market. Some of these Associations include (but are not limited to the following):
 - o Low Income Energy Network (“LIEN”);
 - o Federation of Rental Housing Providers of Ontario (“FRPO”);
 - o Ontario Non-Profit Housing Association (“ONPHA”); and
 - o Housing Services Corporation (“HSC”).
- Both EGD and Union continuously identified improvement opportunities by considering feedback from past participants and other delivery stakeholders.

Enbridge Gas is proud of the quality of its Low Income programming and considers itself a leader in this sector. Enbridge Gas has continued to implement best practices in delivering Low Income programs across the province. Some of the improvements that have implemented so far include:

- Measures have been introduced in order to ensure consistency across all rate zones (e.g. Heat Reflector Panels introduced to the Union rate zone).
- Offering names have been rebranded to ensure consistency in the market across all rate zones (e.g. the Home Weatherization offering has been rebranded as the Home Winterproofing offering to align with the EGD rate zone offering)

- The tracking and reporting requirements of delivery agents has been aligned across all rate zones.
 - All offering materials (e.g. application forms, marketing materials) have been harmonized across all rate zones to reduce market confusion.
- d) Enbridge as is committed to continuing to identify and implement best practices in 2021. Some of the planned activities include:
- Optimizing program delivery in the market by reviewing the geographic split between delivery agents.
 - Looking at new ways to educate hard to reach customers in this sector. Investigating new program management tools that can ease program administration and improve record consistency.
 - Collaboration with industry partners, including government, in order to drive consistent, province wide initiatives.
- e) Please see the response at part a) above.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Federation of Rental-housing Providers of Ontario (FRPO)

Interrogatory

Preamble:

After reviewing the evidence and identifying the issues, we were aided by a number of parties submitting their interrogatories well ahead of March 16th. To be efficient, we went through the interrogatories of most parties and, as a result, recognize that our issues including an important issue we identified in our January 2nd request for intervention have been effectively canvassed by our colleagues. The remaining issues that we believe are not sufficiently covered is the segmentation of markets in relation to the respective programs in the former Union Gas and Enbridge Gas Distribution utilities/rates zones. We would like to understand better a breakdown of actual results for Low-income DSM programs between segmented by single family, social-housing and privately-owned multi-family buildings along with the respective sections of the building code.

Question:

For the EGD utility/rate zone, please provide the forecast and actual results for expenditures and savings for Run it Right and Energy Compass for each of the years from 2015 to 2019:

- a) Segmented by Multi-family Residential and other Commercial/Industrial
 - i) Inside of Multi-family Residential, please segment by Social-housing and Privately-owned.

Response

Enbridge Gas's response refers solely to the EGD rate zone Run It Right offering, as Energy Compass was not approved as part of the 2016-2020 DSM Plan.

Forecast results, OEB-approved budgets and actual spends are only available at the offering level, as they were not developed at the segmented level requested (i.e. multi-family and other commercial/industrial). Please note that the OEB participant metric for Run It Right began in 2016 and 2019 data is currently not available as it is being compiled at the time of this submission.

For 2015 DSM program year forecast results (CCM only), OEB-approved budget and actual spend for the Run It Right offering, please see the response at Exhibit I.SEC.12 Attachment 1.

For 2016 DSM program year forecast results, OEB-approved budget and actual spend for the Run It Right offering, please see the response at Exhibit I.SEC.12 Attachment 2.

For Draft 2017 DSM program year forecast results, OEB-approved budget and actual spend for the Run It Right offering (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For Draft 2018 DSM program year forecast results, OEB-approved budget and actual spend for the Run It Right offering (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

For 2016 to 2018 DSM program years actual participants in the Run It Right offering, segmented by multi-family and all other commercial/industrial participants, please see Table 1 below. Table 1 also includes participants for 2015, though there was no participant metric in 2015. The figures in Table 1 represent Enbridge Gas's best efforts to segment the data as requested, considering that the offering's results are not necessarily tracked in this manner.

Table 1
Historic Run It Right Offering Participants

Year	Multi-Family Participants	All Other Commercial/Industrial Participants
2015	25	45
2016	11	73
2017	0	29
2018	46	16

Run it Right is a commercial offering, not a Low Income offering. Enbridge Gas does not classify multi-family participants in this program as social-housing or privately-owned buildings

ENBRIDGE GAS INC.

Answer to Interrogatory from
Federation of Rental-housing Providers of Ontario (FRPO)

Interrogatory

Preamble:

After reviewing the evidence and identifying the issues, we were aided by a number of parties submitting their interrogatories well ahead of March 16th. To be efficient, we went through the interrogatories of most parties and, as a result, recognize that our issues including an important issue we identified in our January 2nd request for intervention have been effectively canvassed by our colleagues. The remaining issues that we believe are not sufficiently covered is the segmentation of markets in relation to the respective programs in the former Union Gas and Enbridge Gas Distribution utilities/rates zones. We would like to understand better a breakdown of actual results for Low-income DSM programs between segmented by single family, social-housing and privately-owned multi-family buildings along with the respective sections of the building code.

Question:

Similar to question 2), for the Union Gas utility/rate zone, please provide forecast and actual results for expenditures and savings for any comparable operationally targeted program that targets O&M for each of the years from 2015 to 2019:

- a) Segmented by Multi-family Residential and other Commercial/Industrial
 - i) Inside of Multi-family Residential, please segment by Social-housing and Privately-owned.

Response

Enbridge Gas's response refers solely to the Union rate zones' RunSmart offering, as this is the Union rate zones' performance-based offering eligible to multi-family buildings.

Forecast results, OEB-approved budgets and actual spends are only available at the offering level, as they were not developed at the segmented level requested (i.e., multi-family and other commercial/industrial). Please note that the RunSmart offering began

in 2016, and that 2019 data is currently not available as it is being compiled at the time of this submission.

For 2016 DSM program year forecast results, OEB-approved budget and actual spend for the RunSmart offering, please see the response at Exhibit I.SEC.12 Attachment 2.

For Draft 2017 DSM program year forecast results, OEB-approved budget and actual spend for the RunSmart offering (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For Draft 2018 DSM program year forecast results, OEB-approved budget and actual spend for the RunSmart offering (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

For 2016 to 2018 DSM program years actual participants in the RunSmart offering, segmented by multi-family and all other commercial/industrial participants, please see Table 1 below. The figures in Table 1 represent Enbridge Gas's best efforts to segment the data as requested, considering that the offering's results are not necessarily tracked in this manner.

Table 1
Historic RunSmart Offering Participants

Year	Multi-Family Participants	All Other Commercial/Industrial Participants
2016	6	26
2017	3	32
2018	37	7

Enbridge Gas does not track multi-family participants in the RunSmart offering as being social-housing or privately-owned buildings, as the RunSmart offering is a commercial offering, not a Low Income offering.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Green Energy Coalition (GEC)

Interrogatory

Question:

Please provide an Excel spreadsheet, with formulae and calculations intact, that shows the following for each efficiency measure and for each program – separately for Enbridge and Union Gas – that was supported in 2017, 2018 and 2019:

- a. The program name
- b. The measure name and description
- c. The per unit gas savings (m3), electric savings (kWh), water savings (litres), incremental cost, measure life and net-to-gross assumption used to estimate savings achieved in each year. For programs for which measure level data are not available (e.g. because savings are tracked at a measure bundle or program level only), as well as for C&I custom programs, please provide average per participant savings, incremental cost, measure life for the measure bundle.
- d. The actual number of participants per measure (or measure bundle or C&I Custom program).
- e. The gross realization rate adjustment factor applied (for the years for which it is available)
- f. The net-to-gross assumption used at the measure level (if applicable) or at the program level (if not applicable at the measure level).
- g. A computation of the net first year savings per measure (per measure savings multiplied by number of measures/participants multiplied by the gross realization rate multiplied by the net-to-gross ratio).
- h. A computation of the net lifetime savings per measure (per measure first year savings multiplied by measure life)
- i. The sum of net savings, both first year and lifetime, across all measures in each program and for the portfolio as a whole.
- j. The rebate level (or average rebate level for measures or measure bundles for which rebate levels vary by customer or project).
- k. Total rebate payments by measure (or measure bundle), program and program portfolio.
- l. Total non-rebate spending by program, including non-resource acquisition programs, and for the portfolio as a whole, broken down by any sub-categories that are separately tracked.

Response

Much of the information sought through this interrogatory exceeds the scope of Enbridge Gas's 2021 DSM Plans proceeding as defined within the OEB's Procedural Order No. 1.¹ Please see the response at Exhibit I.BOMA.4, for discussion regarding the scope of this proceeding established by the OEB. Accordingly, Enbridge Gas has provided limited responses to this interrogatory in an effort to be as responsive as reasonably possible.

The relevant information requested can be found in the response at Exhibit I.SEC.12, as reasonably available.

For 2015 DSM program year details, please see the response at Exhibit I.SEC.12 Attachment 1.

For 2016 DSM program year details, please see the response at Exhibit I.SEC.12 Attachment 2

For Draft 2017 budget, expenditure and savings details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For Draft 2018 budget, expenditure and savings details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

As 2019 details are still being compiled at the time of this submission, they are not currently available.

The time and resources required to accurately compile the remaining details sought by GEC, which necessitate confirmation of the data integrity of tens of thousands of data points, is unreasonable.

¹ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Green Energy Coalition (GEC)

Interrogatory

Question:

Please provide participation levels – in each way that they may have been tracked – for each non-resource acquisition program for Union and Enbridge in 2017, 2018 and 2019.

Response

For Draft 2017 DSM program year Market Transformation and Performance-Based Conservation participation details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For Draft 2018 DSM program year Market Transformation and Performance-Based Conservation participation details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

As 2019 DSM program year participation details are still being compiled at the time of this submission, they are not currently available.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Green Energy Coalition (GEC)

Interrogatory

Question:

Please provide historic performance relative to each performance metric, as well as resulting shareholder incentives earned and the calculation of those earnings, for Union and Enbridge for 2017, 2018 and 2019 (verified for the first two years and unverified/unevaluated for 2019).

Response

For Draft 2017 DSM program year performance details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For Draft 2018 DSM program year performance details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

As 2019 DSM program year performance details are still being compiled at the time of this submission, they are not currently available.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Green Energy Coalition (GEC)

Interrogatory

Question:

Regarding Enbridge's and Union's 2017, 2018 and 2019 Residential (non-low income) home retrofit programs (Home Energy Consultation for Enbridge and Home Reno Rebate for Union), please provide the following, separately by Enbridge and Union rate zones:

- a. The total number of homes receiving an audit, efficiency assessment and/or an initial (pre-treatment) EnerGuide rating
- b. The total number of homes that received recommendations for at least one major efficiency measure (i.e. to their building envelopes and/or HVAC systems).
- c. The frequency of that the following efficiency improvements were recommended:
 - i. Replacing gas space heating equipment with a more efficient one
 - ii. Replacing gas water heater with a more efficient one
 - iii. Air sealing
 - iv. Duct sealing and/or repair
 - v. Duct insulation
 - vi. Attic insulation
 - vii. Wall insulation
 - viii. Basement wall insulation
 - ix. Other major measures (specify)
- d. The number and percent of customers who received each of the specific major measure recommendations in part "c" of this question who followed through and installed each the measure (provide separately for each measure).
- e. The estimated average savings per home – in both m3 of gas and percent of pre-treatment gas consumption – who participated in the program and followed through on at least one of the major measure recommendations
- f. The Company's best estimate of the distribution of savings by measure (i.e. relative to the measures listed in part "c" of this question).
- g. The average pre-treatment, post-treatment and increase in points in EnerGuide rating for program participants.
- h. The average incremental cost of measures installed by participants.

- i. The average rebate paid to program participants, separately for audit/EnerGuide ratings, measures installed and any other program component (specify).

Response

- a) All homes that enroll in the EGD rate zone's HEC or Union rate zones' HRR offerings and that have completed an initial energy audit receive a baseline EnerGuide ("ERS") rating as part of their Home Energy Report. The EnerGuide report is provided by the Energy Advisor to the homeowner and is an output of Natural Resources Canada's ("NRCAN") Hot2000 modelling software. Homeowners that do not complete their final energy audit (to become a final participant) are considered an incomplete file by Enbridge Gas.

Upon completion of the final energy audit, homeowners receive another EnerGuide rating which illustrates the improvement made between the initial and final energy audit.

Table 1 below details the total number of homes that completed an initial energy audit from 2017 to 2019 for all rate zones.

Table 1
Residential Energy Audits Completed

Rate Zone	2017	2018	2019	Total
EGD	14,260	19,755	19,047	53,062
Union	16,516	13,492	13,578	43,586

- b) Enbridge Gas does not track the total number of homes that received recommendations for at least one major efficiency measure as the eligibility criteria of the program offerings focuses on the completion of an initial energy audit, installing two qualifying measures, and completing the final energy audit. This information is available in the HOT2000 modelling software and is provided to the homeowner upon completion of their final energy audit (via the Home Energy Report).
- c) The recommended efficiency improvements are not tracked by Enbridge Gas as the eligibility criteria of the program offerings focuses on the completion of an initial energy audit, installing two qualifying measures, and completing the final energy audit.

- d) Participation details for the EGD and Union rate zones are set out in Tables 2 and 3 below respectively. Please note that 2017 and 2018 DSM program year figures are Draft as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB. As 2019 DSM program year participation details are still being compiled at the time of this submission, they are not currently available.

Table 2
EGD Rate Zone

Measure	2017		2018	
	Number of Participants	% of Participants	Number of Participants	% of Participants
Gas Space Heating	9,860	86.5%	13,335	92.4%
Gas Water Heating	1,136	10.0%	2,399	16.6%
Air Sealing	11,121	97.6%	11,960	82.9%
Attic Insulation	2,002	17.6%	1,997	13.8%
Wall Insulation	182	1.6%	270	1.9%
Basement Insulation	498	4.4%	2,087	14.5%
Exposed Floor Insulation	33	0.3%	45	0.3%
Drain Water Heat Recovery System	9	0.1%	9	0.1%
Windows/Doors	687	6.0%	1,721	11.9%

Table 3
Union Rate Zones

Measure	2017		2018	
	Number of Participants	% of Participants	Number of Participants	% of Participants
Gas Space Heating	11,880	86.5%	14,339	89.0%
Gas Water Heating	1,907	13.9%	1,834	11.4%
Air Sealing	11,725	85.4%	12,753	79.1%
Attic Insulation	3,174	23.1%	2,720	16.9%
Wall Insulation	1,135	8.3%	1,080	6.7%
Basement Insulation	2,055	15.0%	3,328	20.6%
Windows/Doors	4,448	32.4%	5,178	32.1%

- e) Average gas savings details for the EGD and Union rate zones are set out in Tables 4 and 5 below respectively. Please note that 2017 and 2018 DSM program year figures are Draft as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB. As 2019 DSM program year gas savings details are still being compiled at the time of this submission, they are not currently available.

Table 4
EGD Rate Zone

Year	Average Gross Annual Gas Savings Per Home (m ³)	Average % Gas Savings
2017	636	17.5%
2018	516	15.1%

Table 5
Union Rate Zones

Year	Average Gross Annual Gas Savings Per Home (m ³)	Average % Gas Savings
2017	597	17.4%
2018	536	17.2%

- f) Enbridge Gas uses NRCAN's HOT2000 software to determine whole-home savings, which are determined based on the aggregate reduction across multiple inputs and with consideration for the set of measures undertaken. Per-measure savings are not calculated and therefore cannot be provided.
- g) The EnerGuide rating was not tracked for the Union rate zones. Therefore, the information below pertains to EGD rate zone only.

For reference, NRCAN officially changed their EnerGuide rating scale (ERS) on December 31, 2018, from a 0 – 100 scale (a higher rating signifies higher energy efficiency), to a gigajoule/year rating (a lower score signifies higher energy efficiency). Ratings based on the 0 – 100 scale cannot be converted to the new gigajoules/year rating.

The data set out in Table 6 below only includes files created in Hot2000 version 11.0 ("V11"), as the EnerGuide rating scale is not available for any file created in a previous version.

The average decrease in points in the EnerGuide rating for program participants is not formally tracked by Enbridge Gas, however, the data is received as an output value from the data transfers received by NRCan.

Table 6 below details the average ERS on initial energy audit, average ERS on the final energy audit, and the average decrease in points in the EnerGuide rating for program participants:

Table 6
EnerGuide Ratings (GJ)

Rate Zone	Year	Avg. ERS on Initial Energy Audit ⁽¹⁾	Avg. ERS on Final Energy Audit ⁽¹⁾	Avg. Decrease in ERS Rating
EGD	2017	182	144	38
	2018	174	141	33
	2019	169	138	31

NOTES:

(1) Data taken from the Actual EnerGuide System Rating in GJ.

- h) Average incremental costs of measures installed by participants are set out in Tables 7 and 8 below for the EGD and Union rate zones respectively. Please note that 2017 and 2018 figures are Draft as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB. As 2019 DSM program year details are still being compiled at the time of this submission, they are not currently available.

Table 7
EGD Rate Zone

Year	Average Incremental Cost
2017	\$2,070
2018	\$2,413

Table 8
Union Rate Zones

Year	Average Incremental Cost
2017	\$2,841.80
2018	\$2,520.47

- i) Total average incentive levels are set out in Tables 9 and 10 below for the EGD and Union rate zones respectively. Incentive details by measure installed are not easily calculated due to program criteria such as incentive caps, or incentives as a function of savings and not measures. Please note that 2017 and 2018 figures are Draft as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB. As 2019 DSM program year details are still being compiled at the time of this submission, they are not currently available.

Table 9
EGD Rate Zone

Year	Average Incentive ⁽¹⁾
2017	\$1,487
2018	\$1,509

NOTES:

(1) Amount represents the total average incentive paid to customer.

Table 10
Union Rate Zones

Year	Average Incentive ⁽¹⁾
2017	\$1,419
2018	\$1,321

NOTES:

(1) Amount represents the total average incentive paid to customer.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Green Energy Coalition (GEC)

Interrogatory

Question:

Regarding the proposed Enbridge and Union 2021 Market Transformation programs:

- a. The Company appears to be proposing to run two different commercial new construction initiatives, "Commercial Savings by Design" for the old Enbridge territory and "Commercial New Construction" for Union's:
 - i. Are the two programs (in the separate market transformation scorecards) different? If so, what are the differences with regard to performance standards, rebate levels, training offered, marketing approach, etc.?
 - ii. Why not consolidate the programs into a single province-wide program?
- b. The Company appears to be proposing to run two different residential new construction initiatives, "Residential Savings by Design" for the old Enbridge territory and "Optimum Home" for Union's:
 - i. Are the two programs (in the separate market transformation scorecards) different? If so, what are the differences with regard to performance standards, rebate levels, training offered, marketing approach, etc.?
 - ii. Why not consolidate the programs into a single province-wide program?
- c. After five years of running its Comprehensive Energy Management program, why is it appropriate to keep running this program even partly as a Market Transformation initiative rather than solely as part of Enbridge's Resource Acquisition portfolio (and scorecard)?

Response

- a) Please see the response at Exhibit I.OSEA.1 a), for detailed discussion of program alignment efforts made by Enbridge Gas following amalgamation.

In its Decision on the utilities' 2015-2020 Multi-Year DSM Plans, the OEB directed Union Gas Limited ("Union") to launch a Commercial Savings by Design offering identical to that of Enbridge Gas Distribution Inc. ("EGD").¹ In its November 2018 Mid-Term Review Report, the Board referenced the Union commercial market transformation offering as Commercial New Construction.² For consistency in the development of its 2021 DSM Plan application, Enbridge Gas utilized the same naming convention as the Board's Mid-Term Review Report. As a result, all of the rate zones' new construction offerings are now named Commercial Savings by Design and with the exception of OEB-approved scorecards and targets, they are identical in nature.

- b) Please see the response at Exhibit I.OSEA.1 a), for detailed discussion of program alignment efforts made by Enbridge Gas following amalgamation. Further, it is not appropriate to merge the Residential Savings by Design and Optimum Home offerings as current participants have enrolled in a multi-year offering with differing rebate schedules, performance standards and training components.
- c) Material changes to DSM programming exceed the scope of Enbridge Gas's 2021 DSM Plans proceeding as defined within the OEB's Procedural Order No. 1.³ Please see the response at Exhibit I.BOMA.4 for discussion regarding the scope of this proceeding established by the OEB. Accordingly, Enbridge Gas has provided a limited response to GEC's question in an effort to be as responsive as reasonably possible.

In the interest of maximizing efficiency during the roll-forward from the 2020 DSM program year to the 2021 DSM program year (under the proposed 2021 DSM Plans) Enbridge Gas elected to maintain the existing Comprehensive Energy Management Program structure unchanged from 2020. The existing program structure continues to drive participation and provide value to customers in helping them set, measure and find ways to achieve long-term energy savings goals. Furthermore, the program has been promoted in-market for the past five years and restructuring of the program at this time for a single year would disrupt momentum. Detailed re-consideration of this program is more appropriate following completion of the Post-2020 DSM Framework, during the development of Enbridge Gas's Post-2020 multi-year DSM plans.

¹ EB-2015-0029 / EB-2015-0049, OEB Decision and Order (January 20, 2016), p. 39.

² EB-2017-0127/ EB-2017-0128, Report of the Ontario Energy Board: Mid-Term Review of the Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020) (November 29, 2018), pp. 30 & Appendix A.

³ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Green Energy Coalition (GEC)

Interrogatory

Question:

Regarding the resource acquisition programs:

- a. Are there differences between prescriptive C&I rebate offerings for Enbridge and Union? If so, what are the differences? In particular, please identify:
 - i. Differences in the list of measures rebated. Please identify all measures offered in one territory, but not the other (and which territory they are offered)
 - ii. Differences in the efficiency or other performance requirements for any measures offered in both service territories. Please identify all measures for which such standards are different, and what the differences are for each territory.
 - iii. Differences in rebate levels. Please identify all measures for which such standards are different, and what the differences are for each territory.
- b. Are there differences between the design of the two residential home retrofit programs? If so, what are the differences. In particular, please identify:
 - i. Differences in which homes or home types are eligible to participate
 - ii. Differences in efficiency or other performance requirements
 - iii. Differences in rebate levels
- c. Are the two utility residential adaptive thermostat program offerings identical? If not, what are the differences.
- d. Are the two utility C&I Custom program offerings different across the two service territories? If so, what are the differences? In particular, please identify:
 - i. Differences in which C&I customers are eligible to participate
 - ii. Differences in efficiency or other performance requirements
 - iii. Differences in rebate levels
 - iv. Differences in the role of trade allies
- e. Are midstream or upstream incentives (i.e. incentives offered to manufacturers, distributors, contractors and/or other trade allies) offered for any measures in either service territory? If so:
 - i. For which measures, for which service territories?
 - ii. What is the size and structure of the incentive offerings?

- iii. If the offerings are different for each territory for any measure, please identify the measure(s) for which they are different and explain why it would be appropriate for differences to remain in 2021.

Response

a) - d)

Please see the response at Exhibit I.OSEA.1 a), for detailed discussion of program alignment efforts made by Enbridge Gas following amalgamation.

As of January 2020, the Commercial and Industrial Prescriptive offerings for all rate zones have been aligned to offer the same incentives for the same technologies.

Enbridge Gas has aligned the customer facing elements of the residential home retrofit offerings.

The residential adaptive thermostat offerings are identical.

Enbridge Gas has aligned the customer facing elements of the Commercial and Industrial Custom offerings with the exception of incentive levels in some cases due to differences in customer composition across the rate zones (e.g. the EGD rate zone has a significant large commercial and multi-residential customer base, whereas the Union rate zones have a significant greenhouse and large manufacturing customer base). These variations in customer composition have resulted in a different strategy across the offering to both support customer participation and optimize custom portfolio results.

- e) Midstream incentive offers are currently available across all service territories for approved Technical Reference Manual ("TRM") measures including condensing water heaters (tankless and storage), condensing unit heaters and select Energy Star® commercial kitchen appliances. The incentives and programming offered is aligned across all rate zones. The incentive structure is applied as a per unit discount at the supply chain (i.e. distributor and retailer) point of purchase. Distributors and retailers in the HVAC sector can offer discounts up to \$450/unit for water heaters and \$750/unit for unit heaters. Foodservice distributors and retailers can offer discounts up to \$400/unit for high efficiency under-fired broilers, up to \$600/unit for Energy Star® fryers and up to \$1,000/unit for Energy Star® steam cookers.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Industrial Gas Users Association of Ontario (IGUA)

Interrogatory

Preamble:

On December 9, 2019 we filed a letter on behalf of IGUA regarding EG's proposal to continue its current DSM plan for a year pending determination by the Board of a DSM framework to replace the current framework. In that letter we observed that the proposed extension would run through December, 2021, which is still almost 2 years from now, and that requirements for transition between the current DSM framework and the next one, and timing therefore, are appropriately considered and determined as part of the development of the new DSM framework. Accordingly, we suggested that any approval by the Board for extension of EG's current DSM program be expressly subject to further direction from the Board regarding transition between the current DSM framework and the replacement framework to be developed in consideration of all of the circumstances at the time of such supplementary direction.

Question:

Could EG please comment on any concerns that it has regarding IGUA's position on transition as outlined above.

Response

Since IGUA submitted this correspondence last December, the OEB has made clear in its Procedural Order No. 1 ("PO No. 1"), that:¹

"...the OEB does not expect material changes to the programs and no increase to the overall DSM budget to take place during the transition period from the current OEB-approved DSM plans."

The OEB goes on in PO No. 1 to state:²

"The OEB is mindful of the costs and resources required to thoroughly review, critique and make material changes to the currently approved DSM

¹ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

² EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

plans and agrees with Enbridge Gas that resources are best directed to the policy consultation.”

While it is not clear in IGUA’s letter what it is proposing, Enbridge Gas acknowledges that the Board may provide supplementary direction on transitional elements. Enbridge Gas would, of course, endeavor to comply with any such direction.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Low Income Energy Network (LIEN)

Interrogatory

Question:

Please provide for each of 2016, 2017, 2018 and 2019, for each program in the Enbridge Rate Zone - Home Winterproofing, Low-Income Multi-Residential/Affordable Housing, and Low-Income New Construction:

- a) Total program budget and broken down by overhead and non-overhead budget
- b) Total program budget spent and broken down by overhead and non-overhead dollars spent
- c) Explanation for variance between budget and dollars spent
- d) Total contribution to low-income scorecard metric (if savings or number of construction projects are not verified, then please provide unverified results)
- e) Total number of participants, as follows:
 - i. The number of low-income households in the Home Winterproofing program
 - ii. The number of new buildings for each of the Low-Income Multi-Residential/Affordable Housing and Low-Income New Construction programs, and
- f) Geographic distribution of participants (broken down between the GTA, the Ottawa area, eastern Ontario excluding the Ottawa area, and the Niagara region).

Response

- a) b) & d)

For 2016 DSM program year budget, spend details and scorecard results, please see the response at Exhibit I.SEC.12 Attachment 2.

For Draft 2017 program year budget, spend details and scorecard results (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account

Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For Draft 2018 DSM program year budget, spend details and scorecard results (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

For 2019 budgets, please see the response at Exhibit I.SEC.2 Attachment 1. As 2019 DSM program year spend details and scorecard results are still being compiled at the time of this submission, they are not currently available.

- c) 2016 to 2018 budget and spend details available are set out in Table 1 below. 2017 and 2018 figures are subject to Enbridge Gas filing a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB. As 2019 DSM program year spend details are still being compiled at the time of this submission, they are not currently available.

Table 1
Budget and Spend Totals - EGD Rate Zone

Year	Offering	OEB-Approved Program Budget (\$)	Utility Spending (\$)
2016	Home Winterproofing	5,806,064	4,543,350
	Low Income Multi-Residential	3,279,028	2,326,325
	Low Income New Construction	1,116,696	258,877
2017	Home Winterproofing	6,290,000	4,539,420
	Low Income Multi-Residential	3,418,121	2,765,831
	Low Income New Construction	1,200,000	1,158,956
2018	Home Winterproofing	6,477,200	5,224,730
	Low Income Multi-Residential	3,813,296	4,417,079
	Low Income New Construction	1,400,000	1,752,191

Home Winterproofing –

The 2016, 2017, and 2018 DSM program years' budgets exceeded spend as a number of projects forecast to be completed in each year were cancelled or delayed late in the program year due to delivery agents not finalizing projects as forecast. In 2018, planned projects could not be completed due to challenges at that time with capacity constraints (i.e. limited energy auditors available to the delivery agent). In

2019, the offering overachieved the target by approximately 300 homes and in doing so, Enbridge Gas's spend exceeded the budget.

Low Income Multi-Residential

In 2016, through the transition to the new OEB-approved 2015-2020 multi-year DSM Plan, Enbridge Gas did not spend the full budget for the Low Income Multi-Residential offering, however, it demonstrated good results. As a result, when the Target Adjustment Mechanism ("TAM") calculation was applied to determine the 2017 target the result was a considerably higher target than the prior year which Enbridge Gas was not able to achieve. In 2017, Enbridge Gas did not spend the full budget while attempting to achieve this high target. In 2018, strong market uptake led to offering results that exceeded the target. Enbridge Gas spent more than the budget in 2018 to achieve these results. In 2019, a number of projects planned for the program year were delayed or cancelled, and as a result, fewer incentives were paid, and Enbridge Gas did not spend the full budget.

Low Income New Construction

The annual budget for the Low Income New Construction offering was originally designed to encompass the full cost of all participants for a single program year, including incentives. However, Enbridge Gas found that in the majority of cases, participants did not complete the offering within a single calendar year. In 2016, this resulted in an artificially low spend as associated post-construction incentives had not yet been paid by year-end. As set out in the Board's Mid-Term Review Report, the OEB has allowed Enbridge Gas to accrue these incentive commitments in the year the customer enrolled for the offering.¹ Accordingly, beginning with the 2017 DSM program year, Enbridge Gas was more appropriately able to account for future incentive payouts in current years' spends. In 2017, the offering's results were slightly below target, and accordingly, the spend was below budget. In 2018, strong market uptake led to offering results that exceeded target. Enbridge Gas spent more than the budget in 2018 to achieve these results. In 2019, Enbridge Gas was required to spend 2019 budget to pay incentives to 2016 participants as accruing incentive commitments was not permitted in 2016, resulting in a spend that was greater than the budget.

e) Participant numbers for 2016 to 2018 program years are set out in Table 2 below:

¹ EB-2017-0127 / EB-2017-0128, Report of the Ontario Energy Board: Mid-Term Review of the Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020) (November 29, 2018), p. 22.

Table 2
Low Income Participants* – EGD Rate Zone

	2016	2017	2018
Home Winterproofing (Part 9)	1,673	1,353	1,625
Low Income Multi Res (Part 3)	121	120	105
Low Income New Construction	6	11	13

* Numbers represent number of homes for Home Winterproofing, number of buildings for Low Income Multi Res, number of projects for Low Income New Construction

As 2019 participant details are still being compiled at the time of this submission, they are not currently available.

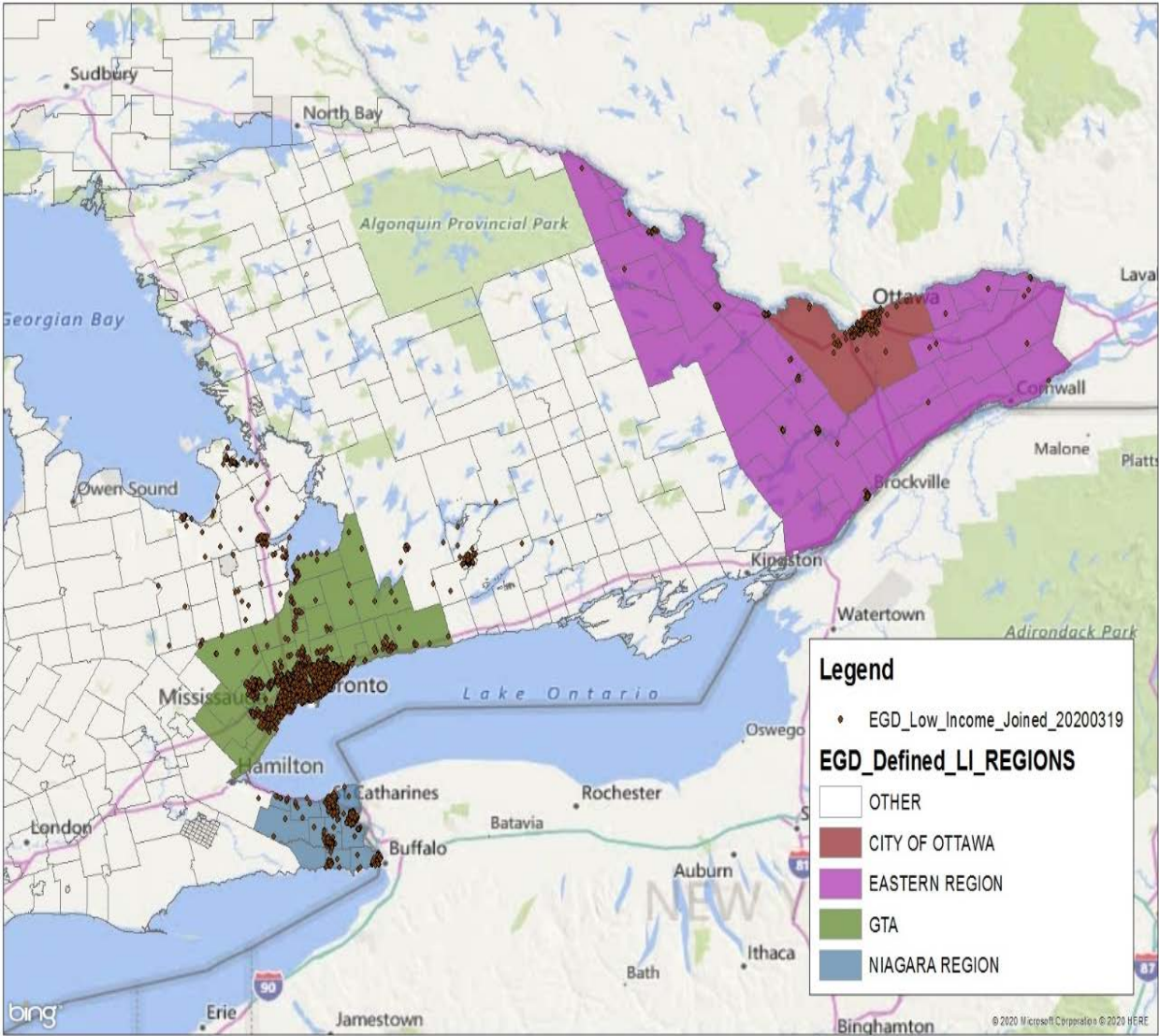
- f) Table 3 and Figure 1 set out below provide details of the geographic distribution of 2016-2018 participants (broken down between the GTA, the Ottawa area, eastern Ontario excluding the Ottawa area and the Niagara region).

Table 3
Participant* Distribution - EGD Rate Zone

Program Offering	2016					2017					2018				
	Ottawa	Eastern Region	GTA	Niagara Region	Other	Ottawa	Eastern Region	GTA	Niagara Region	Other	Ottawa	Eastern Region	GTA	Niagara Region	Other
Home Winterproofing (Part 9)	484	176	825	109	79	214	29	878	162	70	192	126	989	224	94
Multi Residential (Part 3)	2	0	116	3	0	10	1	103	3	3	19	1	78	0	7
Low Income New Construction	1	1	2	2	0	3	0	6	0	2	2	0	5	4	2

* Numbers represent number of homes for Home Winterproofing, number of buildings for Low Income Multi Res, number of projects for Low Income New Construction

Figure 1



ENBRIDGE GAS INC.

Answer to Interrogatory from
Low Income Energy Network (LIEN)

Interrogatory

Question:

Please provide for each of 2016, 2017, 2018 and 2019, for each program in Union Rate Zones - Home Weatherization, Furnace End-of-Life, Aboriginal, and Multi-Family:

- a) Total program budget and broken down by overhead and non-overhead budget
- b) Total program budget spent and broken down by overhead and non-overhead dollars spent
- c) Explanation for variance between budget and dollars spent
- d) Total contribution to appropriate low-income scorecard metric (if savings are not verified, please provide the unverified savings)
- e) Total number of participants, as follows:
 - i. low-income households in the Home Weatherization, Aboriginal and Furnace End-of-Life programs, and
 - ii. The number of buildings categorized by social and assisted housing, and by market rate buildings, for the Multi-Family program
- f) Geographic distribution of participants (broken down between the GTA, Hamilton, Southwestern Ontario, and Northern Ontario)

Response

- a) b) & d)

For 2016 DSM program year budget, spend details and scorecard results, please see the response at Exhibit I.SEC.12 Attachment 2.

For Draft 2017 DSM program year budget, spend details and scorecard results, (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account

Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For Draft 2018 DSM program year budget, spend details and scorecard results (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

For 2019 budgets, please see the response at Exhibit I.SEC.2 Attachment 1. As 2019 DSM program year spend details and scorecard results are still being compiled at the time of this submission, they are not currently available.

- c) 2016 to 2018 budget and spend details available are set out in Table 1 below. 2017 and 2018 figures are subject to Enbridge Gas filing a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB. As 2019 DSM program year spend details are still being compiled at the time of this submission, they are not currently available.

Table 1
Budget and Spend Totals - Union Rate Zones

Year	Offering	OEB-Approved Program Budget (\$)	Utility Spending (\$)
2016	Home Weatherization	6,335,000	7,588,591
	Furnace End-of-Life	761,000	7,800
	Indigenous	8,000	13,632
	Multi-Family	2,651,000	1,767,368
2017	Home Weatherization	6,136,000	6,432,937
	Furnace End-of-Life	784,000	168,790
	Indigenous	419,000	212,185
	Multi-Family	3,359,000	2,939,186
2018	Home Weatherization	7,495,000	6,872,283
	Furnace End-of-Life	924,000	-
	Indigenous	511,000	174,604
	Multi-Family	2,984,000	2,611,775

Home Weatherization:

In both 2016 and 2017, spend exceeded the budget as additional spending was required to achieve targets. In 2018, a newly onboarded delivery agent required a

longer than anticipated ramp up period, which translated into lower results than expected, and subsequently, a spend that was lower than budget. In 2019, strong market uptake led to offering results that exceeded the target and additional spending above budget was required to support these results.

Furnace End-of-Life:

The Furnace End-of-Life offering, on its own, has had low cost-effectiveness but it is beneficial to specific customers in the right situation, particularly given the challenges in this customer segment. In an effort to maintain overall cost-effectiveness for the Low Income program, Enbridge Gas has been careful not to actively promote this offering in the mass market but provide support where appropriate. The spend in 2016, 2017, 2018, and 2019 is significantly under budget as it has represented a relatively small number of projects as part of overall Low Income results.

Indigenous:

The Indigenous offering was new to market in 2017. It was quickly determined through initial audits that requirements and opportunities for these premises were not as initially expected. As a result, these homes were not eligible for the offering and there were fewer participants than anticipated. Consequently, the full budget was not spent. This trend has continued through 2018 and into 2019. Research was initiated to address these shortcomings (and is still ongoing) to better assess housing stock and determine more appropriate approaches.

Multi-Family

In 2017 and 2019, Multi-Family underachieved on the market rate multi-family metric and in 2018, Multi-Family underachieved on the social and assisted multi-family target. Over the four years, the full budget was not spent to achieve targets for various reasons, including fewer projects than anticipated and average incentive payments per project being lower than the average.

- e) Participant numbers for 2016 to 2018 program years are set out in Table 2 below:

Table 2
Low Income Participants* – Union Rate Zones

	2016	2017	2018
Home Weatherization	1,757	1,272	1,389
Furnace End-of-Life	24	381	0
Indigenous	0	21	16
Multi-Family - Social & Assisted	39	77	46
Multi-Family - Market Rate	12	20	16

* Numbers represent number of homes for Home Weatherization, Furnace End-of-Life, Indigenous; number of buildings for Multi-Family-Social & Assisted, Multi Family-Market Rate

As 2019 participant details are still being compiled at the time of this submission, they are not currently available.

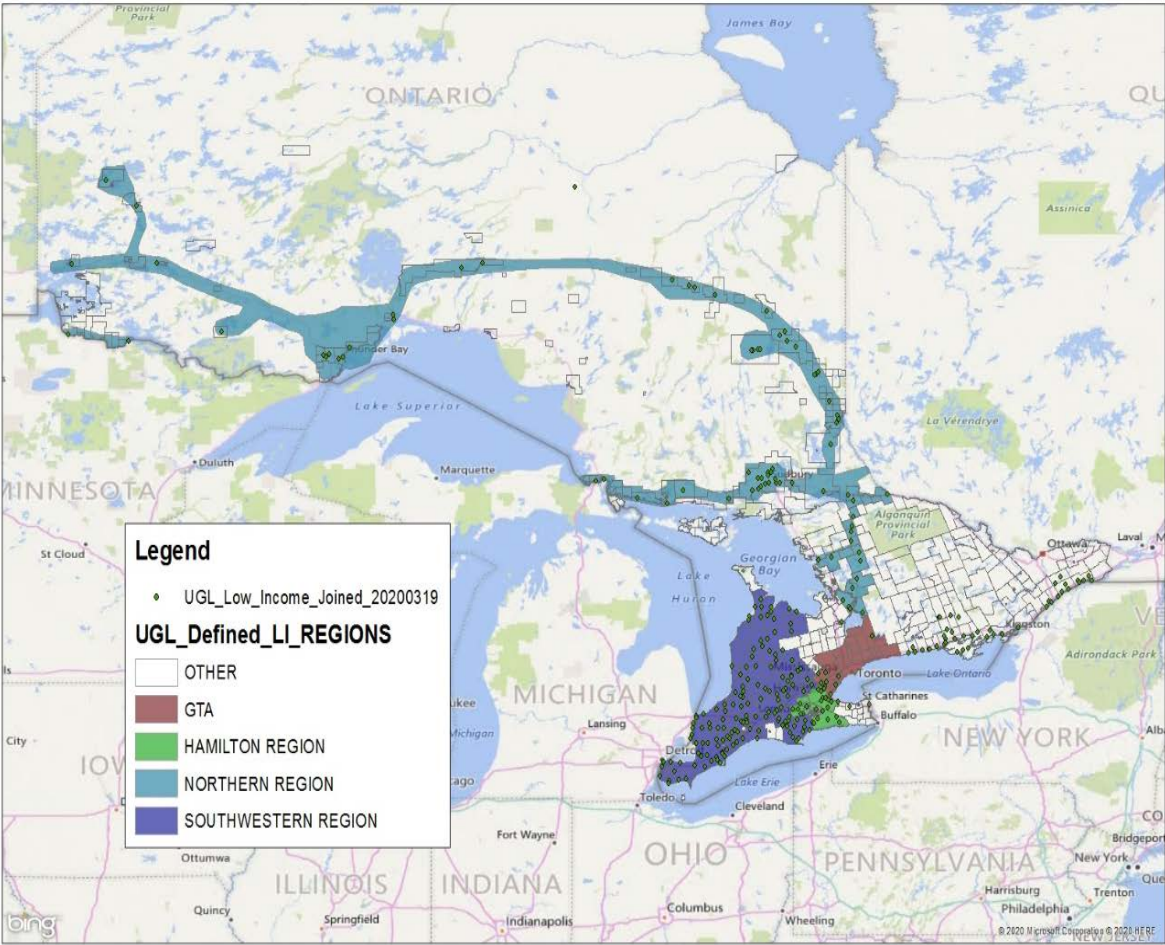
- f) Table 3 and Figure 1 set out below provide details of the geographic distribution of 2016-2018 participants (broken down between the GTA, Hamilton, Southwestern Ontario, and Northern Ontario).

Table 3
Low Income Participant* Distribution – Union Rate Zones

Program Offering	2016					2017					2018				
	GTA	Hamilton	Northern Ontario	South-western Ontario	Other	GTA	Hamilton	Northern Ontario	South-western Ontario	Other	GTA	Hamilton	Northern Ontario	South-western Ontario	Other
Home Weatherization Program	7	349	330	930	141	15	262	306	559	130	31	212	288	790	68
Furnace End-of-Life Upgrade	0	0	0	24	0	0	0	104	277	0	0	0	0	0	0
Indigenous	0	0	0	0	0	4	0	17	0	0	0	0	0	0	16
Multi-Family - Social & Assisted Housing	3	5	10	18	3	1	8	33	33	2	3	9	18	14	2
Multi-Family - Market Rate	0	7	0	5	0	0	3	1	16	0	2	6	0	8	0

* Numbers represent number of homes for Home Weatherization, Furnace End-of-Life, Indigenous; number of buildings for Multi-Family - Social & Assisted, Multi Family - Market Rate

Figure 1



ENBRIDGE GAS INC.

Answer to Interrogatory from
Low Income Energy Network (LIEN)

Interrogatory

Question:

Regarding Exhibit A, page 5 of 6, for each low-income program in the Enbridge Rate Zone and the Union Rate Zone, please provide for 2020 and 2021:

- a) Total program budget broken down by overhead and non-overhead budget
- b) The low-income scorecard metric(s)
- c) Forecast number of participants and their forecast geographic distribution

Response

- a) For 2020 and 2021 budget details, please see the response at Exhibit I.SEC.2 Attachment 1.
- b) For 2020 and 2021 scorecard metrics, please see the response at Exhibit I.PP.7 Attachment 1.
- c) With the exception of the Affordable Housing New Construction offer in the EGD rate zone, which has a participant metric to reflect the number of affordable housing projects enrolled in that offering, the balance of the Low Income offerings have lifetime m³ metrics. In a given year, these results encompass projects which benefit participants across the Single Family (Part 9) offerings and the Multi-Family (Part 3) offerings for both social housing and privately-owned buildings as well as the Aboriginal community in the case of the Union Gas rate zones. Depending on the mix of projects being assessed across these groupings and the planning schedules of the various social housing providers and property managers of privately-owned buildings, participant forecasts will evolve throughout the year and across planning cycles. For these reasons it is not possible to provide a meaningful estimate of participants or geographic distribution for 2020 or 2021 at this time.

For historical context, based on the Low Income data provided in the responses at Exhibit I.LIEN.1 e) and Exhibit I.LIEN.2 e), the Low Income program in the EGD and

Union rate zones deliver, on average, approximately 1,675 (EGD rate zone) and 1,550 (Union rate zones) DSM projects annually. In some cases, the participants represented in these numbers are single family homes (i.e., for the Home Winterproofing and Home Weatherization offerings). However, in other cases, each participant represents a multi-residential building, in which multiple low income residents benefit from DSM programming.

ENBRIDGE GAS INC.

Answer to Interrogatory from
London Property Management Association (LPMA)

Interrogatory

Reference:

Exhibit A, page 6

Question:

EGI has requested approval of its 2021 DSM plans by April 2, 2020 because of the lead-time for some DSM programming and to ensure the continuity of DSM programming. In Procedural Order #1 dated February 24, 2020, the OEB set out a schedule that concluded with filing of written reply submissions on June 2, 2020. Given that this is two months beyond the date for the requested decision, what impact does EGI expect a decision post June 2, 2020 to have on its ability to ensure adequate lead-time for some DSM programming and the continuity of its DSM programming?

Response

Please see the response at Exhibit I.CCC.1.

ENBRIDGE GAS INC.

Answer to Interrogatory from
London Property Management Association (LPMA)

Interrogatory

Reference:

Ref: Exhibit A, page 5

Question:

- a) Please provide a table that shows the DSM budget for each of the EGD rate zone and Union rate zones for each of 2017 through 2021. For each of 2017 through 2019, please also show the actual DSM expenditures for each of the rate zones.
- b) If there is any difference in the DSM budget between the approved 2020 level and the proposed 2021 level other than those noted in footnote 5, please reconcile the difference, including references to any OEB document related to the changes.
- c) Please provide the actual shareholder incentives earned in each of 2017 through 2019 by rate zone. Please also provide the maximum shareholder incentive by rate zone that is available for 2020 and proposed for 2021.

Response

- a) For 2015 DSM program year budget and spend details, please see the response at Exhibit I.SEC.12 Attachment 1.

For 2016 DSM program year budget and spend details, please see the response at Exhibit I.SEC.12 Attachment 2.

For Draft 2017 DSM program year budget and spend details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For Draft 2018 DSM program year budget and spend details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

For 2019-2021 budget details, please see the response at Exhibit I.SEC.2.

As 2019 DSM program year spend details are being compiled at the time of this submission, they are not currently available.

- b) There is no difference between the proposed 2021 budget level and the OEB-approved 2020 budget level with the exception of the OEB-mandated updates to the 2020 budgets set out in the Board's Mid Term Report:¹

"1) a continuation of Enbridge Gas' Energy Leaders program (annual budget of \$0.4M), and, 2) expansion of Union Gas' Residential Adaptive Thermostats pilot into a full program (annual budget of \$1.5M)."

- c) For Draft 2017 DSM program year shareholder incentive claim details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For Draft 2018 DSM program year shareholder incentive claim details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

As 2019 DSM program year shareholder incentive details are still being compiled at the time of this submission, they are not currently available.

The maximum shareholder incentive approved by the Board for 2020 and proposed for 2021 based on an extension of the current framework is set out in Table 1 below.

Table 1
Maximum OEB-Approved Shareholder Incentive Amounts

Rate Zone	2020	2021
Union	\$10.45M	\$10.45M
EGD	\$10.45M	\$10.45M

¹ EB-2017-0127 / EB-2018-0128, Report of the Ontario Energy Board Mid-Term Review of the Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020) (November 29, 2018), p. 12, footnote 3.

ENBRIDGE GAS INC.

Answer to Interrogatory from
London Property Management Association (LPMA)

Interrogatory

Reference:

Exhibit A

Question:

Please detail any changes between the Board approved 2020 DSM plans and the proposed DSM plans.

Response

Enbridge Gas does not currently anticipate any significant changes between OEB-approved 2020 DSM Plans and the proposed 2021 DSM Plans. Enbridge Gas has the flexibility to make some changes to program offerings in response to changing markets and to pursue new opportunities to optimize program delivery and drive scorecard results. Although program delivery in 2021 may encompass some modifications or expansions relative to 2020, the offerings currently in market will largely roll-forward from 2020 to 2021 unchanged. This is consistent with the Board's Procedural Order No. 1,¹

"the OEB does not expect material changes to the programs and no increase to the overall DSM budget to take place during the transition period from the current OEB-approved DSM plans."

¹ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

ENBRIDGE GAS INC.

Answer to Interrogatory from
London Property Management Association (LPMA)

Interrogatory

Reference:

Exhibit A, page 6

Question:

Paragraph 11 states that no incremental changes to rates are required because of the rollover of the 2020 programs to 2021.

- a) Please confirm that this means that EGI will continue to allocate the DSM costs to the rates classes in the same manner in 2021 as it did in 2020.
- b) Please confirm that this means that the costs that are allocated to the rate classes in 2021 will be the same as those allocated in 2020.
- c) How will EGI allocate the incremental costs noted in footnote 5 on page 5?
- d) If any of the above cannot be confirmed, please explain how the variances will be tracked by rate class.

Response

- a) Confirmed.
- b) Confirmed.
- c) The incremental costs were reflected in the 2020 DSM budgets and allocations by rate class. Therefore, there is no change for 2021.
- d) As in prior years, any variances between DSM program costs built into rates by rate class and actual DSM program costs incurred by each rate class will be captured through the DSM variance account ("DSMVA").

ENBRIDGE GAS INC.

Answer to Interrogatory from
London Property Management Association (LPMA)

Interrogatory

Reference:

Exhibit A, page 5 & EB-2017-0127/0128 Report of the Ontario Energy Board dated November 29, 2018

Question:

- a) Please confirm that the date in footnote 6 should be November 29, 2018, not November 29, 2019.
- b) Please confirm that the page referenced in footnote 5 should be page 12 and not page 3.
- c) Please provide a cost effectiveness table, similar to Table 2 on page 12 of the Report of the Ontario Energy Board, in the same level of detail shown for each of Union Gas and Enbridge Gas, extending the data from 2015 to 2016, to include data for 2017, 2018 and 2019.

Response

- a) Confirmed.
- b) Confirmed.
- c) For 2015 DSM program year cost-effectiveness details, please see the response at Exhibit I.SEC.12 Attachment 1.

For 2016 DSM program year cost-effectiveness details, please see the response at Exhibit I.SEC.12 Attachment 2.

For Draft 2017 DSM program year cost-effectiveness details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For Draft 2018 DSM program year cost-effectiveness details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

As 2019 DSM program year cost-effectiveness details are still being compiled at the time of this submission, they are not currently available.

ENBRIDGE GAS INC.

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

Interrogatory

Reference:

General

Question:

- a) For each rate class in both the Enbridge Gas and Union Gas franchise areas, for the years 2015 to 2019, please provide the following information in table form:
- i. The total number of customers in the rate class in each year.
 - ii. The total DSM costs allocated to the rate class in each year, including amounts embedded in base rates and amounts recovered through deferral and variance accounts (or for years where disposition has not yet been applied for the forecast amounts to be recovered through deferral and variance accounts).
 - iii. The total number of customers in the rate class that were DSM participants in each year.
- b) Please provide in table form:
- i. The total number of customers in each rate class at the beginning of 2020.
 - ii. The forecast total amount of DSM costs to be allocated to each rate class in 2020, both embedded in base rates and through deferral and variance accounts.
 - iii. The total number of customers in each rate class at the beginning of 2020 that were participants in DSM offered by EGI (through its predecessor companies) from 2015 to 2019.
 - iv. The total number of customers in each rate class at the beginning of 2020 that were participants in DSM offered by EGI (through its predecessor companies) from 2015 to 2019 more than once.
 - v. The forecast number of DSM participants in each rate class for 2020.
- c) Please discuss what efforts EGI is making in 2020 and 2021 to target customers in each rate class that have not participated in EGI's DSM programming from 2015 to 2019.

Response

- a)
i. Table 1 below indicates the EGD rate zone's and Union rate zones' annual average number of customers by rate class for the period of 2015-2019.

Table 1

Enbridge Gas Inc.

EGI Number of Customers by Rate Classes

Annual Average for 2015-2019

General Service/Rate Zone	Rate Class	2015	2016	2017	2018	2019
EGD	Rate 1	1,930,657	1,959,569	1,990,032	2,017,128	2,040,710
EGD	Rate 6	163,634	164,698	166,224	167,626	168,093
EGD	Rate 9	6	6	3	2	-
Union South	M1	1,083,032	1,097,031	1,111,544	1,127,353	1,141,279
Union South	M2	7,437	7,730	7,553	7,469	7,783
Union North	R01	333,773	339,334	344,458	349,354	353,643
Union North	R10	2,152	2,219	2,192	2,118	2,144
Total		3,520,691	3,570,587	3,622,006	3,671,050	3,713,652

Contract Market / Rate Zone	Rate Class	2015	2016	2017	2018	2019
EGD	Rate 100	2	2	3	3	4
EGD	Rate 110	227	270	263	273	280
EGD	Rate 115	25	27	27	25	22
EGD	Rate 125	5	5	5	4	4
EGD	Rate 135	43	45	45	43	41
EGD	Rate 145	52	38	37	32	25
EGD	Rate 170	26	25	26	27	23
EGD	Rate 200	1	1	1	1	1
EGD	Rate 300	2	2	2	1	1
EGD	Rate 315	1	1	1	1	1
Union North	Rate_20	50	47	46	44	54
Union North	Rate_25	80	78	79	78	55
Union North	Rate_100	13	14	14	13	12
Union South	Rate_M4	156	165	185	208	232
Union South	Rate_M5	80	72	59	38	42
Union South	Rate_M7	28	28	30	30	36
Union South	Rate_M9	2	2	3	3	4
Union South	Rate_M10	2	2	2	3	2
Union South	Rate_T1	37	37	37	37	37
Union South	Rate_T2	22	22	23	24	25
Union South	Rate_T3	1	1	1	1	1
Total		855	884	889	889	902

- ii. Please see Attachment 1 for DSM costs by rate class.
- iii. Table 2 below indicates the EGD rate zone's and Union rate zones' customers who were DSM participants by rate class for the period of 2015-2019.

Table 2

General Service	Rate Class	2015	2016	2017	2018
EGD	RATE 1	7,538	31,206	26,676	31,929
EGD	RATE 6	1,444	1,421	1,484	1,106
Union South	Rate M1	22,698	8,044	14,313	16,422
Union South	Rate M2	376	334	344	321
Union North	Rate 01	2,657	893	1,970	1,773
Union North	Rate 10	71	67	112	68
Total		34,784	41,965	44,899	51,619
Contract Market	Rate Class	2015	2016	2017	2018
EGD	RATE 100	1	1	2	1
EGD	RATE 110	54	58	47	36
EGD	RATE 115	5	6	8	6
EGD	RATE 135	3	5	8	10
EGD	RATE 145	2	1		2
EGD	RATE 170	6	7	5	1
Union North	Rate 20	19	13	13	12
Union North	Rate 100	5	6	7	5
Union South	Rate M4	77	62	86	72
Union South	Rate M5	26	17	16	11
Union South	Rate M7	24	19	19	21
Union South	Rate T1	17	12	22	16
Union South	Rate T2	16	14	14	14
Total		255	221	247	207

NOTES:

- Table 2 includes a customer count which is not the same as the unit or participant count. In some cases multiple units can be installed for a single customer (e.g. prescriptive programs). In other cases, programs did not report on participant numbers but are included here to be responsive (e.g. EGD Low Income TAPS).
- Rate class for this analysis was determined based on the customers current rate class in order to answer b) iii and b) iv and not their rate class at the time. The EGD rate zone home labeling program delivered in 2015 was also excluded.

- b)
i. Table 3 below, indicates the EGD rate zone's and Union rate zones' annual average number of customers by rate class based on February-2020 month-end

Table 3

**Enbridge Gas Inc.
EGI Number of Customers by Rate Classes**

General Service/Rate Zone	Rate Class	Feb-20
EGD	Rate 1	2,058,873
EGD	Rate 6	170,008
EGD	Rate 9	-
Union South	M1	1,150,542
Union South	M2	7,898
Union North	R01	356,614
Union North	R10	2,221
Total		3,746,156

Contract Market / Rate Zone	Rate Class	Feb-20
EGD	Rate 100	7
EGD	Rate 110	317
EGD	Rate 115	21
EGD	Rate 125	4
EGD	Rate 135	45
EGD	Rate 145	22
EGD	Rate 170	20
EGD	Rate 200	1
EGD	Rate 300	2
EGD	Rate 315	1
Union North	Rate_20	56
Union North	Rate_25	69
Union North	Rate_100	12
Union South	Rate_M4	239
Union South	Rate_M5	37
Union South	Rate_M7	44
Union South	Rate_M9	4
Union South	Rate_M10	3
Union South	Rate_T1	39
Union South	Rate_T2	25
Union South	Rate_T3	1
Total		969

- ii. Table 4 below, details DSM costs by rate class for 2020. No estimate of 2020 DSM costs to be cleared through DSM-related deferral and variance accounts is currently available for 2020.

Table 4

General Service	Rate Class	DSM Costs in Rates
EGD	RATE 1	\$ 39,405,864
EGD	RATE 6	\$ 21,074,060
EGD	RATE 9	\$ 2,935
Union South	Rate M1	\$ 27,446,431
Union South	Rate M2	\$ 10,658,120
Union North	Rate 01	\$ 6,624,724
Union North	Rate 10	\$ 3,126,779
Total		\$ 108,338,913
Contract Market	Rate Class	DSM Costs in Rates
EGD	RATE 100	\$ -
EGD	RATE 110	\$ 1,752,037
EGD	RATE 115	\$ 1,319,025
EGD	RATE 125	\$ 110,076
EGD	RATE 135	\$ 255,246
EGD	RATE 145	\$ 1,597,384
EGD	RATE 170	\$ 2,195,251
EGD	RATE 200	\$ 38,160
EGD	RATE 300	\$ 7,338
Union North	Rate 20	\$ 1,753,140
Union North	Rate 100	\$ 1,147,290
Union South	Rate M4	\$ 3,092,957
Union South	Rate M5	\$ 2,171,433
Union South	Rate M7	\$ 2,034,347
Union South	Rate T1	\$ 1,568,951
Union South	Rate T2	\$ 4,725,369
Total		\$ 23,768,004

- iii. Table 5 below indicates the EGD rate zone's and Union rate zones' customers who were DSM participants by rate class from 2015 to 2019.

Table 5

General Service	Rate Class	Unique Customers
EGD	RATE 1	95,862
EGD	RATE 6	4,873
Union South	Rate M1	60,165
Union South	Rate M2	1,151
Union North	Rate 01	7,212
Union North	Rate 10	286
Total		169,549
Contract Market	Rate Class	Unique Customers
EGD	RATE 100	3
EGD	RATE 110	130
EGD	RATE 115	11
EGD	RATE 135	17
EGD	RATE 145	3
EGD	RATE 170	10
Union North	Rate 20	31
Union North	Rate 100	11
Union South	Rate M4	160
Union South	Rate M5	46
Union South	Rate M7	29
Union South	Rate T1	30
Union South	Rate T2	19
Total		500

NOTES:

- Table 5 includes a customer count which is not the same as the unit or participant count. In some cases multiple units can be installed for a single customer (e.g. prescriptive programs). In other cases, programs did not report on participant numbers but are included here to be responsive (e.g. EGD Low Income TAPS).
- Rate class for this analysis was determined based on the customers current rate class in order to answer b) iii and b) iv and not their rate class at the time. The EGD rate zone home labeling program delivered in 2015 was also excluded.

- iv. Table 6 below indicates the EGD rate zone and Union rate zones' customers who were DSM participants by rate class from 2015 to 2019, more than once.

Table 6

General Service	Rate Class	Repeat Customers
EGD	RATE 1	3,624
EGD	RATE 6	1,266
Union South	Rate M1	2,310
Union South	Rate M2	455
Union North	Rate 01	410
Union North	Rate 10	90
Total		8,155
Contract Market	Rate Class	Repeat Customers
EGD	RATE 100	3
EGD	RATE 110	73
EGD	RATE 115	11
EGD	RATE 135	8
EGD	RATE 145	2
EGD	RATE 170	5
Union North	Rate 20	20
Union North	Rate 100	11
Union South	Rate M4	120
Union South	Rate M5	26
Union South	Rate M7	26
Union South	Rate T1	23
Union South	Rate T2	17
Total		345

NOTES:

- Table 2 includes a customer count which is not the same as the unit or participant count. In some cases multiple units can be installed for a single customer (e.g. prescriptive programs). In other cases, programs did not report on participant numbers but are included here to be responsive (e.g. EGD Low Income TAPS).
- Rate class for this analysis was determined based on the customers current rate class in order to answer b) iii and b) iv and not their rate class at the time. The EGD rate zone home labeling program delivered in 2015 was also excluded.

- v. EGI does not forecast program participants by rate class.

- c) Enbridge Gas does not target by rate class. Enbridge Gas's offerings are designed to cover a specific sector (e.g., residential, commercial, industrial) or market segment (e.g., low income, foodservice), and individual programs employ methods to target non-participants for uptake. A summary of initiatives to increase participation through to 2020 and 2021 is provided in the response at Exhibit I.OSEA.6.

Enbridge Gas Inc.
Total DSM Costs - 2015-2019

		2015				2016				2017 (1)				2018 (1)				2019 (2)			
General Service	Rate Class	Total DSM Costs				Total DSM Costs				Total DSM Costs				Total DSM Costs				Total DSM Costs			
		DSM Costs	LRAM	DSMIDA		DSM Costs	LRAM	DSMIDA		DSM Costs	LRAM	DSMIDA		DSM Costs	LRAM	DSMIDA		DSM Costs	LRAM	DSMIDA	
		A	B	C	D = A+B+C	A	B	C	D = A+B+C	A	B	C	D = A+B+C	A	B	C	D = A+B+C	A	B	C	D = A+B+C
EGD	Rate 1	\$ 20,954,097	N/A	\$ 5,901,877	\$ 26,855,974	\$ 38,039,480	N/A	\$ 4,351,434	\$ 42,390,914	\$ 43,125,238	N/A	\$ 1,453,433	\$ 44,578,671	\$ 47,205,761	N/A	\$ 2,842,053	\$ 50,047,814	\$ 38,629,963	N/A	N/A	\$ 38,629,963
EGD	Rate 6	\$ 12,207,912	N/A	\$ 3,438,449	\$ 15,646,361	\$ 15,255,925	N/A	\$ 1,745,165	\$ 17,001,090	\$ 17,036,079	N/A	\$ 574,160	\$ 17,610,239	\$ 16,615,780	N/A	\$ 1,000,364	\$ 17,616,144	\$ 20,658,237	N/A	N/A	\$ 20,658,237
Union South	M1	\$ 13,186,370	N/A	\$ 3,565,990	\$ 16,752,360	\$ 22,574,194	N/A	\$ 2,020,574	\$ 24,594,768	\$ 34,094,527	N/A	\$ 3,109,031	\$ 37,203,558	\$ 38,116,865	N/A	\$ 3,831,473	\$ 41,948,338	\$ 27,163,647	N/A	N/A	\$ 27,163,647
Union South	M2	\$ 3,728,023	N/A	\$ 1,230,083	\$ 4,958,106	\$ 6,140,753	N/A	\$ 706,006	\$ 6,846,759	\$ 7,393,524	N/A	\$ 772,700	\$ 8,166,224	\$ 7,129,898	N/A	\$ 721,482	\$ 7,851,380	\$ 10,601,605	N/A	N/A	\$ 10,601,605
Union North	R01	\$ 2,779,747	N/A	\$ 775,326	\$ 3,555,073	\$ 4,352,659	N/A	\$ 336,435	\$ 4,689,094	\$ 5,777,036	N/A	\$ 432,147	\$ 6,209,183	\$ 6,855,310	N/A	\$ 548,003	\$ 7,403,314	\$ 6,344,581	N/A	N/A	\$ 6,344,581
Union North	R10	\$ 773,824	N/A	\$ 179,065	\$ 952,890	\$ 1,297,489	N/A	\$ 96,305	\$ 1,393,794	\$ 1,979,183	N/A	\$ 164,337	\$ 2,143,521	\$ 1,685,783	N/A	\$ 143,696	\$ 1,829,479	\$ 3,001,617	N/A	N/A	\$ 3,001,617
Total		\$ 53,629,973	\$ -	\$ 15,090,790	\$ 68,720,763	\$ 87,660,500	\$ -	\$ 9,255,919	\$ 96,916,419	\$ 109,405,587	\$ -	\$ 6,505,809	\$ 115,911,396	\$ 117,609,398	\$ -	\$ 9,087,071	\$ 126,696,469	\$ 106,399,649	\$ -	\$ -	\$ 106,399,649

		2015				2016				2017 (1)				2018 (1)				2019 (2)			
Contract Market	Rate Class	Total DSM Costs				Total DSM Costs				Total DSM Costs				Total DSM Costs				Total DSM Costs			
		DSM Costs	LRAM	DSMIDA		DSM Costs	LRAM	DSMIDA		DSM Costs	LRAM	DSMIDA		DSM Costs	LRAM	DSMIDA		DSM Costs	LRAM	DSMIDA	
		A	B	C	D = A+B+C	A	B	C	D = A+B+C	A	B	C	D = A+B+C	A	B	C	D = A+B+C	A	B	C	D = A+B+C
EGD	Rate 9	\$ 1,435	\$ -	\$ 404	\$ 1,839	\$ 1,822	\$ -	\$ 208	\$ 2,030	\$ 2,230	\$ -	\$ 75	\$ 2,306	\$ 2,776	\$ -	\$ 167	\$ 2,943	\$ 2,878	N/A	N/A	\$ 2,878
EGD	Rate 100	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	N/A	N/A	\$ -
EGD	Rate 110	\$ 1,497,220	\$ 18,536	\$ 421,703	\$ 1,937,459	\$ 1,113,881	\$ 9,230	\$ 127,420	\$ 1,250,531	\$ 1,423,092	\$ 2,985	\$ 47,962	\$ 1,474,038	\$ 863,910	\$ 2,073	\$ 52,012	\$ 917,995	\$ 1,717,402	N/A	N/A	\$ 1,717,402
EGD	Rate 115	\$ 519,150	\$ 6,246	\$ 146,222	\$ 671,618	\$ 476,401	\$ 1,196	\$ 54,497	\$ 532,093	\$ 573,093	\$ -	\$ 19,315	\$ 592,408	\$ 258,002	\$ -	\$ 15,533	\$ 273,535	\$ 1,292,940	N/A	N/A	\$ 1,292,940
EGD	Rate 125	\$ 53,811	\$ -	\$ 15,156	\$ 68,967	\$ 68,317	\$ -	\$ 7,815	\$ 76,131	\$ 83,643	\$ -	\$ 2,819	\$ 86,462	\$ 104,091	\$ -	\$ 6,267	\$ 110,358	\$ 107,934	N/A	N/A	\$ 107,934
EGD	Rate 135	\$ 45,741	\$ 329	\$ 12,883	\$ 58,953	\$ 76,514	\$ 298	\$ 8,753	\$ 85,564	\$ 370,026	\$ 4,776	\$ 12,471	\$ 387,274	\$ 381,017	\$ 2,902	\$ 22,939	\$ 406,859	\$ 250,196	N/A	N/A	\$ 250,196
EGD	Rate 145	\$ 146,935	\$ 2,167	\$ 41,385	\$ 190,487	\$ 75,515	\$ 325	\$ 8,638	\$ 84,478	\$ 87,567	\$ 14	\$ 2,951	\$ 90,532	\$ 514,299	\$ 5,678	\$ 30,964	\$ 550,941	\$ 1,565,792	N/A	N/A	\$ 1,565,792
EGD	Rate 170	\$ 331,431	\$ 939	\$ 93,350	\$ 425,719	\$ 512,194	\$ 3,607	\$ 58,591	\$ 574,392	\$ 171,449	\$ 223	\$ 5,778	\$ 177,450	\$ 165,805	\$ 173	\$ 9,982	\$ 175,961	\$ 2,151,818	N/A	N/A	\$ 2,151,818
EGD	Rate 200	\$ 18,655	\$ -	\$ 5,254	\$ 23,909	\$ 23,683	\$ -	\$ 2,709	\$ 26,392	\$ 28,996	\$ -	\$ 977	\$ 29,973	\$ 36,085	\$ -	\$ 2,173	\$ 38,257	\$ 37,417	N/A	N/A	\$ 37,417
EGD	Rate 300	\$ 3,587	\$ -	\$ 1,010	\$ 4,598	\$ 4,554	\$ -	\$ 521	\$ 5,075	\$ 5,576	\$ -	\$ 188	\$ 5,764	\$ 6,939	\$ -	\$ 418	\$ 7,357	\$ 7,196	N/A	N/A	\$ 7,196
Union North	R20	\$ 838,501	\$ 44,900	\$ 159,824	\$ 1,043,226	\$ 798,316	\$ 19,180	\$ 48,887	\$ 866,382	\$ 1,430,636	\$ 6,769	\$ 120,772	\$ 1,558,177	\$ 293,574	\$ 9,190	\$ 8,489	\$ 311,252	\$ 1,671,732	N/A	N/A	\$ 1,671,732
Union North	R100	\$ 796,631	\$ 59,082	\$ -	\$ 855,713	\$ 572,450	\$ 4,093	\$ -	\$ 576,543	\$ 807,133	\$ (5,032)	\$ -	\$ 802,100	\$ 819,365	\$ (5,012)	\$ -	\$ 814,353	\$ 1,111,159	N/A	N/A	\$ 1,111,159
Union South	M4	\$ 2,876,612	\$ 178,227	\$ 694,078	\$ 3,748,917	\$ 3,660,302	\$ 179,499	\$ 306,562	\$ 4,146,364	\$ 5,278,690	\$ 208,838	\$ 497,709	\$ 5,985,237	\$ 5,991,549	\$ 381,014	\$ 656,186	\$ 7,028,749	\$ 3,150,206	N/A	N/A	\$ 3,150,206
Union South	M5	\$ 1,147,287	\$ 252,096	\$ 236,532	\$ 1,635,915	\$ 2,274,358	\$ 214,241	\$ 187,060	\$ 2,675,659	\$ 1,317,497	\$ 208,373	\$ 97,464	\$ 1,623,335	\$ 621,172	\$ 2,010	\$ 27,578	\$ 650,760	\$ 1,977,091	N/A	N/A	\$ 1,977,091
Union South	M7	\$ 2,706,203	\$ 59,503	\$ 631,583	\$ 3,397,289	\$ 3,635,740	\$ 66,240	\$ 313,361	\$ 4,015,341	\$ 1,143,215	\$ 50,079	\$ 106,852	\$ 1,300,147	\$ 2,446,479	\$ 19,524	\$ 258,078	\$ 2,724,080	\$ 2,129,549	N/A	N/A	\$ 2,129,549
Union South	T1	\$ 887,143	\$ 4,562	\$ -	\$ 891,705	\$ 1,379,641	\$ 3,011	\$ 105,541	\$ 1,488,193	\$ 2,356,129	\$ 4,626	\$ 218,127	\$ 2,578,882	\$ 1,789,310	\$ 4,687	\$ 171,241	\$ 1,965,239	\$ 1,505,371	N/A	N/A	\$ 1,505,371
Union South	T2	\$ 2,672,302	\$ 3,598	\$ -	\$ 2,675,900	\$ 3,979,749	\$ 1,295	\$ -	\$ 3,981,044	\$ 3,003,539	\$ (5,301)	\$ -	\$ 2,998,238	\$ 3,373,617	\$ (9,316)	\$ -	\$ 3,364,301	\$ 4,612,216	N/A	N/A	\$ 4,612,216
Total		\$ 14,542,644	\$ 630,184	\$ 2,459,386	\$ 17,632,214	\$ 18,653,436	\$ 502,215	\$ 1,230,563	\$ 20,386,214	\$ 18,082,512	\$ 476,349	\$ 1,133,461	\$ 19,692,322	\$ 17,667,990	\$ 412,925	\$ 1,262,027	\$ 19,342,942	\$ 23,290,896	\$ -	\$ -	\$ 23,290,896

Grand Total		\$ 68,172,617	\$ 630,184	\$ 17,550,176	\$ 86,352,977	\$ 106,313,936	\$ 502,215	\$ 10,486,482	\$ 117,302,632	\$ 127,488,099	\$ 476,349	\$ 7,639,270	\$ 135,603,718	\$ 135,277,388	\$ 412,925	\$ 10,349,098	\$ 146,039,411	\$ 129,690,546	\$ -	\$ -	\$ 129,690,546
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Note: Total DSM costs includes amounts embedded in base rates, and amounts recovered through deferral

(1) Amounts subject to deferral clearance

(2) At the time of filing, 2019 actual DSM costs allocated by rate class is not available. 2019 OEB Approved

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Sustainable Energy Association (OSEA)

Interrogatory

Reference:

Application, page 1 of 5

Preamble:

Enbridge Gas Distribution Inc. and Union Gas Limited merged on January 1, 2019 to become Enbridge Gas Inc.

Question:

- a) Please provide a description of any changes to Enbridge and Union's DSM programs that occurred after the two companies amalgamated, such as changes to program rules, scorecards, targets and program incentives.
- b) Please file the most up to date organization charts that show how Enbridge Gas Inc. has restructured its DSM functions. Please provide a table showing FTE for both Enbridge and Union DSM functions for 2019 and the forecast FTE for 2020 and 2021. If the FTE numbers are lower in 2020 and 2021, please explain how Enbridge intends to deliver on the programs in order to achieve the targets set out.
- c) Please include details about the current relationship between DSM and other related functions in the merged utility including but not limited to Integrated Resources Planning, Carbon Reductions, Gas Supply Planning.
- d) What steps will Enbridge take in the 2021 DSM plan to link DSM programs with Enbridge's Asset Management and Integrated Resource Plans? In particular, what steps will Enbridge take to focus program spending on areas where building of pipes and pipe assets could be deferred in order to yield positive system benefits.

Response

- a) In its November 29, 2018 Mid-Term Report, the Board communicated that it "expects that as the merger between Enbridge Gas and Union Gas proceeds, the utilities will

strive for cohesion and begin planning for a combined DSM plan in the post-2020 term.”¹ The Board also observed:²

“The current suite of natural gas conservation programs approved as part of the OEB’s DSM Decision continue to be appropriate and effective. Verified program results from the 2015 and 2016 program years show strong performance and long-term natural gas reductions across the residential, commercial and industrial sectors. Therefore, the OEB concludes that material changes to the DSM Framework and DSM Plans are not warranted at this time.”

Following amalgamation in early 2019, Enbridge Gas focused efforts on assessing opportunities for DSM program alignment across two categories: (i) from a customer facing alignment point of view; and (ii) in program delivery and execution. Customer facing elements of an offering include incentive or rebate levels, measures incented, branding and marketing, eligibility criteria, supporting documentation collected and program rules. Enbridge Gas also considered opportunities to align execution elements of program delivery, including how DSM resources support and deliver the various offers, how channel partners/vendors and other third-party services are coordinated and how customer files are tracked and reviewed.

Enbridge Gas did not make and is not proposing any changes to OEB-approved scorecards or targets.

In the case of Resource Acquisition offers, Enbridge Gas has aligned customer facing elements of program offerings throughout the DSM portfolio with the exception of incentive levels in a few cases. Customer composition across the EGD and Union rate zones differs, such that it remains appropriate to maintain unique rebate approaches to properly address customer needs and optimize custom portfolio results for Custom Industrial, and Custom Commercial offerings. Given different approaches to program delivery, rebate criteria and marketing strategies and associated budget allocations, Enbridge Gas decided not to fully harmonize incentive structures between Low Income Multi-Residential offerings.

With the exception of Commercial Savings by Design, which was common to both the EGD and Union rate zones beginning in 2016, Market Transformation offers were designed at the beginning of the 2015-2020 multi-year DSM Plan period with specific and unique objectives and metrics in many cases. Many of these offers involve multi-year or evolving participation. As such, it is not reasonable nor

¹ EB-2017-0127 / EB-2017-0128, Report of the Ontario Energy Board Mid-Term Review of the Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020) (November 29, 2018), p. 32.

² Ibid., p. 5.

appropriate to attempt to align these offerings, doing so would result in confusion in the market and/or require Enbridge Gas to terminate obligations to participants already enrolled. Instead, Enbridge Gas will focus efforts on leveraging the learnings from these offerings to inform province-wide program design in the Post-2020 DSM Framework and post-2021 DSM multi-year Plans.

Some offerings approved by the Board for one rate zone but not proposed in the other do not have metrics defined in the scorecard to allow them to be introduced beginning in 2021. These include Furnace End-of-Life, Aboriginal and Large Volume in the Union rate zones, and Low Income New Construction and School Energy Challenge in the EGD rate zone.

As stated in the Board's Procedural Order No. 1:³

"... the OEB does not expect material changes to the programs and no increase to the overall DSM budget to take place during the transition period from the current OEB-approved DSM plans. ...

The OEB is mindful of the costs and resources required to thoroughly review, critique and make material changes to the currently approved DSM plans and agrees with Enbridge Gas that resources are best directed to the policy consultation."

Enbridge Gas believes that program offers have now been aligned to the most appropriate extent to best meet customer needs, manage market confusion and streamline program support and delivery. Full alignment of programming across the province will be best accomplished following consideration of the Post-2020 DSM Framework.

- b) The current organizational structure of the combined Energy Conservation and Marketing group at Enbridge Gas is provided in the response at Exhibit.I.STAFF.4.

Full Time Equivalent ("FTE") numbers for the EGD and Union rate zones are provided in the response at Exhibit I.STAFF.4 Attachment 1.

As summarized in the response at Exhibit I.STAFF.4, Enbridge Gas has integrated the DSM management structure across all rate zones. Integration and optimization efficiencies achieved should allow for Enbridge Gas to maximize results in 2021 and

³ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

the current 2015-2020 DSM Framework and OEB-approved DSM Plans 2020 scorecards adequately incent Enbridge Gas to do so.

c) d)

The issues of DSM integration with Integrated Resource Planning (“IRP”), Asset Management, Carbon Strategy and Gas Supply Planning exceed the scope of Enbridge Gas’s 2021 DSM Plans proceeding as defined within the OEB’s Procedural Order No.1.⁴ Please see the response at Exhibit I.BOMA.4, for discussion regarding the scope of this proceeding established by the OEB.

Enbridge Gas included an IRP Proposal with its 2021 Dawn Parkway Expansion Project application (EB-2019-0159). In its Procedural Order No. 1 in that proceeding, the OEB determined that the IRP Proposal, as it relates to future Enbridge Gas projects, will be reviewed separately at a later date to be determined by the OEB.⁵ No further direction regarding the OEB’s review of the IRP Proposal has been received at the time of this submission. Further, in its December 19, 2019 letter regarding the Post-2020 DSM Framework (EB-2019-0003) the Board acknowledged Enbridge Gas’s IRP Proposal and stated,⁶

“The OEB is initiating its review of the application. It is the OEB’s expectation that the DSM framework consultation will monitor the IRP framework proceeding.”

For these reasons, it is not reasonable or appropriate to consider these matters as part of the review of Enbridge Gas’s 2021 DSM Plans proceeding.

⁴ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

⁵ EB-2019-0159, OEB Procedural Order No. 1 (January 30, 2020), p. 2.

⁶ EB-2019-0003, OEB Letter (December 19, 2019), p. 2.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Sustainable Energy Association (OSEA)

Interrogatory

Reference:

Exhibit A, Page 4 of 6

Preamble:

Enbridge Gas requests that the Board approve the same DSM annual budgets for the 2021 DSM program year as those previously approved by the Board for 2020.

Question:

- a) What are the quantitative and qualitative impacts of maintaining the DSM budget at the same level as 2020, including the lost potential for savings that could have been achieved with an increased budget?
- b) What are the quantitative and qualitative impacts of continuing to operate Enbridge Gas's DSM programs if Enbridge Gas does not implement all of the changes requested in the Mid Term Review?

Response

- a) In its Decision on the utilities 2015-2020 DSM Plans, the Board approved budgets for the 2020 program year.¹ More recently, in its Mid-Term Review Report, the Board directed that "budget levels will largely remain unchanged from the DSM Decision ensuring bill impacts remain stable."² Accordingly, Enbridge Gas's 2021 DSM Plans application requested approval of the same OEB-approved DSM 2020 budgets for 2021.

As no incremental DSM budget is being sought by Enbridge Gas, the hypothetical request regarding budget increases posed by OSEA exceeds the scope of Enbridge

¹ EB-2015-0029 / EB-2015-0049, OEB Decision and Order (February 24, 2016), Schedule A.

² EB-2017-0127 / EB-2017-0128, Report of the Ontario Energy Board Mid-Term Review of the Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020) (November 29, 2018), p. 12.

Gas's 2021 DSM Plans proceeding as defined within the OEB's Procedural Order No. 1.³ Please see the response at Exhibit I.BOMA.4, for discussion regarding the scope of this proceeding established by the OEB.

- b) Enbridge Gas has already implemented or is in the process of implementing changes directed by the Board in its Mid-Term Review Report.

³ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Sustainable Energy Association (OSEA)

Interrogatory

Reference:

Exhibit A, Attachment 1, Page 2 of 3; Exhibit A, Attachment 2, Page 2 of 4

Question:

- a) Please provide a year by year (2015-2020) analysis of the Low Income Programs for both Union and Enbridge before the merger.
- b) Please indicate if any changes were made during the merger to better harmonize the Low Income Programs, incentives and program rules.

Response

- a) Please see the response at Exhibit I.SEC.12, for annual Low Income program details.
- b) Please see the responses at Exhibit I.OSEA.1 a), at Exhibit I.FRPO.1, at Exhibit I.PP.5, and at Exhibit I.STAFF.4 for discussions of Low Income program details, and program alignment and efficiencies.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Sustainable Energy Association (OSEA)

Interrogatory

Reference:

Exhibit A, Attachment 1; Exhibit A, Attachment 2

Question:

- a) Please provide a year by year (2015-2020) analysis of the Industrial programs for both Union and Enbridge before the merger.
- b) Please indicate if any changes were made upon the merger to better harmonize the Industrial programs, incentives and program rules.

Response

- a) Table 1 summarizes program offerings available to Enbridge Gas industrial customers:

Table 1
Industrial Program Offerings

Union Rate Zones	EGD Rate Zone
• Custom • Commercial and Industrial Prescriptive • Commercial and Industrial Direct Install • Strategic Energy Management	• Custom • Commercial and Industrial Prescriptive • Commercial and Industrial Direct Install • Comprehensive Energy Management

NOTE: T2/Rate 100 Union Gas rate zone customers participate in a separate self- direct offer

The Custom offering drives the largest proportion of industrial results across both rate zones year over year. Table 2 provides Industrial custom results details from

2015 to 2018, the years before the amalgamation of Enbridge Gas Distribution Inc. (“EGD”) and Union Gas Limited (“Union”).

Table 2
Historical Industrial Custom Offering Results

Union Rate Zones				
	2015	2016	2017	2018
Units	390	339	487	295
Gross Annual Natural Gas Savings (m ³)	77,863,729	88,092,956	90,706,260	75,753,924
Net Annual Natural Gas Savings (m ³)	35,817,315	31,312,670	36,065,025	31,686,095
Gross Cumulative Natural Gas Savings (m ³)	1,204,712,637	1,381,930,128	1,444,919,723	1,209,910,900
Net Cumulative Natural Gas Savings (m ³)	554,167,813	491,817,623	547,176,694	484,707,642

EGD Rate Zone				
	2015	2016	2017	2018
Units	115	181	177	114
Gross Annual Natural Gas Savings (m ³)	23,658,347	31,026,926	28,660,298	19,779,072
Net Annual Natural Gas Savings (m ³)	11,890,642	10,409,534	14,923,417	10,298,963
Gross Cumulative Natural Gas Savings (m ³)	345,232,715	489,779,784	430,867,267	313,313,279
Net Cumulative Natural Gas Savings (m ³)	173,397,871	164,321,118	224,352,589	163,142,223

Please see the response at Exhibit I.SEC.12 for a detailed summary of results.

- b) Please see the response at Exhibit I.OSEA.1 a), for discussion of program alignment following amalgamation.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Sustainable Energy Association (OSEA)

Interrogatory

Reference:

Exhibit A

Question:

- a) How did Enbridge and Union previously make use of Ontario's public sector energy and water database in DSM planning and program implementation, and what plans are being considered for doing so in 2020 and 2021?
- b) What efforts are being made to work collaboratively with Ontario's municipalities and regions to deliver on their energy management plans and develop joint programs to reduce energy and GHG emissions?

Response

- a) Enbridge Gas has been actively exploring, through its participation in pilot programs, the use of benchmarking (which includes using the public energy database) within specific segments to support customers in reducing their energy usage. Enbridge Gas is currently investigating ways to utilize the learnings from these pilots and incorporate natural gas consumption benchmarking into energy conservation efforts in 2020.
- b) Many municipalities have worked with consultants to draft their energy management plans. These plans outline the associated goals each municipality, or in some cases regional municipality, would like to achieve over the planning cycle. The challenge facing most of these committees or councils, is that they now need technical assistance, planning assistance and implementation assistance to determine how these initial plans can be actionable.

Following Enbridge Gas's engagement and assistance with many of these planning efforts in recent years, Enbridge Gas established a dedicated team to work with regional municipalities and to support smaller communities through more dedicated and targeted efforts beginning in 2020. The goal of this team is to identify where

Enbridge Gas can partner with these groups to support the achievement of common objectives (e.g., driving natural gas savings by leveraging DSM energy efficiency programming).

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Sustainable Energy Association (OSEA)

Interrogatory

Preamble:

Guiding Principle 5 from the 2015-2020 DSM Framework states that programs should be designed “so that they achieve high customer participation levels”.

Question:

- a) Please provide details on how Enbridge has designed its DSM programs so that they achieve high customer participation levels, with examples of results and participation numbers achieved over the 2015-2020 period.

Response

The Board approved the full portfolio of Enbridge Gas program offerings across both rate zones in its Decision and Order on the utilities 2015-2020 DSM Plans, acknowledging offerings were consistent with the guiding principles of the 2015-2020 DSM Framework.¹ More recently, in November 2018, in its Mid-Term Review Report, the Board concluded that the “current suite of natural gas conservation programs approved as part of the OEB’s DSM Decision continue to be appropriate and effective.”²

In order to achieve high levels of participation across its residential, low income, commercial and industrial sectors, Enbridge Gas continues to focus on identifying and addressing key barriers to participation.

In the residential sector, offerings are continuously evaluated to identify how they can be adapted to better overcome customer barriers. For example, Enbridge Gas leveraged building science consultants to work with builders as part of their Savings by Design/Optimum Home offers in an effort to effectively address a technical knowledge gap. This initiative encourages builders to design and build to higher efficiency standards.

¹ EB-2015-0029 / EB-2015-0049, OEB Decision and Order (February 24, 2016).

² EB-2017-0127 / EB-2017-0128, Report of the Ontario Energy Board Mid-Term Review of the Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020), p. 5.

Enbridge Gas's Adaptive Thermostat offer now provides a point of sale instant rebate to customers, encouraging participation and removing the inconvenience of having to mail in invoices to qualify for a rebate. Please see the response at Exhibit I.SEC.12, for details of annual participation and natural gas savings results associated with Residential offers.

Customers within the Low-Income sector face particularly significant resource barriers. To extend the reach of its Low-Income program and to encourage increased participation, Enbridge Gas introduced a direct install smart thermostat offering that is available to income eligible customers. This effort extends DSM participation to customers in this sector who may not have qualified for the Home Winterproofing offering due to dwelling eligibility criteria.

In the Commercial and Industrial sectors, Enbridge Gas has traditionally had lower participation levels within its small volume customers due to the additional knowledge, technical and resource barriers they face. Enbridge Gas has made efforts to address these barriers through approaches such as Direct Install and Mid-stream support for prescriptive measures. Direct Install provides customers with a turnkey solution for the purchase and installation of selected energy efficient measures. The Mid-stream offer provides incentives to distributors for stocking and selling a higher percentage of energy efficient products and provides these products at a discount to customers, making these technologies more accessible and affordable. Enbridge Gas expects to continue to grow its Direct Install and Mid-stream offerings in 2020 and 2021 through the addition of new measures and expansion of Direct Install delivery agents and Mid-stream distributors. While the Mid-stream offer is new to market you can find details of the annual results of the Direct Install offer in the response at Exhibit I.SEC.12.

Collaborative offers present another opportunity for increasing the reach of programs. In the past, collaboration between Enbridge Gas's Home Energy Conservation/Home Reno Rebate offer, IESO and GIF, provided customers with a streamlined approach to identifying and implementing both natural gas and electric savings measures. More recently, this February, Enbridge Gas and IESO launched a jointly delivered Direct Install offer for Demand Control Kitchen Ventilation that will provide business customers with access to natural gas and electric incentives through a single point of contact.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Sustainable Energy Association (OSEA)

Interrogatory

Reference:

Exhibit A

Question:

- a) Does Enbridge Gas have any plans to include sustainable technologies (for example, geothermal, combined heat and power, ground source heat pumps, or AMI technologies) as part of its 2021 DSM plan?
- b) If so, please include details on how these sustainable technologies will be incorporated into the 2021 DSM programs.
- c) If not:
 - i. Were sustainable technologies considered when formulating the 2021 DSM plan?
 - ii. What assessment was done to determine whether or not to include sustainable technologies?

Response

- a) - c)
- Enbridge Gas remains active and committed to the research and development of emerging energy conservation technologies and is currently engaging various external partners including manufacturers, building scientists, contractors, builders and engineers in studying a number of technologies that may have the potential to be incorporated into the DSM portfolio in the future.

In certain cases where technologies are being assessed as potential new measures in a Resource Acquisition program, Enbridge Gas is focusing research on examining their respective natural gas savings potential and determining the most appropriate way of measuring any such savings.

Additionally, Enbridge Gas is investigating the appropriateness of supporting emerging technology adoption that, due to the nature of the unique challenges and barriers currently faced, may be better suited as part of a wide-ranging market transformation approach requiring broader industry and supply chain support coupled with market education and awareness. In particular, Enbridge Gas continues to research heat pumps and examine how to drive market adoption. We are working with a number of industry partners and evaluating the challenges and barriers that currently exist in these markets with a view to creating a potential future market transformation offering.

As clearly communicated by the Board in Procedural Order No. 1, “the OEB does not expect material changes to the programs and no increase to the overall DSM budget to take place during the transition period from the current OEB-approved DSM plans.”¹ Therefore, Enbridge Gas does not have any plans to include such technologies as part of its 2021 DSM Plans. Until such time that Enbridge Gas seeks to incorporate these technologies into a future DSM Plan, following the comprehensive review and development of the Post-2020 DSM Framework, it sees great benefit in continuing its current research to appropriately assess the opportunities to support some of these emerging technologies.

¹ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Sustainable Energy Association (OSEA)

Interrogatory

Reference:

Exhibit A

Preamble:

The Ontario Environment Plan states that the Ontario government will require natural gas utilities to implement a voluntary renewable natural gas option for customers.¹

Question:

- a) What steps has Enbridge Gas taken to implement a voluntary renewable natural gas option for customers?
- b) When does Enbridge Gas expect to launch the voluntary renewable natural gas program? Please describe details of the plan.

Response

- a) b)
Activities related to Enbridge Gas's progress on implementation of a voluntary renewable natural gas option for customers exceed the scope of Enbridge Gas's 2021 DSM Plans proceeding as defined within the OEB's Procedural Order No. 1.² Please see the response at Exhibit I.BOMA.4, for discussion regarding the scope of this proceeding established by the OEB. Accordingly, Enbridge Gas has provided a limited response to this interrogatory in an effort to be as responsive as reasonably possible.

Over the past eighteen months, Enbridge Gas has been working on the development of a voluntary renewable natural gas ("RNG") program that it intends to

¹ Preserving and Protecting our Environment for Future Generations, November 29, 2018, page 33
<<https://prod-environmental-registry.s3.amazonaws.com/2018-11/EnvironmentPlan.pdf>>

² EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

make available to its customers in 2021. Enbridge Gas submitted an application to the OEB in early March 2020 and expects that the OEB is reviewing the application at this time. Enbridge Gas anticipates that, subject to OEB approval, it will be in a position to launch this program in the first half of 2021.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Sustainable Energy Association (OSEA)

Interrogatory

Reference:

Exhibit A

Preamble:

The Ontario Environment Plan states that Ontario will aim to reduce emissions to 143 megatonnes by 2030. This reduction includes: (i) incremental increases in natural gas savings and (ii) encouraging uptake of renewable natural gas, as two of the paths to meeting the 2030 target.

Question:

- a) How will Enbridge Gas increase uptake of renewable natural gas between 2021 and 2030 to achieve Enbridge Gas' share of the natural gas savings required by 2030?
- b) How will Enbridge Gas increase uptake of other DSM programs between 2021 and 2030 to achieve Enbridge Gas' share of the natural gas savings required by 2030?

Response

- a) b)
Enbridge Gas's forecast activities with respect to renewable natural gas and DSM programs between 2021 and 2023 exceed the scope of Enbridge Gas's 2021 DSM Plans proceeding as defined within the OEB's Procedural Order No. 1.¹ Please see the response at Exhibit I.BOMA.4, for discussion regarding the scope of this proceeding established by the OEB.

For details regarding the status of Enbridge Gas's Application for a Renewable Natural Gas Enabling Program please see the Board's October 2018 Decision and Order.²

¹ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

² EB-2017-0319, OEB Decision and Order (October 18, 2018).

For discussion regarding Enbridge Gas's application to the OEB for a voluntary renewable natural gas program please see the response at Exhibit I.OSEA.8.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

Interrogatory

Question:

Please provide a table showing data related to each year of the proposed 6 year plan (5 Year Framework + proposed 1 year extension) including:

- DSM Budget available
- Amount Spent (forecast or actuals if available)
- DSMVA available
- DSMVA used
- Savings in m3
- % of target achieved (actual or forecasted)
- Shareholder Incentive (expected or paid)

Response

DSM budget available, as detailed in Tables 1 and 2 below, reflect OEB-approved budgets per the Board's Decision and Order on the utilities' 2015-2020 multi-year DSM Plans and subsequent updates to budget guidance set out by the Board in its Mid-Term Review Report.¹

¹ EB-2017-0127 / EB-2017-0128, Report of the Ontario Energy Board Mid-Term Review of the Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020) (November 29, 2018), p. 12, footnote 3.

Table 1
Annual DSM Budget – Union Rate Zones

Year	Budget
2016 (OEB-approved)	\$56,821,373
2017 (OEB-approved)	\$58,570,073
2018 (OEB-approved)	\$63,272,305
2019 (OEB-approved)	\$63,268,773
2020 (OEB-approved)	\$64,349,541
2021 (Proposed)	\$64,349,541

Table 2
Annual DSM Budget – EGD Rate Zone

Year	Budget
2016 (OEB-approved)	\$56,361,117
2017 (OEB-approved)	\$62,933,844
2018 (OEB-approved)	\$67,554,087
2019 (OEB-approved)	\$66,421,773
2020 (OEB-approved)	\$67,757,376
2021 (Proposed)	\$67,757,376

Annual amounts spent (forecast or actuals if available) are set out in Tables 3 and 4.

Table 3
Annual Spend (Actual/Forecast) - Union Rate Zones

Year	Spend/Forecast
2016	\$50,665,650
2017 (Draft)	\$64,581,110
2018 (Draft)	\$69,122,921
2019 (Pre-audit)	\$65,604,306
2020 (Forecast)	\$64,349,541
2021 (Forecast)	\$64,349,541

Table 4
Annual Spend (Actual/Forecast) - EGD Rate Zone

Year	Spend/Forecast
2016	\$55,648,285
2017 (Draft)	\$62,906,989
2018 (Draft)	\$66,154,466
2019 (Pre-audit)	\$72,843,440
2020 (Forecast)	\$67,757,376
2021 (Forecast)	\$67,757,376

Annual DSMVA available is set out in Tables 5 and 6. Please see the response at Exhibit I.ED.13 b), for discussion of the criteria to spend 15% above the OEB-approved budget in a given year as outlined in the 2015-2020 DSM Framework and Filing Guidelines.

Table 5
Annual DSMVA Available – Union Rate Zones

Year	15% DSMVA
2016 (OEB-approved)	\$8,523,206
2017 (OEB-approved)	\$8,785,511
2018 (OEB-approved)	\$9,490,846
2019 (OEB-approved)	\$9,490,316
2020 (OEB-approved)	\$9,652,431
2021 (Proposed)	\$9,652,431

Table 6
Annual DSMVA Available - EGD Rate Zone

Year	15% DSMVA
2016 (OEB-approved)	\$8,454,168
2017 (OEB-approved)	\$9,440,077
2018 (OEB-approved)	\$10,133,113
2019 (OEB-approved)	\$9,963,266
2020 (OEB-approved)	\$10,163,606
2021 (Proposed)	\$10,163,606

Annual DSMVA used is set out in Tables 7 and 8. Access to the additional 15% budget is only available once the OEB's criteria is met as per the 2015-2020 DSM Framework and Filing Guidelines. In some cases, the 15% additional budget was accessed for scorecards where the OEB's criteria was met, however, if the total spend was less than the OEB approved budget, the overspend is not reflected in Tables 7 and 8.

Table 7
Union Rate Zones

Year	Utilization of DSMVA Overspend
2016	\$0
2017 (Draft)	\$6,011,037
2018 (Draft)	\$5,850,616
2019 (Pre-audit)	\$2,335,533

Table 8
EGD Rate Zones

Year	Utilization of DSMVA Overspend
2016	\$0
2017 (Draft)	\$0
2018 (Draft)	\$0
2019 (Pre-audit)	\$6,421,667

For 2015 DSM program year savings in m³, % of target achieved (actual or forecasted) and Shareholder Incentive (expected or paid) details, please see the response at Exhibit I.SEC.12 Attachment 1.

For 2016 DSM program year savings in m³, % of target achieved (actual or forecasted) and Shareholder Incentive (expected or paid) details, please see the response at Exhibit I.SEC.12 Attachment 2.

For Draft 2017 DSM program year savings in m³, % of target achieved (actual or forecasted) and Shareholder Incentive (expected or paid) details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For 2018 DSM program year savings in m³, % of target achieved (actual or forecasted) and Shareholder Incentive (expected or paid) details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

As 2019 DSM program year savings in m³, % of target achieved (actual or forecasted) and Shareholder Incentive (expected or paid) details are still being compiled at the time of this submission, they are not currently available.

As the 2020 DSM program year is in progress savings are currently not available. For 2020 forecast targets please see the response at Exhibit I.PP.7 Attachment 1. The 2020 shareholder achievement is forecast at 100% target achievement, \$4.2M for each of the Union and EGD rate zones.

As the 2021 DSM program year has not yet commenced savings are currently not available. For 2021 forecast targets please see the response at Exhibit I.PP.7 Attachment 1. The 2021 shareholder achievement is forecast at 100% target achievement, \$4.2M for each of the Union and EGD rate zones.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

Interrogatory

Question:

- a) If Enbridge's request for its 2021 DSM Plan is approved as filed and targets are met at the 100% level (for 2020 and 2021), please identify what quantity of the potential identified in the Achievable Potential Study¹ will be realized due to the 2021 DSM Plan.
- b) What is the maximum allowable spending under the current DSM Framework (i.e. \$2 per month per customer)?
- c) Using the maximum allowable spending under the current DSM Framework (i.e. \$2 per month) and assuming a linear increase in results per incremental dollar budget, please indicate what quantity of the potential identified in the 2019 Achievable Potential Study will be realized in 2021.
- d) Please indicate if Enbridge would be willing to receive additional DSM funding (within the current Framework limit) for 2021. If not, please explain why.

Response

Regarding questions that involve interpreting the 2019 Integrated Ontario Electricity and Natural Gas Achievable Potential Study ("2019 APS"), Enbridge Gas would like to ensure that the appropriate contextual lens is applied when considering its responses.

Enbridge Gas stresses that any responses derived from analyzing the 2019 APS must be considered in conjunction with the underlying assumptions used in the study and the corresponding uncertainty associated with those assumptions.

Regarding uncertainty, Navigant, the author of the 2019 APS states, "The analysis and outputs of this study depend on a large number of inputs, all of which are estimates of one form or another: estimates of measure savings, forecasts of future consumption, assumptions regarding future inflation rates, etc... However, all estimates are, by

¹ <http://www.ieso.ca/2019-conservation-achievable-potential-study>

definition, uncertain, which necessarily means that estimated outputs must also be uncertain.”²

While the 2019 APS represents the most recent study of its kind for Ontario, due to the uncertainty associated with the assumptions and estimates used and the resulting uncertainty of the possible outcomes, Enbridge Gas believes the 2019 APS is only one of many inputs that could be used to inform the stated 2019 APS objectives which include: (i) the development of future conservation policy and/or frameworks; and (ii) program design, implementation and evaluations.

While Enbridge Gas will endeavor to be responsive where possible in the answers it provides, these answers should be considered as accurate as the underlying assumptions and estimates upon which the 2019 APS potential is based.

A few key items to note when considering the constraints in trying to compare 2019 APS forecasts and budgets with those generated by Enbridge Gas:

- The 2019 APS is a self-identified net study, and as such did contemplate free-ridership when developing its forecasted potential.

The 2019 APS, Section 7.2.4.2 Net Savings Study states:³

“...most programs will have at least some free riders, the program administrator incurs additional incentive and administrative costs to deliver to these customers without achieving any additional energy efficiency potential beyond what would happen naturally...”

The 2019 APS further clarifies:

“Program design, delivery, and assessment of free ridership are beyond the scope of this potential study.”

As a result, the underlying net-to-gross assumption(s) that would need to be understood to make comparisons of gross (actual) budgets relative to the budgets shown in the 2019 APS are not specified.

- Another limiting factor to comparing the potential put forward by the 2019 APS study to Enbridge Gas’s forecasted targets for 2020 and 2021 is exclusion of an

² 2019 Integrated Ontario Electricity and Natural Gas Achievable Potential Study, pp. 2-3.

³ 2019 Integrated Ontario Electricity and Natural Gas Achievable Potential Study, Navigant Consulting Ltd., Updated December 10, 2019, p. 106

overhead budget that would invariably be needed to support the achievement of the potential being put forward by the 2019 APS.

- Finally, Enbridge Gas targets have been traditionally set as Lifetime m³ or CCM targets, the 2019 APS deal with annual m³ forecasted potential. In order to align any comparative analysis an assumed measure life would need to have been stipulated.

The above items represent some of the concerns Enbridge Gas has with making comparisons or drawing conclusions for future potential based solely on the 2019 APS.

a) - c)

The DSM Framework outlines the following:⁴

“Based on a \$2.00/month cost impact to a typical residential customer and considering the general historic program mix and the relative size of each utility, the Board has estimated total annual DSM amounts of \$85M for Enbridge and \$70M for Union (these amounts are inclusive of the maximum annual shareholder incentive¹⁶).

¹⁶ This is made up of **maximum annual budgets of \$74.5M for EGD and \$59.5M for Union** with maximum annual incentives equal to \$10.45M for EGD and Union.”

In the Board’s Decision and Order on the 2015-2020 Multi Year DSM Plans, the Board approved defined budgets for each year. Please see 2020 budgets at Exhibit A, p. 5. The 2021 budgets proposed are the same as the 2020 Board approved budgets for each rate zone. The total 2021 budget across all rates zones is \$132,106,917.⁵ Therefore, the budget approved by the Board in 2020 is the maximum allowable spending under the current DSM Framework.

With that understanding, Enbridge’s response to questions a) and c) are the same since its forecasted 2021 budget and its understanding of what could be constituted the maximum allowable spending are the same budget.

⁴ EB-2014-0134, Report of the Board, DSM Framework for Natural Gas Distributors (2015-2020), December 22, 2014, p. 17 (**emphasis added**).

⁵ Enbridge Gas identified an administrative error in the aggregate budget amount originally provided in evidence at Exhibit A, p. 5. \$132,106,917 is the corrected sum of the proposed \$64,349,541 2021 budget for the Union rate zones and \$67,757,376 2021 budget for the EGD rate zone.

To be responsive, Enbridge Gas is providing the following information to allow others to draw their own conclusions, understanding the limitations inherent to the 2019 APS, as discussed above.

The 2019 APS suggests that ~113.3 million annual m³ can be achieved based on a budget of ~80 million which was not fully costed in the 2019 APS.⁶

As outlined in the response at Exhibit I.PP.7 Attachment 1, Enbridge Gas's 2021 forecast results based on achievement of 100% OEB-approved targets is approximately 1.94 billion lifetime m³ based on a total budget of ~\$132 million.

It should be apparent that these two data points cannot reasonably be compared without the application of assumptions. For example, the application of an assumed 15-year measure life to Enbridge Gas's lifetime savings target would amount to ~130 million annual m³ or ~115% of the potential in the 2019 APS.

- d) Consideration of incremental DSM budget exceeds the scope of Enbridge Gas's 2021 DSM Plans proceeding as defined within the OEB's Procedural Order No. 1.⁷ Please see the response at Exhibit I.BOMA.4, for discussion regarding the scope of this proceeding established by the OEB.

⁶ 2019 Integrated Ontario Electricity and Natural Gas Achievable Potential Study, p. 116

⁷ Procedural Order No. 1, p. 3.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

Interrogatory

Question:

Please provide a summary of all stakeholder consultation conducted in development of the proposed 2021 DSM Plan.

Response

The 2021 DSM Plans do not constitute a new portfolio proposal requiring extensive stakeholder consultation. They are an extension of previously approved 2020 DSM Plans. It is important to note that Enbridge Gas's request to the Board to extend the current 2015-2020 DSM framework and roll-forward the 2020 DSM Plans was not the utilities preferred course of action. Enbridge Gas herein provides a summary of events to provide context regarding the lead up to this application which seeks approval of a simple roll-forward of the OEB-approved 2020 DSM Plans to 2021.

As far back as May 18, 2018, in a letter to the Board as part of the DSM Mid-Term Review, Enbridge Gas Distribution Inc. ("EGD") highlighted the prudence of initiating a process to consider the next DSM framework. EGD reminded parties that "[t]he current DSM framework and DSM plans took about two years to develop and receive a Decision and Order from the Board, consuming considerable time and resources of the Utilities and Stakeholders."¹ EGD urged "that all parties would benefit from the commencement of the development of the next generation of a DSM Framework as soon as possible, preferably in 2018 and certainly no later than early 2019."²

One full year later, on May 21, 2019, the Board issued a letter initiating a consultation process to develop the next DSM framework for natural gas distributors.

In Enbridge Gas's written comments to the Board on the Post-2020 DSM Framework on June 27, 2019 Enbridge Gas put forth that the current (2015-2020) DSM Framework was satisfactory:³

¹ EB-2017-0127 / EB-2017-0128, Enbridge Gas Distribution Letter (May 18, 2018).

² Ibid., p. 3.

³ EB-2019-0003, Enbridge Gas Written Comments (June 27, 2019), p. 4.

“...Enbridge Gas maintains that the current 2015-2020 DSM Framework provides a solid platform on which to design and deliver a Post-2020 DSM Plan.”

In a letter to the Board on September 6, 2019, following no further direction from the Board regarding continuance of the Post-2020 DSM Framework consultation process, Enbridge Gas stressed the importance of avoiding interruption and maintaining continuity of DSM programming across Ontario. Enbridge Gas went on to conclude: ⁴

“...it is no longer reasonable to assume that a Post-2020 DSM Multi-Year Plan can be completed, reviewed and approved in time for the 2021 DSM program year. As a result, a 2021 Transition Plan is necessary to avoid interruption of DSM/conservation offerings and to bridge the gap between the current 2015-2020 DSM Plans and a future Post-2020 DSM Plan. Accordingly, Enbridge Gas advises that it has commenced work on a 2021 Transition Plan.”

Despite the OEB advising on September 16 that it expected to continue its policy consultation on a new DSM framework in the fall of 2019 and into 2020, ⁵ by November 27, 2019, no further correspondence or direction related to the Board's review or policy consultation had been issued. As a result, with little more than a year remaining before the DSM Framework and OEB-approved DSM Plans were to expire, considering the then present status of the Post-2020 DSM Framework, Enbridge Gas determined it was prudent to request: (i) that the OEB issue an extension of the current 2015-2020 DSM Framework for one year (effective January 1, 2021 to December 31, 2021); and (ii) OEB approval to roll-forward the 2020 DSM plans into 2021, in the interest of maintaining continuity of DSM/conservation offerings across Ontario. It should be noted that in the past (e.g. for the 2015 DSM program year) the Board asked the utilities to roll-over plans when framework consultation timelines presented challenges. In submissions in June 2019 on the Post 2020 DSM Framework, several stakeholders specifically suggested that the Board do so recognizing these timing constraints and recommending that a roll-over of the 2020 DSM Plans into 2021 was appropriate.⁶

⁴ EB-2019-0003, Enbridge Gas Letter to the Board (September 6, 2019).

⁵ EB-2019-0003, OEB Letter (September 16, 2019).

⁶ EB-2019-0003, Various Letters as listed: Federation of Rental-housing Providers of Ontario Submission (June 29, 2019), p. 2.; Industrial Gas Users Association Written Comments (June 27, 2019), p. 10; London Property Management Association Phase 1 Submission (June 27, 2019), p. 2; School Energy Coalition Submission (June 27, 2019), p. 7.

Table 1 below details intervenor participation in the Post 2020 DSM Framework consultation, this 2021 DSM Plans application and several other significant Enbridge Gas applications that were recently before the Board.

Table 1

Proceeding	Post 2020 DSM Framework (EB-2019-0003)	2021 DSM Plans Application (EB-2019-0271)	MAADs (Amalgamation of EGD and Union)	Rate Setting Mechanism (Amalgamation of EGD and Union)	2019 Rates
Total Intervenor	28	17	22	21	19
Intervenor with Cost Awards	18	17	12	12	13

As the Board has outlined in its Procedural Order No. 1, “the OEB does not expect material changes to the programs and no increase to the overall DSM budget to take place during the transition period from the current OEB-approved DSM plans.”⁷ The Board further directs:⁸

“Parties will continue to have the opportunity to provide input and feedback on any new policy objectives, program changes and all other facets of the new DSM framework as part of the ongoing consultation. The OEB is mindful of the costs and resources required to thoroughly review, critique and make material changes to the currently approved DSM plans and agrees with Enbridge Gas that resources are best directed to the policy consultation.”

Enbridge Gas agrees that stakeholder engagement is most appropriately focused on the Post-2020 DSM Framework consultation process and on the development of post-2021 DSM multi-year plans that are responsive to the Post-2020 DSM Framework. Enbridge Gas looks forward to working with all interested parties collaboratively in this regard.

⁷ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

⁸ Ibid.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

Interrogatory

Question:

Please provide a summary of all new partnerships and programs Enbridge intends to pursue for 2021, including IESO coordination, leveraging climate change program funding, etc.

Response

Enbridge Gas/IESO collaboration opportunities for 2021 are dependent upon the IESO's mandate with respect to maintaining a conservation framework beyond the interim framework that is currently in place until December 31, 2020.

Enbridge Gas continues to actively work with the IESO on identified opportunities for coordination and execution of program collaboration efforts. Most recently, Enbridge Gas and IESO partnered on a jointly delivered Direct Install program for Demand Control Kitchen Ventilation that will provide business customers with access to gas and electric incentives through a single point of contact.

In addition, Enbridge Gas is focused on determining how to most effectively increase support and collaboration with Municipalities and is taking action to support local and regional energy and conservation planning. With a focused Municipal DSM team now in place, Enbridge Gas's objective is to partner with municipalities to support the achievement of common objectives (e.g. driving natural gas savings by leveraging DSM energy efficiency programming). Please also see the response at Exhibit I.OSEA 5. Additionally, Enbridge Gas is investing resources in engaging with the Federation of Canadian Municipalities ("FCM"), a national advocacy group for municipalities and primary funding partner for the Federal government's municipal level climate initiatives. These efforts aim to align, coordinate and strengthen efforts in support of municipal energy and climate change plans in Enbridge Gas's service territories.

Importantly, Enbridge Gas expects to continue dialogues with Environment and Climate Change Canada ("ECCC") and Natural Resources Canada ("NRCan") to promote synergies and alignment in energy efficiency programming aimed at optimizing market and customer participation in incentive programs, as well as education and awareness initiatives, particularly in Ontario. Given the early stages of these discussions, it is not

possible at the time of this submission to forecast the associated potential benefits or resource requirements for 2021.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

Interrogatory

Question:

- a) Please provide a summary of all DSM program and overhead efficiencies (actual or forecasted) with Enbridge DSM portfolio since merging Union Gas into Enbridge that will provide benefits in 2021.
- b) Please provide a summary of the increased results expected (actual or forecasted) with the DSM portfolio since merging Union Gas into Enbridge that will result in 2021.
- c) Please provide a summary of all DSM programs that could be merged between the Enbridge and Union portfolios to enable a single program to customers. From the list, please indicate which programs Enbridge intends to merge in 2021. (Note: It is recognized that results will still need to be segmented to enable reporting separately in 2021).
- d) If Enbridge merges a Union/Enbridge program in 2021 to realize benefits, please indicate any approvals (or barriers) Enbridge believes need to be addressed prior to merging the program.

Response

- a) Please see the response at Exhibit I.STAFF.4 regarding overhead efficiencies. Please see the response at Exhibit I.OSEA.1 a), for a summary of DSM program alignment in the DSM portfolio since amalgamation.
- b) As explained in the response at Exhibit I.SEC.16, Enbridge Gas has made the forecast assumption of reaching the 100% OEB target for 2021 after adjusting for productivity factors through the target adjustment mechanism.
- c) Please see the response at Exhibit I.OSEA.1 a).

Following amalgamation, early in 2019, Enbridge Gas worked to merge all offerings where it was determined that doing so would provide material benefits for customers. In some cases, it wasn't optimal to merge certain offerings due to specific offering details, market composition, or scorecard metrics. At the current time, Enbridge Gas believes it has reasonably and appropriately aligned offerings where possible and does not foresee any significant remaining opportunities to further merge program offerings for the balance of the plan period.

The following offerings have been fully aligned from a customer facing perspective:

- Home Efficiency Rebate (formerly Home Energy Conservation/Home Reno Rebate);
- Residential Adaptive Thermostats;
- Commercial and Industrial Prescriptive;
- Commercial and Industrial Direct Install;
- Home Winterproofing/Home Weatherization; and
- Commercial Savings by Design/Commercial New Construction.

Most features of the following offerings have been harmonized from a customer facing perspective, except for some differences in incentive structures:

- Low Income Multi-Residential/Multi-family: Historically, EGD and Union had taken significantly different approaches to the breakdown of budgets (e.g., program delivery, incentives, marketing), and it was deemed sub-optimal to fully harmonize the incentive criteria for these offerings.
- Custom Commercial/ Custom Industrial: There are distinct incentive structures reflecting the customer mix in the respective rate zones, therefore the decision was made to maintain different approaches in some regards with respect to incentive criteria.

d) Please also see the response at Exhibit I.OSEA.1 a).

Enbridge Gas has already merged and aligned offerings in 2019 where opportunities to achieve benefits without significant changes to offerings, resource requirements, or customer impacts were identified.

Offerings cannot be harmonized where a similar offering does not exist in the other rate zone or where offerings have differing objectives/metrics. In most cases this also means scorecard metrics were not approved in the weighted scorecard of both rate zones. These include:

- Low Income New Construction and School Energy Competition: In each case, a similar offering does not exist, and no scorecard metric was approved by the Board in the Union rate zones.
- Low Income Furnace End-of-Life and Aboriginal offerings: In each case, a similar offering does not exist, and no scorecard metric was approved by the Board in the EGD rate zone.
- Large Volume: A similar offering does not exist, and no scorecard was approved by the Board in the EGD rate zone.
- Optimum Home/Residential Savings by Design: Each of these approved multi-year offerings were designed with different objectives and metrics and are therefore inappropriate to be harmonized.
- RunitRight/RunSmart: Each of these approved multi-year offerings have different objectives and metrics and are therefore inappropriate to be harmonized.
- Comprehensive Energy Management/Strategic Energy Management: Each of these approved multi-year offerings have different objectives and metrics and are therefore inappropriate to be harmonized.

As stated in the Board's Procedural Order No. 1:¹

"... the OEB does not expect material changes to the programs and no increase to the overall DSM budget to take place during the transition period from the current OEB-approved DSM plans.

"The OEB is mindful of the costs and resources required to thoroughly review, critique and make material changes to the currently approved DSM plans and agrees with Enbridge Gas that resources are best directed to the policy consultation."

¹ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

Interrogatory

Question:

Please provide a summary of all DSM partnerships planned for 2021.

Response

Please see the response at Exhibit I.PP.4 for discussion of partnerships Enbridge Gas intends to maintain or pursue in 2021.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

Interrogatory

Question:

Please provide a copy of the final (results or forecast) Enbridge DSM scorecard results for 2015 to 2020.

Response

For 2015 DSM program year scorecard results, please see the response at Exhibit I.SEC.12 Attachment 1.

For 2016 DSM program year scorecard results, please see the response at Exhibit I.SEC.12 Attachment 2.

For Draft 2017 DSM program year scorecard results (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For Draft 2018 DSM program year scorecard results (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

As 2019 DSM program year scorecard results are still being compiled at the time of this submission, they are not currently available.

Attachment 1 to this response contains 2019 to 2021 forecast scorecard results based on achievement of 100% OEB-approved targets.

Union Rate Zones

Scorecard	Offering	Metric	2019 100% Forecasted Target ⁽¹⁾	2020 100% Forecasted Target ⁽¹⁾	2021 100% Forecasted Target ⁽¹⁾
Resource Acquisition	Home Reno Rebate	Cumulative Natural Gas Savings (m3)	747,423,721	800,897,893	816,915,851
	Residential Adaptive Thermostat				
	Commercial & Industrial Custom Commercial & Industrial Prescriptive Commercial & Industrial Direct Install				
		Home Reno Rebate Participants (Homes)	8,308	8,474	8,643
Low Income	Home Weatherization	Cumulative Natural Gas Savings (m3)	43,788,749	46,088,981	47,010,760
	Furnace End-of-Life Indigenous				
	Multi-Family				
Large Volume	Large Volume Program for T2/R100 Customers	Cumulative Natural Gas Savings (m3)	137,666,340	150,946,740	138,930,120
Market Transformation	Optimum Home	Participating Builders (Regional Top 10)	4		
		Prototype Homes Built	90%		
		Homes Built (>15% above OBC 2017) by Participating Builders	4.30%	4.80%	5.20%
	Commercial New Construction	New Developments Enrolled by Participating Builder	20	22	24
Performance-Based Conservation	RunSmart	Participants	56	60	66
		Savings (%)	0.70%	0.70%	0.80%
	Strategic Energy Management (SEM)	Participants			
		Savings (%)	4.80%	8.20%	9.00%

NOTES: (1) Grey highlighting denotes DSM program years in which the identified metrics do not apply.

EGD Rate Zone

Scorecard	Offering	Metric	2019 100% Forecasted Target	2020 100% Forecasted Target	2021 100% Forecasted Target
Resource Acquisition	Home Energy Conservation	Large Volume Customers Cumulative Natural Gas Savings (m3)	435,380,087	453,090,570	462,152,381
	Residential Adaptive Thermostats				
	Commercial & Industrial Custom Commercial & Industrial Prescriptive Commercial & Industrial Direct Install				
	Run-it-Right				
	Comprehensive Energy Management				
	Home Energy Conservation	Small Volume Customers Cumulative Natural Gas Savings (m3)	298,490,829	310,549,859	316,760,856
		Residential Deep Savings Participants (Homes)	11,606	12,075	12,317
Low Income	Home Winterproofing	Cumulative Natural Gas Savings (m3)	20,605,874	21,435,170	21,863,873
	Low-Income Multi-Residential				
	Low-Income New Construction				
		Number of Project Applications	11	11	11
Market Transformation	Residential Savings by Design	Builders	30	34	37
	Commercial Savings by Design	Homes Built	2,536	2,850	3,135
	School Energy Competition	New Developments	30	34	37
	Run-it-Right	Schools	32	36	40
	Comprehensive Energy Management	Participants	36	40	44
		Participants	16	18	20

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

Interrogatory

Question:

- a) Please outline how Enbridge intends to prepare in 2021 for the next DSM Framework and whether additional funding is required for that purpose.
- b) What is the latest date in 2021 that Enbridge would need OEB approval to continue its DSM programs beyond 2021? If this date is not met, please outline the impact to the 2021 program year.

Response

- a) Enbridge Gas plans to fully participate in the OEB Staff-led Post-2020 DSM Framework consultation (EB-2019-0003), which Enbridge Gas hopes will be finalized no later than October 31, 2020. In addition to ongoing research efforts, customer outreach and dedicated program design efforts that are already in progress, and following OEB-issuance of a Post-2020 DSM Framework, Enbridge Gas plans to continue efforts to engage stakeholders as it develops a post-2021 multi-year DSM plan, in advance of filing such a plan in early 2021. Ideally, by engaging stakeholders early and frequently, many aspects of the post-2021 multi-year DSM plan might be agreed upon by Enbridge Gas and stakeholders through some form of settlement, in order to avoid costly and time-consuming litigation before the Board. Based on previous experience, the regulatory process for DSM framework consultation and development and subsequent OEB review of a multi-year DSM plan application will take significant resources and time. While Enbridge Gas has not sought incremental funding in support of this work, it expects to utilize existing budget resources from 2021 DSM Plans budgets, held at the 2020 levels without inflationary increases, for this purpose.
- b) Speculation on the Post-2020 DSM Framework and post-2021 DSM multi-year Plan exceeds the scope of Enbridge Gas's 2021 DSM Plans proceeding as defined within the OEB's Procedural Order No. 1.¹ Please see the response at Exhibit I.BOMA.4, for discussion regarding the scope of this proceeding established by the OEB.

¹ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

Accordingly, Enbridge Gas has provided a limited response to this interrogatory in an effort to be as responsive as reasonably possible considering the OEB's direction in this regard.

Many conservation program offerings, particularly in the non-residential sector, have long lead times for participants to make decisions related to investments in conservation. Participant uncertainty regarding Enbridge Gas's support can influence investment decisions. The severity of these impacts may increase as time passes making them worse the later into 2021 that program approval is ultimately received. Specific impacts are expected to vary by program offering and none of the future DSM portfolio offerings are known at this point in time. Examples of potential impacts based on current 2015-2020 DSM program offers include:

- Communication to participants for longer dated Commercial and Industrial projects, that incentives may not be available, would need to commence no later than July in many cases; and
- Home Energy Retrofit, which requires completion of post-audit within 120 days, would require communication of potential lack of support to participants to commence in August.

Additionally, if future DSM portfolio offerings are new or materially different to the respective target market segment to which they apply, implementation timelines to put the offering(s) in market would need to be taken into account or impacts to results in the first period would only be partially effective. To ensure full effectiveness, Enbridge Gas hopes to have OEB approval of its post-2021 multi-year DSM Plan by July 31, 2021, no less than 5 months prior to the beginning of the term for that plan. If such approval cannot be attained, then Enbridge Gas may need to consider seeking modified scorecards for the initial period that make allowances for anticipated limited effectiveness.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

Interrogatory

Question:

- a) What stakeholder consultation does Enbridge plan to undertake in 2021 related to its current and future DSM portfolio?
- b) Would Enbridge re-establish the DSM Consultative in 2021 if stakeholders were interested? If not, please indicate why.
- c) Please provide any recommendations that Enbridge has to improve the Evaluation, Measurement, & Verification (EM&V) process and/or Evaluation Advisory Committee (EAC) for 2021.

Response

- a) Enbridge Gas plans to participate in the OEB Staff-led Post-2020 DSM Framework (EB-2019-0003) consultation process, which currently contemplates several working groups dedicated to specific subject matter.¹ Enbridge Gas planned to commence stakeholder engagement regarding portfolio and program development in 2020, but any such plans remain tentative as they require better understanding of the pending goals, objectives and principles of the Post-2020 DSM Framework that programs will operate under. Enbridge Gas's ability to commence such engagement is also conditional upon its ability to meet with stakeholders given the COVID-19-related conditions detailed in the response at Exhibit I.SEC.16.
- b) Generally, Enbridge Gas is not averse to incremental stakeholder engagement in 2021, provided that the Board signals that such engagement is appropriate and that such activities prove beneficial to the development of Enbridge Gas's future conservation program portfolio. Enbridge Gas expects that the benefits of such incremental engagement may include a reduction in regulatory timelines and/or costs if broad-based support for proposed conservation activities and scorecard elements can be achieved as a result. Such engagement should prioritize activities that reduce litigation or increase regulatory efficiency while maintaining alignment between stakeholder and shareholder interests.

¹ EB-2019-0003, OEB Letter (December 19, 2019).

- c) Enbridge Gas has not proposed any changes to the Evaluation Advisory Committee for 2021 as part of its 2021 DSM Plans application. However, Enbridge Gas did comment on the Evaluation process in its June 2019 submission on the Post-2020 DSM Framework.² Enbridge Gas believe that consideration of EM&V related matters and process should be part of the Post-2020 Framework consultation.

² EB-2019-0003, Enbridge Gas Written Submission (June 27, 2019), p. 14.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

Interrogatory

Reference:

The government intends for approximately \$130 million in ratepayer funded financial support to expand natural gas distribution in Ontario starting in 2021². As part of its review the OEB indicated that it expects existing rate-regulated natural gas distributors with DSM programs to offer access to DSM programs to any new natural gas customers.

Question:

- a) Please indicate what work Enbridge has undertaken or plans to undertake to ensure that DSM programs are offered to all new customers and that DSM results are maximized.
- b) Please outline what policies and procedure Enbridge has to ensure that DSM is included in 2021 as an integrated component of planning and execution for all new system expansion projects.
- c) Please provide a copy of all system expansion consumer-facing materials Enbridge uses to highlight a potential customer's ability to leverage energy (or cost) saving from the DSM programs if they become a customer.

Response

- a) - c)
Enbridge Gas conducts regular outreach to the contractor community to generate awareness around DSM program offerings available and benefits to customers resulting from participation in DSM programs. Similar efforts are made in new communities connected to Enbridge Gas's system through community expansion programs where Enbridge Gas intends to make informational materials explaining existing DSM programming available to attendees at public information sessions.

² <https://www.oeb.ca/sites/default/files/ltr-final-guidelines-gas-expansion-20200305.pdf>

Enbridge Gas created a marketing “Welcome Brochure” for new customers in the most recently added community of Fenelon Falls. This Welcome Brochure includes information on existing DSM Programs. Historically, Enbridge Gas also provided a comprehensive “New Customer Package” to all new community expansion and infill customers in the Union rate zones. In 2020 Enbridge Gas intends to create a new “Enbridge Gas Welcome Package/Brochure” for all new customers, that may be distributed electronically or via print/mail to all Community Expansion and In-Fill customers across Enbridge Gas’s franchise. This new Welcome Package/Brochure is in our 2020 Marketing Plans, with an expected start date in Q2.

Please also see the response to questions posed by Pollution Probe in respect of Enbridge Gas’s North Bay Community Expansion Project proceeding at EB-2019-0188, Exhibit I.PP.4.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

Interrogatory

Reference:

The OEB has directed the natural gas utilities to work jointly on preparing a transition plan that outlines how to include DSM as part of future infrastructure planning activities. The OEB intends to commence a proceeding related to IRP³ which will in part assess DSM as an alternative for deferring or avoiding Ratepayer funded capital projects. Enbridge has indicated that it is struggling to identify best practices and protocols related to this issue.

Question:

- a) Please confirm if Enbridge has or would be willing to undertake a study to review leading practices to include energy efficiency as part of IRP (note: could be funded through 2021 DSM or earlier). If not, please indicate what Enbridge's opposition is to undertaking such a study.

Response

As noted in the question posed, the Board has stated in Procedural Order No. 1 dated January 30, 2020 in the Enbridge Gas Facilities application currently before the Board in EB-2019-0159 that the Integrated Resource Planning ("IRP") Proposal which Enbridge Gas filed as part of this facilities application should be heard separate and apart from this leave to construct application.

For the purposes of the Post-2020 DSM Framework consultative (EB-2019-0003), in its letter dated December 19, 2019 the Board stated its expectation that the Post-2020 DSM Framework consultation will monitor the IRP framework proceeding.⁴ Nowhere has the Board suggested that IRP issues should be considered and/or determined in this 2021 DSM Plan application proceeding. Given this and the Board's Procedural Order No. 1,⁵ the questions posed by PP exceed the scope of this proceeding. Please also see the response at Exhibit I.BOMA.4, for a discussion regarding the scope of this

³ EB-2019-0159, OEB Procedural Order No. 1 (January 30, 2020), p. 1.

⁴ EB-2019-0003, OEB Letter, (December 19, 2019), p. 2.

⁵ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

proceeding. Despite this and without waiving the right to continue to take the position that this interrogatory is out of scope, Enbridge Gas has provided the following limited response in an effort to be helpful to the Board.

- a) ICF International, on behalf of Enbridge Gas, did conduct a jurisdictional review of best practices as part of its Integrated Resource Planning (“IRP”) Study and Enbridge Gas continues to stay abreast of marketplace activity. As set out in the IRP Proposal,⁶

“Unfortunately, ICF found no readily available precedent of a North American natural gas utility that was considering the impact of broad-based traditional DSM, geo-targeted DSM (enhanced targeted energy efficiency) or dedicated Demand Response (“DR”) programs on its distribution facilities’ planning process.”

Enbridge Gas is conditionally supportive of conducting further jurisdictional review, should it reasonably be expected to provide meaningful incremental value to ratepayers.

Enbridge Gas does not agree that the costs of the study proposed by PP could be funded by 2021 DSM as it is in effect a roll-over from 2020 and no budget for such a study was included in the 2020 DSM plan approved by the Board. Enbridge Gas expects that the OEB’s review of its IRP Proposal will resolve the outstanding policy issues necessary for further development of IRP in Ontario.

⁶ EB-2019-0159, Enbridge Gas Application, Exhibit A, Tab 13, p. 7.

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

[Application, p. 3]

Question:

Please confirm that the Applicant is not seeking continuation of the Demand Side Management Variance Account (DSMVA), nor the continuation of its ability to spend over its approved budget in accordance with the DSMVA rules. If not confirmed, please provide a table showing the approved budgets by rate class for both EGD and Union for each year 2015 to 2019, the actual amount spent by rate class in each year, and the amount, if any, collected from or refunded to customers through the DSMVA by rate class in respect of each year (or expected to be collected or refunded, if not yet completed).

Response

Not confirmed. Enbridge Gas has requested an extension of the current framework, this includes continuation of the Demand Side Management Variance Account (DSMVA) in accordance with the DSMVA rules and all other guidance outlined in the 2015-2020 DSM Framework.

Please see Attachment 1 for the requested information.

DSMVA by Rate Class 2015-2019

	2015			2016			2017 (1)			2018 (1)			2019 (2)		
Rate Class	OEB Approved DSM Budget in Rates (3)	ACTUAL SPEND	DSMVA (4)	OEB Approved DSM Budget in Rates (5)	ACTUAL SPEND	DSMVA (6)	OEB Approved DSM Budget in Rates (7)	ACTUAL SPEND	DSMVA	OEB Approved DSM Budget in Rates (8)	ACTUAL SPEND	DSMVA	OEB Approved DSM Budget in Rates (9)	ACTUAL SPEND	DSMVA
EGD Rate Zone	A	B	C = B-A	A	B	C = B-A	A	B	C = B-A	A	B	C = B-A	A	B	C = B-A
RATE 1	\$ 14,455,895	\$ 20,954,097	\$ 6,498,202	\$ 29,505,925	\$ 38,039,480	\$ 8,533,554	\$ 33,682,557	\$ 43,125,238	\$ 9,442,681	\$ 38,085,214	\$ 47,205,761	\$ 9,120,547	\$ 38,629,963	N/A	N/A
RATE 6	\$ 15,126,938	\$ 12,207,912	\$ (2,919,026)	\$ 22,953,104	\$ 15,255,925	\$ (7,697,178)	\$ 21,652,885	\$ 17,036,079	\$ (4,616,806)	\$ 21,848,933	\$ 16,615,780	\$ (5,233,153)	\$ 20,658,237	N/A	N/A
RATE 9	\$ 1,509	\$ 1,435	\$ (74)	\$ 2,547	\$ 1,822	\$ (726)	\$ 2,685	\$ 2,230	\$ (454)	\$ 2,838	\$ 2,776	\$ (63)	\$ 2,878	N/A	N/A
RATE 100	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	N/A	N/A
RATE 110	\$ 1,305,775	\$ 1,497,220	\$ 191,445	\$ 1,249,021	\$ 1,113,881	\$ (135,140)	\$ 1,827,592	\$ 1,423,092	\$ (404,500)	\$ 1,833,430	\$ 863,910	\$ (969,520)	\$ 1,717,402	N/A	N/A
RATE 115	\$ 970,169	\$ 519,150	\$ (451,019)	\$ 1,216,766	\$ 476,401	\$ (740,365)	\$ 1,380,036	\$ 573,093	\$ (806,943)	\$ 1,382,857	\$ 258,002	\$ (1,124,855)	\$ 1,292,940	N/A	N/A
RATE 125	\$ 56,590	\$ 53,811	\$ (2,779)	\$ 107,958	\$ 68,317	\$ (39,641)	\$ 100,674	\$ 83,643	\$ (17,031)	\$ 106,436	\$ 104,091	\$ (2,345)	\$ 107,934	N/A	N/A
RATE 135	\$ 190,092	\$ 45,741	\$ (144,351)	\$ 299,221	\$ 76,514	\$ (222,707)	\$ 267,843	\$ 370,026	\$ 102,183	\$ 268,087	\$ 381,017	\$ 112,930	\$ 250,196	N/A	N/A
RATE 145	\$ 1,187,784	\$ 146,935	\$ (1,040,849)	\$ 497,938	\$ 75,515	\$ (422,424)	\$ 1,672,264	\$ 87,567	\$ (1,584,697)	\$ 1,675,301	\$ 514,299	\$ (1,161,003)	\$ 1,565,792	N/A	N/A
RATE 170	\$ 1,636,370	\$ 331,431	\$ (1,304,940)	\$ 489,153	\$ 512,194	\$ 23,041	\$ 2,305,696	\$ 171,449	\$ (2,134,247)	\$ 2,306,995	\$ 165,805	\$ (2,141,190)	\$ 2,151,818	N/A	N/A
RATE 200	\$ 19,618	\$ 18,655	\$ (963)	\$ 33,116	\$ 23,683	\$ (9,433)	\$ 34,900	\$ 28,996	\$ (5,904)	\$ 36,898	\$ 36,085	\$ (813)	\$ 37,417	N/A	N/A
RATE 300	\$ 3,773	\$ 3,587	\$ (186)	\$ 6,368	\$ 4,554	\$ (1,814)	\$ 6,712	\$ 5,576	\$ (1,135)	\$ 7,096	\$ 6,939	\$ (156)	\$ 7,196	N/A	N/A
TOTAL EGD Rate Zone	\$ 34,954,512	\$ 35,779,972	\$ 825,460	\$ 56,361,117	\$ 55,648,285	\$ (712,832)	\$ 62,933,844	\$ 62,906,989	\$ (26,855)	\$ 67,554,087	\$ 66,154,466	\$ (1,399,621)	\$ 66,421,773	\$ 72,843,440	\$ 6,421,667
Union South Rate Zone															
M1	\$ 10,763,283	\$ 13,186,370	\$ 2,423,087	\$ 19,979,231	\$ 22,574,194	\$ 2,594,963	\$ 21,549,844	\$ 34,094,527	\$ 12,544,684	\$ 24,375,225	\$ 38,116,865	\$ 13,741,640	\$ 27,163,647	N/A	N/A
M2	\$ 4,012,184	\$ 3,728,023	\$ (284,161)	\$ 9,016,533	\$ 6,140,753	\$ (2,875,780)	\$ 9,991,833	\$ 7,393,524	\$ (2,598,309)	\$ 10,442,453	\$ 7,129,898	\$ (3,312,555)	\$ 10,601,605	N/A	N/A
M4	\$ 1,655,081	\$ 2,876,612	\$ 1,221,531	\$ 3,322,171	\$ 3,660,302	\$ 338,131	\$ 3,027,897	\$ 5,278,690	\$ 2,250,792	\$ 3,077,422	\$ 5,991,549	\$ 2,914,127	\$ 3,150,206	N/A	N/A
M5	\$ 2,762,895	\$ 1,147,287	\$ (1,615,608)	\$ 2,374,234	\$ 2,274,358	\$ (99,876)	\$ 2,168,304	\$ 1,317,497	\$ (850,807)	\$ 2,210,140	\$ 621,172	\$ (1,588,968)	\$ 1,977,091	N/A	N/A
M7	\$ 932,714	\$ 2,706,203	\$ 1,773,489	\$ 2,230,133	\$ 3,635,740	\$ 1,405,607	\$ 2,028,397	\$ 1,143,215	\$ (885,182)	\$ 2,055,472	\$ 2,446,479	\$ 391,007	\$ 2,129,549	N/A	N/A
T1	\$ 1,854,791	\$ 887,143	\$ (967,648)	\$ 1,663,904	\$ 1,379,641	\$ (284,262)	\$ 1,532,088	\$ 2,356,129	\$ 824,041	\$ 1,572,626	\$ 1,789,310	\$ 216,683	\$ 1,505,371	N/A	N/A
T2	\$ 2,686,592	\$ 2,672,302	\$ (14,290)	\$ 3,993,871	\$ 3,979,749	\$ (14,123)	\$ 3,604,840	\$ 3,003,539	\$ (601,300)	\$ 3,653,491	\$ 3,373,617	\$ (279,874)	\$ 4,612,216	N/A	N/A
Total Union South	\$ 24,667,542	\$ 27,203,941	\$ 2,536,399	\$ 42,580,077	\$ 43,644,738	\$ 1,064,660	\$ 43,903,203	\$ 54,587,122	\$ 10,683,919	\$ 47,386,830	\$ 59,468,889	\$ 12,082,059	\$ 51,139,684	N/A	N/A
Union North Rate Zone															
Rate 01	\$ 3,843,188	\$ 2,779,747	\$ (1,063,440)	\$ 7,575,805	\$ 4,352,659	\$ (3,223,146)	\$ 8,100,073	\$ 5,777,036	\$ (2,323,037)	\$ 9,124,247	\$ 6,855,310	\$ (2,268,936)	\$ 6,344,581	N/A	N/A
Rate 10	\$ 1,221,710	\$ 773,824	\$ (447,885)	\$ 2,675,111	\$ 1,297,489	\$ (1,377,623)	\$ 2,950,718	\$ 1,979,183	\$ (971,534)	\$ 3,093,087	\$ 1,685,783	\$ (1,407,304)	\$ 3,001,617	N/A	N/A
Rate 20	\$ 1,003,649	\$ 838,501	\$ (165,148)	\$ 1,894,689	\$ 798,316	\$ (1,096,374)	\$ 1,734,284	\$ 1,430,636	\$ (303,648)	\$ 1,773,457	\$ 293,574	\$ (1,479,883)	\$ 1,671,732	N/A	N/A
Rate 100	\$ 1,851,790	\$ 796,631	\$ (1,055,159)	\$ 2,095,691	\$ 572,450	\$ (1,523,240)	\$ 1,881,795	\$ 807,133	\$ (1,074,662)	\$ 1,894,685	\$ 819,365	\$ (1,075,320)	\$ 1,111,159	N/A	N/A
Total Union North	\$ 7,920,337	\$ 5,188,704	\$ (2,731,633)	\$ 14,241,296	\$ 7,020,913	\$ (7,220,383)	\$ 14,666,870	\$ 9,993,988	\$ (4,672,882)	\$ 15,885,475	\$ 9,654,032	\$ (6,231,443)	\$ 12,129,088	N/A	N/A
Total Union Rate Zones	\$ 32,587,879	\$ 32,392,645	\$ (195,234)	\$ 56,821,373	\$ 50,665,650	\$ (6,155,723)	\$ 58,570,073	\$ 64,581,110	\$ 6,011,037	\$ 63,272,305	\$ 69,122,921	\$ 5,850,616	\$ 63,268,773	\$ 65,604,305	\$ 2,335,532

(1) Amounts subject to deferral clearance

(2) Allocations by rate class for 2019 actual spend are still being compiled and are not available.

(3) Union rate zone per EB-2014-0271, Rate Order, Working Papers, Schedule 11.
 Enbridge rate zone per EB-2014-0276, Final Rate Order dated May 14, 2015, Appendix A, p. 155.

(4) Union rate zone per EB-2017-0323 Decision and Order dated July 12, 2018, p. 11.
 Enbridge rate zone per EB-2017-0324 Decision and Order dated July 12, 2018, p. 10.

(5) Union rate zones per EB-2015-0029 Decision and Rate Order dated May 5, 2016, Appendix D, p. 1.
 Enbridge rate zone per EB-2018-0301 Exhibit B, Tab 2, Schedule 1, p. 8.

(6) EB-2018-0300 Decision and Order dated April 11, 2019, p. 13.
 EB-2018-0301 Decision and Order dated April 11, 2019, p. 13.

(7) Union rate zones per EB-2016-0245, Rate Order, Working Papers, Schedule 11.
 Enbridge rate zone EB-2016-0215, Exhibit G2, Tab 6, Schedule 4, p.1

(8) Union rate zones per EB-2017-0087, Rate Order, Working Papers, Schedule 11.
 Enbridge rate zone EB-2017-0086, Exhibit G2, Tab 6, Schedule 4, p. 1.

(9) Union rate zones per EB-2018-0305, Exhibit F1, Tab 2, Rate Order, Working Papers, Schedule 10, p. 1.
 Enbridge rate zone EB-2018-0305, Exhibit B, Rate Order, Working Papers, Schedule 8, p. 1.

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

[App. p. 3; Ex. A, p. 5]

Question:

Please provide a single, detailed, combined DSM budget for the Applicant for 2021, consistent with the approvals requested in this Application, in a side by side table together with the budgets expected for 2020 under the existing approved Plan, and the actual amounts spent in 2019. In combining the previously separate budgets, please aggregate all amounts such as general and administration expenses that are similar but included in separate budgets for EGD and Union.

Response

Please see Attachment 1 for comparison of the 2020 OEB-approved DSM budget and proposed 2021 DSM budget.

As 2019 DSM program year actual spending details are still being compiled at the time of this submission, they are not currently available. Instead, the most recent DSM program year's actual spending details (2018) have been included in the comparison in Attachment 1.

The comparison in Attachment 1 also includes the 2019 OEB-approved DSM budget.

2019 Actuals/2020 Budget/2021 Proposed

	2018 Actuals (2)			2019 OEB Approved Budget (3)			2020 OEB Approved Budget (3)			2021 Proposed Budget (3)		
	EGD	Union	Combined	EGD	Union	Combined	EGD	Union	Combined	EGD	Union	Combined
Resource Acquisition												
Home Energy Conservation/Home Reno Rebate	\$ 23,256,751	\$ 24,194,382	\$ 47,451,133	\$ 18,360,000	\$ 12,226,000	\$ 30,586,000	\$ 18,727,200	\$ 12,226,000	\$ 30,953,200	\$ 18,727,200	\$ 12,226,000	\$ 30,953,200
Residential Adaptive Thermostats	\$ 1,578,427	\$ -	\$ 1,578,427	\$ 2,218,500	\$ -	\$ 2,218,500	\$ 2,262,870	\$ -	\$ 2,262,870	\$ 2,262,870	\$ -	\$ 2,262,870
Commercial & Industrial Custom	\$ 7,696,271	\$ 8,379,370	\$ 16,075,641	\$ 7,508,793	\$ 7,808,000	\$ 15,316,793	\$ 7,658,968	\$ 7,808,000	\$ 15,466,968	\$ 7,658,968	\$ 7,808,000	\$ 15,466,968
Commercial & Industrial Prescriptive	\$ 1,164,036	\$ 4,752,739	\$ 5,916,775	\$ 2,277,564	\$ 7,149,000	\$ 9,426,564	\$ 2,323,114	\$ 7,149,000	\$ 9,472,114	\$ 2,323,114	\$ 7,149,000	\$ 9,472,114
Commercial & Industrial Direct Install	\$ 1,726,487	\$ 1,355,104	\$ 3,081,590	\$ 4,853,510	\$ 2,500,000	\$ 7,353,510	\$ 4,950,581	\$ 2,500,000	\$ 7,450,581	\$ 4,950,581	\$ 2,500,000	\$ 7,450,581
Small Commercial New Construction	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Energy Leaders (Large & Small C/I)	\$ 324,138	\$ -	\$ 324,138	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Run it Right (RA portion)	\$ 522,385	\$ -	\$ 522,385	\$ 1,618,946	\$ -	\$ 1,618,946	\$ 1,653,979	\$ -	\$ 1,653,979	\$ 1,653,979	\$ -	\$ 1,653,979
Comprehensive Energy Management (RA portion)	\$ -	\$ -	\$ -	\$ 96,900	\$ -	\$ 96,900	\$ 98,838	\$ -	\$ 98,838	\$ 98,838	\$ -	\$ 98,838
Resource Acquisition Program Costs	\$ 36,268,495	\$ 38,681,594	\$ 74,950,089	\$ 36,934,213	\$ 29,683,000	\$ 66,617,213	\$ 37,675,550	\$ 29,683,000	\$ 67,358,550	\$ 37,675,550	\$ 29,683,000	\$ 67,358,550
	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Low Income												
Home Winterproofing/Home Weatherization	\$ 5,224,730	\$ 6,872,283	\$ 12,097,013	\$ 6,605,744	\$ 8,063,001	\$ 14,668,745	\$ 6,736,859	\$ 8,374,000	\$ 15,110,859	\$ 6,736,859	\$ 8,374,000	\$ 15,110,859
Aboriginal	\$ -	\$ 174,604	\$ 174,604	\$ -	\$ 456,000	\$ 456,000	\$ -	\$ 448,000	\$ 448,000	\$ -	\$ 448,000	\$ 448,000
Furnace End-of-Life	\$ -	\$ -	\$ -	\$ -	\$ 919,000	\$ 919,000	\$ -	\$ 917,000	\$ 917,000	\$ -	\$ 917,000	\$ 917,000
Low-Income Multi-Residential - Affordable Housing/Multi Family	\$ 4,417,079	\$ 2,611,774	\$ 7,028,854	\$ 3,889,562	\$ 3,031,000	\$ 6,920,562	\$ 3,967,353	\$ 3,573,000	\$ 7,540,353	\$ 3,967,353	\$ 3,573,000	\$ 7,540,353
Low-Income New Construction	\$ 1,752,191	\$ -	\$ 1,752,191	\$ 1,428,000	\$ -	\$ 1,428,000	\$ 1,456,560	\$ -	\$ 1,456,560	\$ 1,456,560	\$ -	\$ 1,456,560
Low Income Program Costs	\$ 11,394,000	\$ 9,658,661	\$ 21,052,662	\$ 11,923,306	\$ 12,469,001	\$ 24,392,307	\$ 12,160,772	\$ 13,312,000	\$ 25,472,772	\$ 12,160,772	\$ 13,312,000	\$ 25,472,772
	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Market Transformation & Energy Management												
Residential Savings by Design	\$ 4,257,045	\$ -	\$ 4,257,045	\$ 3,320,443	\$ -	\$ 3,320,443	\$ 3,392,296	\$ -	\$ 3,392,296	\$ 3,392,296	\$ -	\$ 3,392,296
Optimum Home	\$ -	\$ 847,194	\$ 847,194	\$ -	\$ 841,000	\$ 841,000	\$ -	\$ 841,000	\$ 841,000	\$ -	\$ 841,000	\$ 841,000
Commercial Savings by Design	\$ 1,234,997	\$ 988,548	\$ 2,223,545	\$ 1,098,300	\$ 1,000,000	\$ 2,098,300	\$ 1,122,068	\$ 1,000,000	\$ 2,122,068	\$ 1,122,068	\$ 1,000,000	\$ 2,122,068
School's Energy Competition	\$ 248,768	\$ -	\$ 248,768	\$ 510,000	\$ -	\$ 510,000	\$ 520,200	\$ -	\$ 520,200	\$ 520,200	\$ -	\$ 520,200
Run it Right (MTEM portion)	\$ 608,623	\$ -	\$ 608,623	\$ 322,236	\$ -	\$ 322,236	\$ 329,209	\$ -	\$ 329,209	\$ 329,209	\$ -	\$ 329,209
Comprehensive Energy Management (MTEM portion)	\$ 314,424	\$ -	\$ 314,424	\$ 923,100	\$ -	\$ 923,100	\$ 941,562	\$ -	\$ 941,562	\$ 941,562	\$ -	\$ 941,562
Market Transformation & Energy Management Program Costs	\$ 6,663,857	\$ 1,835,743	\$ 8,499,599	\$ 6,174,079	\$ 1,841,000	\$ 8,015,079	\$ 6,305,335	\$ 1,841,000	\$ 8,146,335	\$ 6,305,335	\$ 1,841,000	\$ 8,146,335
	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Performance-Based												
RunSmart & Strategic Energy Management (SEM)	\$ -	\$ 503,069	\$ 503,069	\$ -	\$ 582,000	\$ 582,000	\$ -	\$ 802,000	\$ 802,000	\$ -	\$ 802,000	\$ 802,000
Performance-Based Program Costs	\$ -	\$ 503,069	\$ 503,069	\$ -	\$ 582,000	\$ 582,000	\$ -	\$ 802,000	\$ 802,000	\$ -	\$ 802,000	\$ 802,000
	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Large Volume												
Large Volume	\$ -	\$ 2,341,061	\$ 2,341,061	\$ -	\$ 3,150,000	\$ 3,150,000	\$ -	\$ 3,150,000	\$ 3,150,000	\$ -	\$ 3,150,000	\$ 3,150,000
Large Volume Program Costs	\$ -	\$ 2,341,061	\$ 2,341,061	\$ -	\$ 3,150,000	\$ 3,150,000	\$ -	\$ 3,150,000	\$ 3,150,000	\$ -	\$ 3,150,000	\$ 3,150,000
	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Program Costs	\$ 54,326,352	\$ 53,020,129	\$ 107,346,480	\$ 55,031,598	\$ 47,725,001	\$ 102,756,599	\$ 56,141,657	\$ 48,788,000	\$ 104,929,657	\$ 56,141,657	\$ 48,788,000	\$ 104,929,657
	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Program Overheads (Excluding Program Evaluation) (1)												
Resource Acquisition Overheads/Administration	\$ 5,159,191	\$ 5,047,614	\$ 10,206,805	\$ 5,122,057	\$ 5,579,983	\$ 10,702,040	\$ 5,232,967	\$ 5,579,983	\$ 10,812,950	\$ 5,232,967	\$ 5,579,983	\$ 10,812,950
Low Income Overheads/Administration	\$ 1,590,841	\$ 991,868	\$ 2,582,709	\$ 1,653,531	\$ 1,430,737	\$ 3,084,268	\$ 1,689,078	\$ 1,430,480	\$ 3,119,558	\$ 1,689,078	\$ 1,430,480	\$ 3,119,558
Market Transformation Overheads/Administration	\$ 822,657	\$ 321,166	\$ 1,143,823	\$ 856,225	\$ 460,250	\$ 1,316,475	\$ 875,783	\$ 460,250	\$ 1,336,033	\$ 875,783	\$ 460,250	\$ 1,336,033
Performance Based Overheads/Administration	\$ -	\$ 191,326	\$ 191,326	\$ -	\$ 216,000	\$ 216,000	\$ -	\$ 216,000	\$ 216,000	\$ -	\$ 216,000	\$ 216,000
Large Volume Overheads/Administration	\$ -	\$ 480,819	\$ 480,819	\$ -	\$ 787,000	\$ 787,000	\$ -	\$ 787,000	\$ 787,000	\$ -	\$ 787,000	\$ 787,000
Total Program Overheads (Excluding Program Evaluation)	\$ 7,572,689	\$ 7,032,793	\$ 14,605,482	\$ 7,631,813	\$ 8,473,970	\$ 16,105,783	\$ 7,797,828	\$ 8,473,713	\$ 16,271,541	\$ 7,797,828	\$ 8,473,713	\$ 16,271,541
	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Portfolio Overheads												
Administration	\$ -	\$ 3,858,510	\$ 3,858,510	\$ -	\$ 2,842,000	\$ 2,842,000	\$ -	\$ 2,842,000	\$ 2,842,000	\$ -	\$ 2,842,000	\$ 2,842,000
Evaluation (Portfolio and Program level) (1)	\$ 549,796	\$ 3,442,130	\$ 3,991,926	\$ 1,736,746	\$ 2,727,802	\$ 4,464,548	\$ 1,774,228	\$ 2,745,828	\$ 4,520,056	\$ 1,774,228	\$ 2,745,828	\$ 4,520,056
Collaboration & Innovation	\$ 703,213	\$ -	\$ 703,213	\$ 1,021,616	\$ -	\$ 1,021,616	\$ 1,043,663	\$ -	\$ 1,043,663	\$ 1,043,663	\$ -	\$ 1,043,663
Research	\$ -	\$ 672,614	\$ 672,614	\$ -	\$ 1,000,000	\$ 1,000,000	\$ -	\$ 1,000,000	\$ 1,000,000	\$ -	\$ 1,000,000	\$ 1,000,000
Pilots	\$ -	\$ 275,351	\$ 275,351	\$ -	\$ 500,000	\$ 500,000	\$ -	\$ 500,000	\$ 500,000	\$ -	\$ 500,000	\$ 500,000
DSM IT	\$ 2,535,310	\$ -	\$ 2,535,310	\$ 1,000,000	\$ -	\$ 1,000,000	\$ 1,000,000	\$ -	\$ 1,000,000	\$ 1,000,000	\$ -	\$ 1,000,000
Energy Literacy	\$ 467,107	\$ -	\$ 467,107	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Open Bill Access	\$ -	\$ 821,395	\$ 821,395	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Achievable Potential Study	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total of Portfolio Overheads	\$ 4,255,425	\$ 9,070,000	\$ 13,325,425	\$ 3,758,362	\$ 7,069,802	\$ 10,828,164	\$ 3,817,891	\$ 7,087,828	\$ 10,905,719	\$ 3,817,891	\$ 7,087,828	\$ 10,905,719
Total Overheads	\$ 11,828,114	\$ 16,102,793	\$ 27,930,907	\$ 11,390,175	\$ 15,543,772	\$ 26,933,947	\$ 11,615,719	\$ 15,561,541	\$ 27,177,260	\$ 11,615,719	\$ 15,561,541	\$ 27,177,260
	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total DSM Costs	\$ 66,154,466	\$ 69,122,921	\$ 135,277,388	\$ 66,421,773	\$ 63,268,773	\$ 129,690,546	\$ 67,757,376	\$ 64,349,541	\$ 132,106,917	\$ 67,757,376	\$ 64,349,541	\$ 132,106,917

Notes

(1) In the Union Rate Zone, Program Evaluation costs were approved at a program level. For the purposes of this response, they have been included at a Portfolio level.

(2) 2018 spend by program is subject to deferral clearance.

(3) Costs in the 2019 & 2020 OEB Approved Budget and 2021 Proposed Budget above do not include the updates to budget guidance outlined in the OEB's Mid-Term report, which would be recovered through the respective year's DSMVA.

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

[App. p. 4]

Question:

Please provide the number of the Applicant's customers that are francophones. Please confirm that the Applicant offers all of its DSM programs in both English and French. If there are any exceptions to that, please provide details.

Response

Enbridge Gas does not track which specific customers are francophone. Though Statistics Canada notes there is no established definition of francophone,¹ they have generally used the criterion of mother tongue, but the term francophone can also be used to refer to any French speaker (among other possible definitions). According to the 2016 Census, 3.65% of Ontarians report French as their mother tongue and a similar percentage of Ontarians (3.75%) report French as their first official language.

Enbridge Gas serves approximately 3.5 million residential households. Using the Statistics Canada's value of 3.75% of Ontarians who report French as their first language, this results in approximately 131,250 residential households serviced by Enbridge Gas.

Communication of DSM offers has been in English only. However, customers have access to a French speaking customer care representative who can discuss DSM inquiries with them in French.

Enbridge Gas is not aware of any requirement for French communication in the 2015-2020 DSM Framework, Filing Guidelines, or the Board's related Decisions. Enbridge

¹ <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=PR&Code1=35&Geo2=PR&Code2=01&SearchText=Ontario&SearchType=Begins&SearchPR=01&B1=All&TABID=1&type=0>

Gas does not believe it has received any requests to provide DSM communications in French over the course of the current 2015-2020 DSM Framework. Further, to the knowledge of Enbridge Gas, no party has filed an intervention in a DSM proceeding before the Board indicating an intention to participate using the French language.

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

[Ex. A, p. 1]

Question:

Please confirm that, if the Board does not approve the Application, the existing DSM plans end December 31, 2020, and that because DSM is a flow-through, the result of that termination would be a reduction in rates in 2021. Please estimate, by rate class, the percentage reduction in distribution rates if the existing plans expire and are not extended. Please exclude (or separately identify) all wind down costs for the DSM activities, and describe how the Applicant believes they should be dealt with for ratemaking purposes.

Response

Not confirmed. In the event that Enbridge Gas's Application to extend the current 2015-2020 DSM Framework and to roll-forward the 2020 OEB-approved 2020 DSM Plans to 2021 is not approved, the alternative is that Enbridge Gas will need to move directly to working on its submission for the next multi-year DSM plan to be effective in January 2021 in response to the consultation already underway for the Post-2020 DSM Framework (EB-2019-0003). The Board's letter of May 21, 2019 initiating the Post-2020 DSM Framework consultation process clearly indicates its intention to proceed "to develop a Demand Side Management (DSM) framework for natural gas distributors beginning in 2021."¹ This consultation is not to consider whether a framework would or would not exist post 2020, but rather to consult on the details of the DSM framework for natural gas distributors. The Board also acknowledged in this letter that the "Government of Ontario has confirmed, in its November 2018 Environment Plan a commitment to cost-effective conservation of natural gas."²

¹ EB-2019-0003, Letter from the Board, May 21, 2019, p. 1.

² Ibid. p. 1.

Despite SEC's assertions, in its Procedural Order No. 1, the Board has further clearly signaled its expectation that DSM programming should continue into 2021:³

"...the OEB does not expect material changes to the programs and no increase to the overall DSM budget to take place during the transition period from the current OEB-approved DSM plans. In light of the on-going policy consultation, parties are expected to focus their participation during this proceeding on ensuring that the OEB's previously-approved 2020 DSM plans will continue to deliver cost effective savings in 2021, consistent with the OEB's January 20, 2016 Decision and Order and DSM Mid-Term Report. The OEB expects that submissions from parties should be directed to the best alignment of Enbridge Gas resources and effort available within the existing plan in order to maximize results."

The Board has not indicated in any way that it intends to wind-down Ontario's natural gas DSM programs and has not requested any information in support of such actions as part of this or any other proceeding. Further, this scenario is implausible given: (i) the long-term and broad based support for utility-led natural gas conservation programs; (ii) signals from both past and present provincial governments with respect to utility-led natural gas conservation programs; and (iii) explicit expectations of continued and gradually increasing utility led natural gas conservation programs set out in the Made in Ontario Environment Plan.⁴

Considering the above, the issue of terminating and winding-down the existing DSM plans in 2021 exceeds the scope of Enbridge Gas's 2021 DSM Plans proceeding as defined within the OEB's Procedural Order No. 1.⁵ Please see the response at Exhibit I.BOMA.4, for discussion regarding the scope of this proceeding established by the OEB.

³ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

⁴ <https://www.ontario.ca/page/made-in-ontario-environment-plan>

⁵ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

[Ex. A, p. 4]

Question:

Please provide complete details of all merger savings achieved, planned or expected by combining the DSM programs of EGD and Union. Please provide a detailed impact analysis of all such savings for the 2021 calendar year, and explain why the impact is as high (or low) as it is for each expense category. Please confirm that, if this Application is approved as filed, one result is that the shareholders of the Applicant benefit from any 2021 merger savings for the DSM programs. If not confirmed, please explain the Applicant's view of the interaction between the DSMVA and merger savings.

Response

For a comprehensive discussion of integration and optimization efficiencies, please see the response at Exhibit I.STAFF.4.

As noted in the response at Exhibit I.CME.2, any optimization efficiencies achieved benefit the ratepayer either through increased program spend or will be returned through the DSMVA.

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

[Ex. A, p. 4-5]

Question:

Please provide a detailed, line item budget for all spending proposed for 2021 that is not direct payments to customers or vendors for incentives, and is not direct payments to third parties for marketing or other services.

Response

A detailed, line item budget for all spending proposed in 2021 is not currently available, as the detailed budget planning process for 2021 at Enbridge Gas has not been completed.

Please see the response at Exhibit I.SEC.2, which contains a breakdown of the 2021 DSM budget. The budget is not broken down into payments to third-parties and it is unclear what SEC means when it refers to "other services". Assuming the question is asking for the administration portion of the utility budget, this would be the total Program Overheads, plus the Administration portion of Portfolio Overheads.

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

[Ex. A, p. 4-5]

Question:

Please provide a detailed human resources report for the DSM program, including FTE/headcount, in the form normally used by the Board for utility spending on compensation. Please include 2015-2019 actuals, 2020 forecast, and 2021 proposed.

Response

Please see the response at Exhibit I.STAFF.4 Attachment 1.

While 2019 DSM program year results and program spends are still being compiled at the time of this submission, Enbridge Gas has provided 2019 Full Time Equivalent ("FTE") counts and compensation amounts in the above referenced response.

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

[Ex. A, p.6]

Question:

Please provide a comprehensive list of all elements of the existing approved DSM plans, and indicate whether each such element is proposed to be the same, or changed, for 2021. By way of example, the Applicant has the ability to move money between programs, subject to certain limits. Is the Applicant's intention to retain that unchanged, or to change it? Please apply this example by analogy to all elements of the plans.

Response

Enbridge Gas assumes that by "all elements" SEC is referring to the entirety of the OEB's 2015-2020 DSM Framework and subsequent Decisions related to the utilities' 2015-2020 DSM Plans. Enbridge Gas has applied for an extension of the current 2015-2020 DSM Framework and a roll-forward of the OEB-approved 2020 DSM Plans to 2021, including all elements, as per the Board's Decision on the utilities' 2015-2020 multi-year DSM Plan applications,¹ including any updates provided by the Board from the Mid-Term Review of the Demand Side Management ("DSM") Framework for Natural Gas Distributors (2015-2020).² Accordingly, current budgetary flexibility and limits are expected to be unchanged in 2021 from the OEB-approved 2020 DSM Plans. Enbridge Gas has no immediate plans to re-allocate funds between programs but reserves its right to do so as set out by the 2015-2020 DSM Framework and Filing Guidelines to the same.

¹ EB-2015-0029 / EB-2015-0049, OEB Decision and Order (February 24, 2016).

² EB-2017-0127 / EB-2017-0128, Report of the Ontario Energy Board Mid-Term Review of the Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020) (November 29, 2018).

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

[General]

Question:

For each year from 2015 to 2019 inclusive, please provide a comprehensive report on each program and offering, including but not limited to:

- a. Name
- b. Metrics
- c. Targets
- d. Lower Band
- e. Upper Band
- f. Achievement (audited if applicable)
- g. Contribution to shareholder incentive
- h. Amounts spent
- i. Cost effectiveness

Response

For 2015 DSM program year program/offering details, please see the response at Exhibit I.SEC.12 Attachment 1.

For 2016 DSM program year program/offering details, please see the response at Exhibit I.SEC.12 Attachment 2.

For Draft 2017 DSM program year program/offering details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 3.

For Draft 2018 DSM program year program/offering details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC.12 Attachment 4.

As 2019 DSM program year program/offering details are still being compiled at the time of this submission, they are not currently available.

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

[General]

Question:

Please provide a table showing the LRAMVA amounts (including those not yet cleared), the shareholder incentive amounts, and the average use adjustments, for each year from 2015 to 2019.

Response

For LRAM and shareholder incentive amounts for 2015 to 2018 by rate class, please see the response at Exhibit I.OGVG.1 Attachment 1. As 2019 DSM program year details are still being compiled at the time of this submission, they are not currently available.

There are no average use adjustments in the LRAM amounts provided.

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

[General]

Question:

Please file a copy of the current draft of the 2018 Natural Gas Demand-Side Management Annual Verification Report (the “2018 Audit Report”), or the final if it has been released by the time these interrogatories are answered.

Response

The final DNV-GL 2018 Natural Gas Demand-Side Management Annual Verification Report can be found at: <https://www.oeb.ca/sites/default/files/2018-DSM-Annual-Verification-Report.pdf>

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

[General]

Question:

The 2018 Audit Report contains tables 1-1 through 1-4. Please file those tables for 2018, and the same data in the same format for each of 2015, 2016, 2017, and 2019.

Response

For 2015 DSM program year details, please see Attachment 1.

For 2016 DSM program year details, please see Attachment 2.

For Draft 2017 DSM program year details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see Attachment 3.

For Draft 2018 DSM program year details (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see Attachment 4.

As 2019 DSM program year details are still being compiled at the time of this submission, they are not currently available.

Source: Utilities' 2015 Demand Side Management Annual Report. Targets and spend are consistent with those presented in the 2015 Natural Gas Demand-Side Management Annual Verification Report (DNV GL), however, actual achievement was modified through Decision and Order EB-2017-0323/EB-2017-0324, which also impacts incentives and cost effectiveness. Created based on Table 1-3 from 2018 Natural Gas Demand-Side Management Annual Verification Report (DNV GL) but some columns have been re-ordered to accommodate additional data.

EGD Rate Zone (2015)

Table 1-1. EGD Rate Zone savings, spend, cost effectiveness, and incentive results*†

Program /Offering	Metric	Verified First-Year Savings (m3)	Verified Cumulative Savings or Other Metric	Lower Band	Target	Upper Band	Metric Weight	Percent of Target Metric Achieved	Weighted % of Scorecard Achieved***	DSM Shareholder Incentive	Maximum Shareholder Incentive Available	OEB-Approved Program Budget	Utility Spending**	Budget/ Spending Variance	Cost Effectiveness (TRC Benefit Cost Ratio)	Net Present Value (TRC Plus)	Participants/Units	Gross Annual Natural Gas Savings (m³)	Gross Cumulative Natural Gas Savings (CCM)
Resource Acquisition		44,698,971	734,128,834						152.3 %	\$6,482,744	\$6,482,744	\$19,175,275	\$23,389,805	\$4,214,530	3.12	\$109,161,947	23,463	62,780,541	1,021,749,154
Commercial & Industrial Custom	CCM Savings	31,325,608	524,020,079	758,900,000	1,011,900,000	1,264,900,000	92%	45.1%	41.5%	\$6,482,744	\$6,482,744	\$12,571,070	\$6,821,798	-\$4,182,640	3.74	\$86,594,569	677	46,951,420	771,244,862
Commercial & Industrial Prescriptive	CCM Savings	6,073,751	105,009,436										\$107,736		5.65	\$18,362,440	17,112	7,336,075	127,331,700
Run-it-Right	CCM Savings	536,821	2,684,105										\$1,458,896		0.33	-\$1,068,205	28	536,821	2,684,105
Home Energy Conservation	CCM Savings	6,762,791	102,415,214									\$1,872,720	\$9,362,295	\$7,489,575	2.24	\$10,912,223	7,956,225	120,488,487	
	Deep Savings Participants	N/A	5,646	571	762	952	8%	1385.3%	110.8%		N/A				N/A	5,646			
Resource Acquisition Overhead												\$4,731,485	\$5,639,080	\$907,595					
Low Income		4,272,585	92,036,617						116.2 %	\$1,483,792	\$2,495,721	\$7,382,078	\$7,173,711	-\$208,367	1.88	\$7,166,734	4,674	4,306,970	92,380,469
Single Family (Part 9)	CCM Savings	1,129,070	28,067,263	18,100,000	24,100,000	30,200,000	50%	132.5%	66.2%	\$1,483,792	\$2,495,721	\$4,655,790	\$4,444,616	-\$211,174	1.06	\$232,036	1,343	1,135,609	28,132,657
Multi Residential (Part 3)	CCM Savings	3,143,515	63,969,353	51,600,000	68,700,000	86,000,000	45%	86.2%	38.8%			\$2,208,300	\$2,111,746	-\$96,554	3.20	\$7,552,047	3,331	3,171,361	64,247,812
Multi Residential (Part 3)	Participants (%)	N/A	64.7%	30%	40%	50%	5%	223.5%	11.2%				\$0	N/A	N/A	N/A	N/A	N/A	N/A
Low Income Overhead												\$517,988	\$617,349	\$99,361					
Market Transformation										\$2,111,159	\$2,111,159	\$6,244,587	\$4,657,079	-\$1,587,508	N/A	N/A	44,013	N/A	N/A
Residential Savings By Design									170.5%	\$1,076,493	\$1,076,493	\$2,493,900	\$2,032,022	-\$461,878	N/A	N/A	2,006	N/A	N/A
Residential Savings by Design	Builders	N/A	19	13	18	22	60%	112.5%	67.5%	\$1,076,493	\$1,076,493	\$2,493,900	\$2,032,022	-\$461,878			19		
	Homes		1,987	833	1,111	1,389	40%	257.6%	103.0%								1,987		
Commercial Savings By Design									150.0%	\$418,269	\$418,269	\$969,000	\$890,464	-\$78,536	N/A	N/A	24	N/A	N/A
Commercial Savings by Design	Developments	N/A	24	11	18	24	100%	150.0%	150.0%	\$418,269	\$418,269	\$969,000	\$890,464	-\$78,536			24		
Home Labelling (Rating)									236.9%	\$616,397	\$616,397	\$1,428,000	\$121,241	-\$1,306,759	N/A	N/A	41,983	N/A	N/A
Home Labelling	Commitments	N/A	41,650	N/A	5,001	10,001	50%	466.5%	233.2%	\$616,397	\$616,397	\$1,428,000	\$121,241	-\$1,306,759			41,650		
	Ratings Performed		333	2,250	4,500	6,750	50%	7.4%	3.7%								333		
Market Transformation Overhead												\$1,353,687	\$1,613,352	\$259,665					
EGD Rate Zone Program Total		48,971,556	826,165,451							\$10,077,695	\$11,089,624	\$32,801,940	\$35,220,595	\$2,418,655	2.95	\$116,328,681	72,150	67,087,511	1,114,129,623
Portfolio Overhead and Administrative Costs												\$4,920,291	\$559,378	-\$4,360,913					
EGD Rate Zone Portfolio Total												\$37,722,231	\$35,779,973	-\$1,942,258					

*Not all values may compute exactly due to rounding.

†CCM are cumulative cubic meters of natural gas.

**The OEB's DSM Framework allows for utility spending to differ from the approved budget. Sections 6.6 and 11.2 of the [Filing Guidelines](#) provide details for acceptable spending differences.

***Actual scorecard achievements are shown but weighted scorecard is capped at 150%.

Source: Utilities' 2015 Demand Side Management Annual Report. Targets and spend are consistent with those presented in the 2015 Natural Gas Demand-Side Management Annual Verification Report (DNV GL), however, actual achievement was modified through Decision and Order EB-2017-0323/EB-2017-0324, which also impacts incentives and cost effectiveness. Created based on Table 1-3 from 2018 Natural Gas Demand-Side Management Annual Verification Report (DNV GL) but some columns have been re-ordered to accommodate additional data.

Union Rate Zones (2015)

Table 1-3. Union Rate Zones achievement, spend, cost effectiveness, and incentive results*†

	Program /Offering	Metric	Verified First-Year Savings (m³)	Verified Cumulative Savings or Other Metric	Lower Band	Target	Upper Band	Metric Weight	Percent of Target Metric Achieved	Weighted % of Scorecard Achieved***	DSM Shareholder Incentive	Maximum Shareholder Incentive Available	OEB- Approved Program Budget	Utility Spending**	Budget/ Spending Variance	Cost Effectiveness (TRC Benefit Cost Ratio)	Net Present Value (TRC)	Participants /Units	Gross Annual Natural Gas Savings (m³)	Gross Cumulative Natural Gas Savings (CCW)		
9	Resource Acquisition		56,239,793	919,157,080						130.9%	\$4,443,225	\$5,761,833	\$15,185,808	\$16,818,607	\$1,632,799	2.68	\$105,948,039	25,912	108,355,744	1,737,648,089		
10	Commercial & Industrial Custom	CCM Savings	42,588,031	664,199,557	612,421,364	816,561,818	1,020,702,273	90%	125.1%	112.6%	\$4,443,225	\$5,761,833	\$4,984,937	\$5,512,879	\$527,942	3.53	\$88,200,561	588	92,582,677	1,443,912,081		
11	Commercial & Industrial Prescriptive	CCM Savings	9,283,248	182,411,887									\$3,806,470	\$2,831,233	-\$975,237	3.16	\$21,692,889	3,042	10,659,544	208,919,006		
12	Energy Savings Kit	CCM Savings	1,179,468	14,800,935									\$2,779,776	\$4,525,364	\$1,745,588	5.40	\$2,907,038	19,753	1,361,705	16,882,059		
13	Home Reno Rebate	CCM Savings	3,189,046	57,744,701												0.78	-\$2,903,318		3,751,818	67,934,943		
14		Participants	N/A	2,529	934	1,245	1,556	5%	306.3%	15.3%			-	-	-	N/A	N/A	2,529				
15	Commercial & Industrial Deep Savings	% Savings	N/A	8.08%	7.88%	8.88%	9.88%	5%	60.0%	3.0%			-	-	-							
16	Overhead and Administrative Costs												\$3,614,625	\$3,949,131	\$334,506							
17	Low Income		2,309,842	52,180,787						139.7%	\$2,462,534	\$2,810,129	\$7,406,335	\$7,701,034	\$294,699	1.07	\$552,817	1,603	2,355,887	53,040,835		
18	Single Family (Part 9)	CCM Savings	1,435,616	35,847,426	19,500,000	26,000,000	32,500,000	60.00%	175.8%	105.4%	\$2,462,534	\$2,810,129	\$4,712,975	\$4,836,139	\$123,164	1.32	\$1,460,361	1,472	1,435,649	35,847,824		
19	Multi-Family (Part 3)	CCM Savings	874,226	16,333,361	13,200,000	17,600,000	22,000,000	40.00%	85.6%	34.2%			\$1,597,857	\$1,808,928	\$211,071	1.06	\$148,423	131	920,238	17,193,011		
20	Overhead and Administrative Costs												\$1,095,503	\$1,055,967	-\$39,536							
21	Large Volume		66,527,557	779,427,613						21.8%	\$0	\$1,862,877	\$4,909,773	\$3,209,716	-\$1,700,057	6.97	\$113,820,505	150	144,457,130	1,691,806,721		
22	Rate T1	CCM Savings	8,842,211	121,416,767	154,692,013	206,256,017	257,820,021	60%	17.7%	11.1%	\$0	\$1,862,877	\$1,250,254	\$477,540	-\$772,714	7.62	\$18,645,277	40	19,205,955	263,624,641		
23	Rate T2/100	CCM Savings	57,685,346	658,010,847	772,381,040	1,029,841,387	1,287,301,734	40%	27.8%	10.6%			\$2,634,452	\$1,745,745	-\$888,707	7.30	\$96,161,659	110	125,251,175	1,428,182,080		
24	Overhead and Administrative Costs												\$1,025,067	\$986,431	-\$38,636							
25	Market Transformation									305.7%	\$566,721	\$566,721	\$1,493,642	\$1,405,340	-\$88,302	N/A	N/A	N/A	N/A	N/A		
26	Optimum Home	Homes Built	N/A	50.3%	24.73%	29.73%	34.73%	100%	305.7%	305.7%	\$566,721	\$566,721	\$1,283,349	\$1,018,637	-\$264,712							
27	Overhead and Administrative Costs												\$210,293	\$386,703	\$176,410							
28	Union Program Total		125,077,193	1,750,765,480							\$7,472,480	\$11,001,560	\$28,995,558	\$29,134,697	\$139,139	3.33	217,424,127	27,665	255,168,761	3,482,495,645		
29	Portfolio Overhead and Administrative Costs												\$4,992,321	\$3,257,947	-\$1,734,374							
30	Union Rate Zones Portfolio Total												\$33,987,879	\$32,392,644	-\$1,595,235							

*Not all values may compute exactly due to rounding.
†CCM are cumulative cubic meters of natural gas.
** The OEB's DSM Framework allows for utility spending to differ from the approved budget. Sections 6.6 and 11.2 of the [Filing Guidelines](#) provide details for acceptable spending differences.
***Actual scorecard achievements are shown but weighted scorecard is capped at 150%.

Source: 2016 Natural Gas Demand-Side Management Annual Verification Report (DNV GL) for achievement, spend, and cost effectiveness. Utilities' data for targets and incentive results due to Decision and Order EB-2018-0300/EB-2018-0301 that modified targets. Created based on Table 1-3 from 2018 Natural Gas Demand-Side Management Annual Verification Report (DNV GL) but some columns have been re-ordered to accommodate additional data. Participants/units and Gross Annual Savings are not available in the 2016 Annual Verification Report. This data has been taken from the Utilities' data. This data may vary from the Auditor results due to rounding and inability to completely reproduce results. Differences are not material.

EGD Rate Zone (2016)

Table 1-1. EGD Rate Zone savings, spend, cost effectiveness, and incentive results*†

8	Program /Offering	Metric	Verified First-Year Savings (m3)	Verified Cumulative Savings or Other Metric	Lower Band	Target	Upper Band	Metric Weight	Percent of Target Metric Achieved	Weighted % of Scorecard Achieved	DSM Shareholder Incentive	Maximum Shareholder Incentive Available	OEB-Approved Program Budget	Utility Spending**	Budget/ Spending Variance	Cost Effectiveness (TRC Benefit Cost Ratio)	Net Present Value (TRC Plus)	Participants / Units	Gross Annual Natural Gas Savings (m ³)	Gross Cumulative Natural Gas Savings (CCM)		
9	Resource Acquisition		45,247,691	723,570,707						123.9%	\$4,658,886	\$6,787,943	\$34,336,673	\$38,867,717	\$4,531,044	2.73	\$95,507,000	37,990	84,749,901	1,365,482,647		
10	Commercial & Industrial Custom	CCM Savings	18,327,992	315,357,341	See separate table below					92.4%	\$4,658,886	\$6,787,943	\$7,020,664	\$6,746,119	-\$274,545	4.04	\$48,734,000	677	53,834,552	899,531,474		
11	Commercial & Industrial Direct Install	CCM Savings	5,277,573	79,163,595											\$4,955,421	\$2,390,902	-\$2,564,519	10.80	\$11,971,000	345	5,555,340	83,330,100
12	Commercial & Industrial Prescriptive	CCM Savings	3,174,750	51,377,592											\$2,196,952	\$1,001,671	-\$1,195,281	3.24	\$8,047,000	6,909	3,735,085	60,591,326
13	Comprehensive Energy Management	CCM Savings	-	-											\$48,805	\$0	-\$48,805	-	-	-	-	-
14	Energy Leaders Initiative	CCM Savings	67,119	671,186											\$400,000	\$73,775	-\$326,225	1.51	\$74,000	4	67,119	671,186
15	Residential Adaptive Thermostats	CCM Savings	3,024,528	45,367,920											\$876,371	\$1,666,753	\$790,382	2.71	\$8,441,000	17,030	3,150,550	47,258,250
16	Run-it-Right	CCM Savings	387,468	1,937,342											\$1,260,162	\$300,962	-\$959,200	0.67	-\$202,000	39	774,008	3,870,040
17	Small Commercial New Construction	CCM Savings	-	-											\$396,933	\$0	-\$396,933	-	-	-	-	-
18	Home Energy Conservation	CCM Savings	14,988,260	229,695,730											\$12,148,317	\$22,057,458	\$9,909,141	1.96	\$23,071,000		17,633,248	270,230,271
19		Participants	N/A	12,986					157.2%	31.5%						N/A	N/A	12,986				
Resource Acquisition Overhead													\$5,033,048	\$4,630,077	-\$402,971							
21	Low Income		5,275,898	113,543,335						109.5%	\$1,214,842	\$2,361,462	\$11,945,410	\$8,732,571	-\$3,212,839	1.95	\$9,951,000	2,328	5,282,139	113,605,747		
22	Home Winterproofing	CCM Savings	1,155,256	28,814,754	23,842,500	31,790,000	47,685,000	45%	90.1%	40.8%	\$1,214,842	\$2,361,462	\$5,806,064	\$4,543,350	-\$1,262,714	1.12	\$537,000	1,700	1,159,201	28,854,208		
23	Multi Residential	CCM Savings	4,120,642	84,728,581	48,675,000	64,900,000	97,350,000	45%	130.6%	58.7%			\$3,279,028	\$2,326,325	-\$952,703	3.42	\$11,017,000	622	4,122,938	84,751,540		
24	New Construction	Applications	N/A	6	5	6	9	10%	100.0%	10.0%			\$1,116,696	\$258,877	-\$857,819	N/A	N/A	6				
Low Income Overhead													\$1,743,622	\$1,604,019	-\$139,603							
26	Market Transformation									98.6%	\$492,023	\$1,300,595	\$6,579,034	\$6,377,381	-\$201,653	N/A	N/A		N/A	N/A		
27	School Energy Competition	Schools	N/A	25	41	55	83	10%	46.4%	4.6%	\$492,023	\$1,300,595	\$302,197	\$289,555	-\$12,642	N/A	N/A	25				
28	Run-it-Right	Participants		84	62	83	124	20%	101.2%	20.2%			\$250,824	\$225,819	-\$25,005			84				
29	Comprehensive Energy Management	Participants		7	5	7	11	20%	100.0%	20.0%			\$464,930	\$106,806	-\$358,124			7				
30	Residential Savings by Design	Builders		31	25	33	50	10%	93.7%	9.4%			\$3,250,842	\$3,469,121	\$218,279			31				
31		Homes		2,206	2,063	2,751	4,127	15%	80.2%	12.0%								2,206				
32	Commercial Savings by Design	Developments		43	25	33	50	25%	129.4%	32.4%			\$1,345,890	\$1,398,940	\$53,050			43				
Market Transformation Overhead													\$964,351	\$887,140	-\$77,211							
34	EGD Rate Zone Program Total		50,523,589	837,114,042							\$6,365,751	\$10,450,000	\$52,861,117	\$53,977,669	\$1,116,552	2.60	\$105,458,000	40,318	90,032,041	1,479,088,394		
Portfolio Overhead and Administrative Costs													\$3,500,000	\$1,670,616	-\$1,829,384							
EGD Rate Zone Portfolio Total													\$56,361,117	\$55,648,285	-\$712,832							

37 *Not all values may compute exactly due to rounding.
38 †CCM are cumulative cubic meters of natural gas.
39 **The OEB's DSM Framework allows for utility spending to differ from the approved budget. Sections 6.6 and 11.2 of the [Filing Guidelines](#) provide details for acceptable spending differences.

EGD Rate Zone 2017 Resource Acquisition Scorecard and Achievement

	Program /Offering	Metric	Program Level Savings (CCM)	Metric-Level Savings (CCM)	Lower Band	Target	Upper Band	Metric Weight	Percent of Target Metric Achieved	Weighted % of Scorecard Achieved
45	Commercial & Industrial Custom	Large Volume Customer - CCM Savings	299,900,768	328,747,651	249,142,962	332,190,616	498,285,924	40%	99.0%	39.6%
46	Commercial & Industrial Direct Install		4,696,088							
47	Commercial & Industrial Prescriptive		21,806,900							
48	Comprehensive Energy Management		-							
49	Energy Leaders Initiative		406,553							
50	Run-it-Right		1,937,342							
51	Small Commercial New Construction		-							
52	Home Energy Conservation	Small Volume Customer - CCM Savings	229,695,730	394,823,056	224,198,225	298,930,967	448,396,450	40%	132.0%	52.8%
53	Residential Adaptive Thermostats		45,367,920							
54	Commercial & Industrial Custom		15,456,573							
55	Commercial & Industrial Direct Install		74,467,508							
56	Commercial & Industrial Prescriptive		29,570,692							
57	Energy Leaders Initiative		264,633							
58	Home Energy Conservation	Participants	12,986	12,986	6,194	8,259	12,388	20%	157.2%	31.5%

Source: 2016 Natural Gas Demand-Side Management Annual Verification Report (DNV GL) for achievement, and cost effectiveness. Utilities' Data for spend, targets and incentive results (some changes due to Decision and Order EB-2018-0300/EB-2018-0301 that modified targets.)
Created based on Table 1-3 from 2018 Natural Gas Demand-Side Management Annual Verification Report (DNV GL) but some columns have been re-ordered to accommodate additional data.
Participants/units and Gross Annual Savings are not available in the 2016 Annual Verification Report. This data has been taken from the Utilities' Data. This may vary from the Auditor results due to rounding and inability to completely reproduce results. Differences are not material.

Union Rate Zones (2016)

Table 1-3. Union Rate Zones achievement, spend, cost effectiveness, and incentive results*†

8	Program /Offering	Metric	Verified First-Year Savings (m³)	Verified Cumulative Savings or Other Metric	Lower Band	Target	Upper Band	Metric Weight	Percent of Target Metric Achieved	Weighted % of Scorecard Achieved	DSM Shareholder Incentive	Maximum Shareholder Incentive Available	OEB- Approved Program Budget	Utility Spending * *	Budget/ Spending Variance	Cost Effectiveness (TRC Benefit Cost Ratio)	Net Present Value (TRC Plus)	Participants / Units	Gross Annual Natural Gas Savings (m³)	Gross Cumulative Natural Gas Savings (CCM)
9	Resource Acquisition		46,526,753	814,757,917						105.0 %	\$2,907,230	\$6,402,042	\$27,927,833	\$27,585,941	-\$341,892	3.01	\$124,808,924	10,613	110,283,924	1,839,468,214
10	Commercial & Industrial Custom	CCM Savings	34,079,900	544,862,192	840,194,699	1,120,259,599	1,680,389,398	75%	73.0%	55.0%	\$2,907,230	\$6,402,042	\$7,808,000	\$8,559,792	\$751,792	3.53	\$87,270,221	432	96,817,327	1,549,389,969
11	Commercial & Industrial Direct Install	CCM Savings	-	-									\$500,000	\$0	-\$500,000	-	-	-		
12	Commercial & Industrial Prescriptive	CCM Savings	8,034,415	159,584,798									\$6,755,000	\$4,023,711	-\$2,731,289	3.43	\$26,160,054	3,586	8,821,926	173,961,480
13	Home Reno Rebate	CCM Savings	4,412,437	110,310,927									\$7,233,000	\$9,689,152	\$2,456,152	1.67	\$11,378,649		4,644,671	116,116,765
14		Participants	N/A	6,595	2,475	3,300	4,950	25%	200.0%	50.0%						N/A	N/A	6,595		
15	Overhead and Administrative Costs												\$5,631,833	\$5,313,286	-\$318,547					
16	Low Income		2,670,900	64,829,070						103.0 %	\$1,151,656	\$2,614,993	\$11,407,470	\$10,400,613	-\$1,006,857	1.53	\$5,265,799	2,010	2,714,980	65,831,099
17	Home Weatherization	CCM Savings	1,831,630	45,754,201	28,339,761	37,786,348	56,679,521	60.00%	121.0%	73.0%	\$1,151,656	\$2,614,993	\$6,335,000	\$7,588,591	\$1,253,591	1.46	\$3,423,123	1,867	1,831,659	45,754,573
18	Furnace End-of-Life	CCM Savings	1,617	29,106									\$761,000	\$7800	-\$753,200	0.51	-\$6,693	24	1,617	29,106
19	Indigenous	CCM Savings	-	-									\$8,000	\$13,632	\$5,632	-	-	-	-	
20	Multi-Family - Social & Assisted	CCM Savings	493,667	10,894,573									\$2,651,000	\$1,767,368	-\$883,632	1.75	\$1,849,369	78	519,613	11,467,220
21	Multi-Family - Market Rate	CCM Savings	343,986	8,151,190	2,252,430	3,003,240	4,504,860	5.00%	200.0%	10.0%								41	362,091	8,580,200
22	Overhead and Administrative Costs												\$1,652,470	\$1,023,222	-\$629,248					
23	Large Volume		6,772,053	79,848,302						9.0 %	\$0	\$916,941	\$4,000,000	\$2,989,176	-\$1,010,824	5.02	\$12,668,784	71	75,741,890	853,595,980
24	Large Volume	CCM Savings	6,772,053	79,848,302	668,168,041	890,890,721	1,336,336,082	100%	9.0%	9.0%	\$0	\$916,941	\$3,150,000	\$2,441,555	-\$708,445	5.02	\$12,668,784	71	75,741,890	853,595,980
25	Overhead and Administrative Costs												\$850,000	\$547,621	-\$302,379					
26	Market Transformation									50.0 %	\$0	\$390,403	\$1,703,070	\$1,004,693	-\$698,377	N/A	N/A	0	N/A	N/A
27	Optimum Home	Homes Built		70.09%	53.00%	70.00%	100.00%	50%	100.0%	50.0%	\$0	\$390,403	\$841,000	\$665,825	-\$175,175					
28	Commercial New Construction	New Developments		0	6	8	12	50%	0.0%	0.0%			\$500,000	\$28,786	-\$471,214					
29	Overhead and Administrative Costs												\$362,070	\$310,082	-\$51,988					
30	Performance Based									108.0 %	\$61,844	\$125,621	\$548,000	\$274,604	-\$273,396	N/A	N/A	35	N/A	N/A
31	RunSmart	Participants	N/A	32	21	28	41	50%	115.0%	58.0%	\$61,844	\$125,621	\$297,000	\$93,103	-\$203,897	N/A	N/A	32	N/A	N/A
32	Strategic Energy Management	Participants		3	2	3	5	50%	100.0%	50.0%			\$40,152	\$40,152				3		
33	Overhead and Administrative Costs												\$251,000	\$141,349	-\$109,651					
34	Union Rate Zones Program Total		55,969,706	959,435,289							\$4,120,730	\$10,450,000	\$45,586,373	\$42,255,027	-\$3,331,346	2.90	142,743,507	12,729	188,740,794	2,758,895,293
35	Portfolio Overhead and Administrative Costs												\$11,235,000	\$8,410,624	-\$2,824,376					
36	Union Rate Zones Portfolio Total												\$56,821,373	\$50,665,651	-\$6,155,722					

*Not all values may compute exactly due to rounding.
†CCM are cumulative cubic meters of natural gas.
** The OEB's DSM Framework allows for utility spending to differ from the approved budget. Sections 6.6 and 11.2 of the [Filing Guidelines](#) provide details for acceptable spending differences.

Source: 2018 Natural Gas Demand-Side Management Annual Verification Report (DNV GL). Spend from Utility data.
Table 1-1 is the basis but some columns have been re-ordered to accommodate additional data
Columns have been added from other tables in the Annual Verification Report. These are highlighted orange.
Participants/units and Gross Savings are not entirely available in the Annual Verification Report. This data has been taken from the Utilities' data. This may vary from the Auditor results due to rounding and inability to completely reproduce results. Differences are not material.

EGD Rate Zone (2017)

Table 1-1. EGD Rate Zone savings, spend, cost effectiveness, and incentive results*†

8	Program / Offering	Metric	Verified First-Year Savings (m3)	Verified Cumulative Savings or Other Metric	Lower Band	Target	Upper Band	Metric Weight	Percent of Target Metric Achieved	Weighted % of Scorecard Achieved	DSM Shareholder Incentive	Maximum Shareholder Incentive Available	OEB-Approved Program Budget	Utility Spending**	Budget/ Spending Variance	Cost Effectiveness (TRC Benefit Cost Ratio)	Net Present Value (TRC Plus)	Participants / Units	Gross Annual Natural Gas Savings (m ³)	Gross Cumulative Natural Gas Savings (CCM)					
9	Resource Acquisition		39,695,229	698,209,189						93.9%	\$2,120,130	\$7,025,881	\$39,488,708	\$40,290,430	\$801,722	2.63	\$104,016,000	31,025	67,186,971	1,126,355,600					
10	Commercial & Industrial Custom	CCM Savings	24,517,940	406,957,161	See separate table below				86.6%	68.9%	\$2,120,130	\$7,025,881	\$7,157,145	\$7,240,134	\$82,989	3.62	\$66,292,000	823	50,031,101	795,451,865					
11	Commercial & Industrial Direct Install	CCM Savings	3,734,401	56,016,021									\$5,060,872	\$1,807,641	-\$3,253,231	5.38	\$9,007,000	258	3,930,949	58,964,233					
12	Commercial & Industrial Prescriptive	CCM Savings	2,437,180	41,009,936									\$2,241,134	\$1,113,533	-\$1,127,601	2.77	\$7,179,000	4,202	2,853,530	48,098,120					
13	Comprehensive Energy Management	CCM Savings	-	-									\$80,184	\$0	-\$80184	-	-	-	-	-					
14	Energy Leaders Initiative	CCM Savings	137,553	1,375,530									\$400,000	\$78,613	-\$321,387	1.60	\$115,000	5	137,553	1,375,530					
15	Residential Adaptive Thermostats	CCM Savings	2,537,549	38,063,232									\$1,525,000	\$1,479,319	-\$45,681	2.90	\$8,613,000	14,288	2,643,280	39,649,200					
16	Run-it-Right	CCM Savings	173,891	869,455									\$1,434,480	\$872,005	-\$562,475	0.24	-\$668,000	59	347,365	1,736,825					
17	Small Commercial New Construction	CCM Savings	-	-									\$1,305,566	\$0	-\$1305566	-	-	-	-	-					
18	Home Energy Conservation	CCM Savings	6,156,714	153,917,853									\$15,180,000	\$22,644,994	\$7,464,994	1.50	\$13,478,000	-	7,243,193	181,079,827					
19		Participants	N/A	11,390												124.9%	25.0%			N/A	N/A	11,390			
Resource Acquisition Overhead													\$5,104,327	\$5,054,191	-\$50,136										
21	Low Income		4,321,445	88,962,125						50.3%	\$0	\$2,228,895	\$12,527,420	\$10,067,601	-\$2,459,819	2.20	\$10,811,000	2,907	4,313,092	89,084,809					
22	Home Winterproofing	CCM Savings	790,266	19,598,357	30,517,631	40,690,174	61,035,261	45%	48.2%	21.7%	\$0	\$2,228,895	\$6,290,000	\$4,539,420	-\$1,750,580	0.89	-\$517,000	1,352	796,791	19,663,606					
23	Multi Residential	CCM Savings	3,531,178	69,363,767	94,799,664	126,399,552	189,599,328	45%	54.9%	24.7%			\$3,418,121	\$2,765,831	-\$652,290	3.52	\$11,328,000	1,544	3,516,301	69,421,203					
24	New Construction	Applications	N/A	11	21	28	42	10%	39.3%	3.9%			\$1,200,000	\$1,158,956	-\$41,044	N/A	N/A	11							
Low Income Overhead													\$1,619,299	\$1,603,394	-\$15,905										
26	Market Transformation									66.3%	\$0	\$1,195,224	\$6,717,716	\$7,463,036	\$745,320	N/A	N/A	2,723	N/A	N/A					
27	School Energy Competition	Schools	N/A	65	43	57	86	10%	114.0%	11.4%	\$0	\$1,195,224	\$600,000	\$460,396	-\$139,604	N/A	N/A	65							
28	Run-it-Right	Participants		29	88	117	176	20%	24.1%	4.8%			\$285,520	\$421,777	\$136,257			29							
29	Comprehensive Energy Management	Participants		5	41	55	83	20%	10.7%	2.1%			\$763,861	\$234,085	-\$529,776			5							
30	Residential Savings by Design	Builders		24	24	32	48	10%	75.0%	7.5%			\$3,250,000	\$4,216,284	\$966,284			24							
31		Homes		2,570	1,705	2,273	3,410	15%	113.1%	17.0%								2,570							
32	Commercial Savings by Design	Developments		30	24	32	48	25%	93.8%	23.5%			\$950,000	\$1,270,688	\$320,688			30							
Market Transformation Overhead													\$868,335	\$859,806	-\$8,529										
34	EGD Rate Zone Program Total		44,016,673	787,171,313							\$2,120,130	\$10,450,000	\$58,733,844	\$57,821,067	-\$912,777	2.58	\$114,826,000	36,655	71,500,063	1,215,440,409					
Portfolio Overhead and Administrative Costs													\$4,200,000	\$5,085,923	\$885,923										
EGD Rate Zone Portfolio Total													\$62,933,844	\$62,906,990	-\$26,854										

37 *Not all values may compute exactly due to rounding.
38 †CCM are cumulative cubic meters of natural gas.
39 **The OEB's DSM Framework allows for utility spending to differ from the approved budget. Sections 6.6 and 11.2 of the [Filing Guidelines](#) provide details for acceptable spending differences.

EGD Rate Zone 2017 Resource Acquisition Scorecard and Achievement

	Program /Offering	Metric	Program Level Savings (CCM)	Metric-Level Savings (CCM)	Lower Band	Target	Upper Band	Metric Weight	Percent of Target Metric Achieved	Weighted % of Scorecard Achieved
45	Commercial & Industrial Custom	Large Volume Customer - CCM Savings	372,554,306	401,225,443	327,070,149	436,093,532	654,140,298	40%	92.0%	36.8%
46	Commercial & Industrial Direct Install		9,352,973							
47	Commercial & Industrial Prescriptive		17,142,080							
48	Comprehensive Energy Management		-							
49	Energy Leaders Initiative		1,306,630							
50	Run-it-Right		869,455							
51	Small Commercial New Construction		-							
52	Home Energy Conservation	Small Volume Customer - CCM Savings	153,917,853	296,983,745	296,983,745	370,375,390	555,563,085	40%	80.2%	32.1%
53	Residential Adaptive Thermostats		38,063,232							
54	Commercial & Industrial Custom		34,402,855							
55	Commercial & Industrial Direct Install		46,663,048							
56	Commercial & Industrial Prescriptive		23,867,857							
57	Energy Leaders Initiative		68,900							
58	Home Energy Conservation	Participants	11,390	11,390	6,837	9,116	13,674	20%	124.9%	25.0%

Source: 2018 Natural Gas Demand-Side Management Annual Verification Report (DNV GL). Spend from Utility data.
Table 1-3 is the basis but some columns have been re-ordered to accommodate additional data
Columns have been added from other tables in the Annual Verification Report. These are highlighted orange.
Participants/units and Gross Savings are not entirely available in the Annual Verification Report. This data has been taken from the Utilities' data. This may vary from the Auditor results due to rounding and inability to completely reproduce results. Differences are not material.

Union Rate Zones (2017)

Table 1-3. Union Rate Zones achievement, spend, cost effectiveness, and incentive results*†

Program /Offering	Metric	Verified First-Year Savings (m³)	Verified Cumulative Savings or Other Metric	Lower Band	Target	Upper Band	Metric Weight	Percent of Target Metric Achieved	Weighted % of Scorecard Achieved	DSM Shareholder Incentive	Maximum Shareholder Incentive Available	OEB- Approved Program Budget	Utility Spending **	Budget/ Spending Variance	Cost Effectiveness (TRC Benefit Cost Ratio)	Net Present Value (TRC Plus)	Participants / Units	Gross Annual Natural Gas Savings (m³)	Gross Cumulative Natural Gas Savings (CCM)
Resource Acquisition		57,864,098	999,091,347						126.7 %	\$4,753,191	\$6,595,243	\$33,404,162	\$44,240,315	\$10,836,153	2.00	\$101,711,000	19,078	118,538,183	2,005,294,378
Commercial & Industrial Custom	CCM Savings	37,907,520	579,288,646	732,348,080	976,464,106	1,464,696,159	75%	102.3%	76.7%	\$4,753,191	\$6,595,243	\$7,808,000	\$9,216,161	\$1,408,161	2.47	\$63,948,000	581	97,144,048	1,557,120,813
Commercial & Industrial Direct Install	CCM Savings	1,922,435	28,836,528									\$2,500,000	\$1,449,230	-\$1,050,770	4.93	\$4,756,000	228	2,023,616	30,354,240
Commercial & Industrial Prescriptive	CCM Savings	10,249,139	196,341,071									\$6,763,000	\$5,202,184	-\$1,560,816	2.70	\$25,630,000	4,540	11,175,778	212,950,797
Home Reno Rebate	CCM Savings	7,785,004	194,625,102									\$9,880,000	\$21,375,224	\$11,495,224	1.18	\$7,377,000		8,194,741	204,868,528
	Participants	N/A	13,729	5,144	6,859	10,289	25%	200.2%	50.0%						N/A	N/A	13,729		
Overhead and Administrative Costs												\$6,453,162	\$6,997,515	\$544,353					
Low Income		2,596,404	57,467,519						82.8 %	\$304,325	\$2,436,943	\$12,342,841	\$10,882,721	-\$1,460,120	1.21	\$2,335,000	2,353	2,666,702	58,855,704
Home Weatherization	CCM Savings	1,197,217	29,828,405	33,770,520	45,027,360	67,541,040	60.00%	68.1%	40.9%	\$304,325	\$2,436,943	\$6,136,000	\$6,432,937	\$296,937	0.98	-\$104,000	1,611	1,197,301	29,829,466
Furnace End-of-Life	CCM Savings	24570	442260									\$784,000	\$168790	-\$615210	0.35	-\$181000	464	24570	442260
Indigenous	CCM Savings	16,675	406,272									\$419,000	\$212,185	-\$206,815	0.52	-\$84,000	68	16,683	406,369
Multi-Family - Social & Assisted	CCM Savings	1,180,238	22,426,926	14,512,897	19,350,529	29,025,794	35.00%	115.9%	40.6%			\$3,359,000	\$2,503,499	-\$419,814	1.74	\$2,704,000	169	1,241,091	23,584,287
Multi-Family - Market Rate	CCM Savings	177,703	4,363,656	11,851,283	15,801,711	23,702,567	5.00%	27.6%	1.4%					\$435,687			41	187,056	4,593,322
Overhead and Administrative Costs												\$1,644,841	\$1,129,624	-\$515,217					
Large Volume		9,474,468	125,804,115						27.2 %	\$0	\$789,751	\$4,000,000	\$2,622,762	-\$1,377,238	1.80	\$10,086,000	48	61,884,178	821,712,050
Large Volume	CCM Savings	9,474,468	125,804,115	347,325,300	463,100,400	694,650,600	100%	27.2%	27.2%	\$0	\$789,751	\$3,150,000	\$2,127,205	-\$1,022,795	1.80	\$10,086,000	48	61,884,178	821,712,050
Overhead and Administrative Costs												\$850,000	\$495,557	-\$354,443					
Market Transformation									150.0 %	\$461,623	\$461,623	\$2,338,070	\$1,698,246	-\$639,824	N / A	N / A	22	N / A	N / A
Optimum Home	Builders	N/A	10	8	10	15	20%	100.0%	20.0%	461,623	461,623	\$841,000	\$685,326	-\$155,674	N/A	N/A	10		
	Homes Built		60.00%	22.50%	30.00%	45.00%	30%	200.0%	60.0%										
Commercial New Construction	New Developments		12	6	8	12	50%	150.0%	75.0%								12		
Overhead and Administrative Costs												\$497,070	\$306,762	-\$190,308					
Performance Based									18.2 %	\$0	\$166,440	\$843,000	\$532,776	-\$310,224	N / A	N / A	35	N / A	N / A
RunSmart	Participants	N/A	35	57	76	114	20%	46.1%	9.2%	\$0	\$166,440	\$200,000	\$162,052	-\$37,948	N/A	N/A	35		
	% Savings		1.49%	7.50%	10.00%	15.00%	60%	14.9%	8.9%										
Strategic Energy Management	Participants		-	24	32	48	20%	-	0.0%										
Overhead and Administrative Costs												\$251,000	\$176,837	-\$74,163					
Union Rate Zones Program Total		69,934,970	1,182,362,981							\$5,519,140	\$10,450,000	\$52,928,073	\$59,976,819	\$7,048,746	1.91	\$114,640,000	21,536	183,089,063	2,885,862,133
Portfolio Overhead and Administrative Costs													\$5,642,000	\$4,604,292	-\$1,037,708				
Union Rate Zones Portfolio Total													\$58,570,073	\$64,581,110	\$6,011,037				

*Not all values may compute exactly due to rounding.

†CCM are cumulative cubic meters of natural gas.

** The OEB's DSM Framework allows for utility spending to differ from the approved budget. Sections 6.6 and 11.2 of the [Filing Guidelines](#) provide details for acceptable spending differences.

Source: 2018 Natural Gas Demand-Side Management Annual Verification Report (DNV GL). Spend from Utility data
Table 1-1 is the basis but some columns have been re-ordered to accommodate additional data
Columns have been added from other tables in the Annual Verification Report. These are highlighted orange.
Participants/units and Gross Savings are not entirely available in the Annual Verification Report. This data has been taken from the Utilities' data. This may vary from the Auditor results due to rounding and inability to completely reproduce results. Differences are not material.

EGD Rate Zone (2018)

Table 1-1. EGD Rate Zone savings, spend, cost effectiveness, and incentive results*†

8	Program /Offering	Metric	Verified First-Year Savings (m3)	Verified Cumulative Savings or Other Metric	Lower Band	Target	Upper Band	Metric Weight	Percent of Target Metric Achieved	Weighted % of Scorecard Achieved	DSM Shareholder Incentive	Maximum Shareholder Incentive Available	OEB-Approved Program Budget	Utility Spending **	Budget/ Spending Variance	Cost Effectiveness (TRC Benefit Cost Ratio)	Net Present Value (TRC Plus)	Participants/Units	Gross Annual Natural Gas Savings (m³)	Gross Cumulative Natural Gas Savings (CCM)		
9	Resource Acquisition		36,157,056	677,329,382						101.3 %	\$2,955,435	\$7,119,472	\$43,162,456	\$41,427,686	-\$1,734,770	2.26	\$85,211,000	33,692	55,748,795	1,011,021,859		
10	Commercial & Industrial Custom	CCM Savings	19,799,976	352,950,627	See separate table below					84.1%	70.0%	\$2,955,435	\$7,119,472	\$7,361,562	\$7,696,271	\$334,709	3.48	\$54,562,000	508	37,557,690	647,388,799	
11	Commercial & Industrial Direct Install	CCM Savings	3,785,559	56,783,392										\$4,758,344	\$1,726,487	-\$3,031,857	5.35	\$10,053,000	353	3,984,799	59,771,991	
12	Commercial & Industrial Prescriptive	CCM Savings	2,132,567	36,475,770										\$2,232,905	\$1,164,036	-\$1,068,869	2.39	\$5,220,000	2,131	2,506,079	42,931,613	
13	Comprehensive Energy Management	CCM Savings	-	-										\$95,000	\$0	-\$95,000	-	-	-	-		
14	Energy Leaders Initiative	CCM Savings	1,206,466	29,708,535										\$400,000	\$324,138	-\$75,862	4.95	\$4,969,000	3	1,206,466	29,708,535	
15	Residential Adaptive Thermostats	CCM Savings	2,888,131	43,321,968										\$2,175,000	\$1,578,427	-\$596,573	2.92	\$10,113,000	16,262	3,008,470	45,127,050	
16	Run-it-Right	CCM Savings	25,991	129,953										\$1,584,600	\$522,385	-\$1,062,215	0.07	-\$486,000	22	51,919	259,595	
17	Small Commercial New Construction	CCM Savings	-	-										\$1,305,566	\$0	-\$1,305,566	-	-	-	-		
18	Home Energy Conservation	CCM Savings	6,318,365	157,959,136										\$18,000,000	\$23,256,751	\$5,256,751	1.02	\$782,000	14,413	7,433,371	185,834,276	
19		Participants	N/A	14,413						156.1%	31.2%						N/A	N/A				
20	Resource Acquisition Overhead													\$5,249,479	\$5,159,191	-\$90,288						
21	Low Income		6,069,722	130,147,292						87.0 %	\$422,199	\$2,195,295	\$13,309,177	\$12,984,841	-\$324,336	2.32	\$16,074,000	2,779	6,042,260	130,193,197		
22	Home Winterproofing	CCM Savings	697,146	15,978,390	21,392,823	28,523,764	42,785,646	45%	56.0%	25.2%	\$422,199	\$2,195,295	\$6,477,200	\$5,224,730	-\$1,252,470	0.73	-\$1,357,000	1,807	698,549	15,992,420		
23	Multi Residential	CCM Savings	5,372,576	114,168,901	73,159,199	97,545,599	146,318,399	45%	117.0%	52.7%			\$3,813,296	\$4,417,079	\$603,783	3.42	\$17,430,000	959	5,343,711	114,200,777		
24	New Construction	Applications	N/A	13	11	14	21	10%	92.9%	9.2%			\$1,400,000	\$1,752,191	\$352,191	N/A	N/A	13				
25	Low Income Overhead													\$1,618,681	\$1,590,841	-\$27,840						
26	Market Transformation									111.1 %	\$605,238	\$1,135,233	\$6,882,454	\$7,486,514	\$604,060	N/A	N/A	3,103	N/A	N/A		
27	School Energy Competition	Schools	N/A	14	59	78	117	10%	15.8%	1.6%	\$605,238	\$1,135,233	\$500,000	\$248,768	-\$251,232	N/A	N/A	14				
28	Run-it-Right	Participants		62	18	24	36	20%	258.3%	40.0%			\$315,400	\$608,623	\$293,223			62				
29	Comprehensive Energy Management	Participants		5	16	21	32	20%	20.0%	4.0%			\$905,000	\$314,424	-\$590,576			5				
30	Residential Savings by Design	Builders		35	15	20	30	10%	175.0%	17.5%			\$3,250,000	\$4,257,045	\$1,007,045			35				
31		Homes		2,956	1,634	2,179	3,269	15%	135.7%	20.3%								2,956				
32	Commercial Savings by Design	Developments		31	21	28	42	25%	110.7%	27.7%			\$1,075,000	\$1,234,997	\$159,997			31				
33	Market Transformation Overhead													\$837,054	\$822,657			-\$14,397				
34	EGD Rate Zone Program Total		42,226,778	807,476,673							\$3,982,872	\$10,450,000	\$63,354,087	\$61,899,041	-\$1,455,046	2.27	\$101,286,000	39,574	61,791,055	1,141,215,056		
35	Portfolio Overhead and Administrative Costs														\$4,200,000	\$4,255,425	\$55,425					
36	EGD Rate Zone Portfolio Total														\$67,554,087	\$66,154,466	-\$1,399,621					

*Not all values may compute exactly due to rounding.
†CCM are cumulative cubic meters of natural gas.
**The OEB's DSM Framework allows for utility spending to differ from the approved budget. Sections 6.6 and 11.2 of the [Filing Guidelines](#) provide details for acceptable spending differences.

EGD Rate Zone's 2018 Resource Acquisition Scorecard and Achievement

44	Program / Offering	Metric	Program Level Savings (CCM)	Metric-Level Savings (CCM)	Lower Band	Target	Upper Band	Metric Weight	Percent of Target Metric Achieved	Weighted % of Scorecard Achieved
45	Commercial & Industrial Custom	Large Volume Customer - CCM Savings	323,139,650	377,787,998	381,344,718	508,459,624	762,689,436	40%	74.3%	29.7%
46	Commercial & Industrial Direct Install		9,186,763							
47	Commercial & Industrial Prescriptive		15,642,977							
48	Comprehensive Energy Management		-							
49	Energy Leaders Initiative		29,688,655							
50	Run-it-Right		129,953							
51	Small Commercial New Construction		-							
52	Home Energy Conservation	Small Volume Customer - CCM Savings	157,959,136	299,541,383	222,815,737	297,087,649	445,631,474	40%	100.8%	40.3%
53	Residential Adaptive Thermostats		43,321,968							
54	Commercial & Industrial Custom		29,810,977							
55	Commercial & Industrial Direct Install		47,596,629							
56	Commercial & Industrial Prescriptive		20,832,793							
57	Energy Leaders Initiative		19,880							
58	Home Energy Conservation	Participants	14,413	14,413	6,926	9,235	13,853	20%	156.1%	31.2%

Table 1-3 is the basis but some columns have been re-ordered to accommodate additional data
Columns have been added from other tables in the Annual Verification Report. These are highlighted orange.
Participants/units and Gross Savings are not entirely available in the Annual Verification Report. This data has been taken from the Utilities' data. This may vary from the Auditor results due to rounding and inability to completely reproduce results. Differences are not material.

Union Rate Zones (2018)

Table 1-3. Union Rate Zones achievement, spend, cost effectiveness, and incentive results*†

Program /Offering	Metric	Verified First-Year Savings (m³)	Verified Cumulative Savings or Other Metric	Lower Band	Target	Upper Band	Metric Weight	Percent of Target Metric Achieved	Weighted % of Scorecard Achieved	DSM Shareholder Incentive	Maximum Shareholder Incentive Available	OEB- Approved Program Budget	Utility Spending**	Budget/ Spending Variance	Cost Effectiveness (TRC Benefit Cost Ratio)	Net Present Value (TRC Plus)	Participants /Units	Gross Annual Natural Gas Savings (m³)	Gross Cumulative Natural Gas Savings (CCM)			
Resource Acquisition		55,433,375	976,937,929						139.6%	\$5,809,659	\$6,642,647	\$36,633,281	\$46,146,906	\$9,513,625	2.05	\$108,537,000	19,893	105,514,281	1,809,039,310			
Commercial & Industrial Custom	CCM Savings	33,512,717	515,872,191	613,759,123	818,345,497	1,227,518,246	75%	119.4%	89.6%	\$5,809,659	\$6,642,647	\$7,808,000	\$8,379,370	\$571,370	2.46	\$59,748,000	358	82,136,252	1,318,801,709			
Commercial & Industrial Direct Install	CCM Savings	3,396,747	50,951,203									\$2,500,000	\$1,355,104	-\$1,144,896	7.02	\$8,699,000	222	3,575,523	53,632,845			
Commercial & Industrial Prescriptive	CCM Savings	10,318,033	204,967,607									\$7,486,000	\$4,752,739	-\$2,733,261	2.64	\$26,555,000	3,195	11,164,741	220,660,622			
Home Reno Rebate	CCM Savings	8,205,877	205,146,928									\$12,226,000	\$24,194,382	\$11,968,382	1.30	\$13,536,000		8,637,765	215,944,134			
	Participants	N/A	16,118	6,008	8,010	12,015	25%	201.2%	50.0%						N/A	N/A	16,118					
Overhead and Administrative Costs												\$6,613,281	\$7,465,311	\$852,030								
Low Income		2,678,832	58,343,698						83.9%	\$350,811	\$2,460,797	\$13,570,954	\$10,806,455	-\$2,764,500	1.30	\$3,090,000	2,249	2,752,139	59,729,042			
Home Weatherization	CCM Savings	1,278,504	31,815,336	30,755,897	41,007,862	61,511,793	60%	78.2%	46.9%	\$350,811	\$2,460,797	\$7,495,000	\$6,872,283	-\$622,717	1.04	\$289,000	1,885	1,278,623	31,816,819			
Furnace End-of-Life	CCM Savings	-	-									\$924,000	\$0	-\$924,000	-	-						
Indigenous	CCM Savings	9,932	237,038									\$511,000	\$174,604	-\$336,396	0.30	-\$123,000	61	9,941	237,146			
Multi-Family - Social & Assisted	CCM Savings	1,127,472	19,718,214									\$2,984,000	\$1,985,957	-\$372,226	1.94	\$2,925,000	262	1,186,813	20,756,015			
Multi-Family - Market Rate	CCM Savings	262,924	6,573,109	3,389,095	4,518,793	6,778,190	5%	145.5%	7.3%				\$625,818				41	276,763	6,919,063			
Overhead and Administrative Costs												\$1,656,954	\$1,147,793	-\$509,161								
Large Volume		8,055,743	89,196,896						45.6%	\$0	\$725,313	\$4,000,000	\$2,821,881	-\$1,178,119	2.47	\$9,955,000	43	52,604,257	582,379,894			
Large Volume	CCM Savings	8,055,743	89,196,896	146,795,489	195,727,318	293,590,977	100%	45.6%	45.6%	\$0	\$725,313	\$3,150,000	\$2,341,061	-\$808,939	2.47	\$9,955,000						
Overhead and Administrative Costs												\$850,000	\$480,819	-\$369,181								
Market Transformation									107.1%	\$205,755	\$423,958	\$2,338,070	\$2,156,909	-\$181,161	N/A	N/A	26	N/A	N/A			
Optimum Home	Builders	N/A	8	6	8	12	10%	100.0%	10.0%	\$205,755	\$423,958	\$841,000	\$847,194	\$6,194	N/A	N/A	8					
	Homes Built		83.33%	45.00%	60.00%	90.00%	30%	138.9%	41.7%													
	% of Homes Built		3.97%	3.75%	5.00%	7.50%	10%	79.4%	7.9%													
Commercial New Construction	New Developments		18	14	19	29	50%	94.7%	47.5%			\$1,000,000	\$988,548	-\$11,452			18					
Overhead and Administrative Costs												\$497,070	\$321,167	-\$175,903								
Performance Based									61.3%	\$0	\$197,285	\$1,088,000	\$694,395	-\$393,605	N/A	N/A	47	N/A	N/A			
RunSmart	Participants	N/A	44	33	44	66	10%	100.0%	10.0%	\$0	\$197,285	\$193,000	\$145,265	-\$47,735	N/A	N/A	44					
	% Savings		0.51%	1.47%	1.96%	2.94%	40%	26.0%	10.4%													
Strategic Energy Management	Participants		3	2	3	5	10%	100.0%	10.0%			\$644,000	\$357,804	-\$286,196			3					
	% Savings		3.86%	3.75%	5.00%	7.50%	40%	77.2%	30.9%													
Overhead and Administrative Costs												\$251,000	\$191,326	-\$59,674								
Union Rate Zones Program Total				66,167,950	1,124,478,523								\$6,366,226	\$10,450,000	\$57,630,305	\$62,626,546	\$4,996,241	2.01	\$121,582,000	22,258	160,870,677	2,451,148,246
Portfolio Overhead and Administrative Costs														\$5,642,000	\$6,496,375	\$854,375						
Union Rate Zones Portfolio Total														\$63,272,305	\$69,122,921	\$5,850,616						

*Not all values may compute exactly due to rounding.
†CCM are cumulative cubic meters of natural gas.
** The OEB's DSM Framework allows for utility spending to differ from the approved budget. Sections 6.6 and 11.2 of the [Filing Guidelines](#) provide details for acceptable spending differences.

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

[General]

Question:

The 2018 Audit Report includes a lengthy list of recommendations. Please provide, with respect to each recommendation: a) the text of the recommendation, b) the first year the recommendation, or one substantially similar, was made, c) the Applicant's response to the recommendation, and d) the status of any planned changes in response to the recommendation.

Response

The Evaluation Contractor ("EC") submitted its final 2017 and 2018 Natural Gas Demand Side Management Annual Verification reports (the "Audit Reports") to the Evaluation Advisory Committee ("EAC") on March 13, 2020. Enbridge Gas has not had the opportunity to comprehensively review and assess the recommendations contained therein, however, Enbridge Gas will provide responses to these recommendations, including any initial resulting planned changes, as part of its 2017/2018 DSM Deferral and Variance Account Clearance application.

The text of the recommendations from the 2018 Natural Gas Demand Side Management Annual Verification report can be found at:
<https://www.oeb.ca/sites/default/files/2018-DSM-Annual-Verification-Report.pdf>.

The EC's 2017 and 2018 recommendations are identical and reflect that the 2017 and 2018 audits were completed concurrently. For each 2017/2018 recommendation, the first verification cycle that the recommendation was made (or one substantially similar), and the date that the final EC recommendations were provided for that cycle, are provided in Table 1 below.

Table 1
Recommendation Reference Table

2017/2018 Recommendation ID	First Verification Cycle Recommendation Made	Date final EC Recommendations Filed
O1	2015	December 2017
O2	2015	December 2017
O3a	2015	December 2017
O3b	2015	December 2017
O3c	2016	October 2018
O3d	2016	October 2018
O4	2016	October 2018
O5	2017/2018	March 2020
SM1	2015	December 2017
SM2	2015	December 2017
SM3a	2017/2018	March 2020
SM3b	2015	December 2017
SM4	2017/2018	March 2020
SM5	2015	December 2017
SM6	2017/2018	March 2020
SM7	2017/2018	March 2020
CE1	2015	December 2017
CE2	2017/2018	March 2020
CE3	2017/2018	March 2020
CE4	2016	October 2018
ES1	2015	December 2017
ES2	2016	October 2018
ES3	2015	December 2017
ES4	2015	December 2017
ES5	2016	October 2018
ES6	2017/2018	March 2020
VP7	2015	December 2017
DS8	2015	December 2017
DS9	2016	October 2018
DS10	2016	October 2018
DS11	2016	October 2018
DS12	2016	October 2018
DS13	2016	October 2018

2017/2018 Recommendation ID	First Verification Cycle Recommendation Made	Date final EC Recommendations Filed
DS14	2016	October 2018
DS15	2016	October 2018
DS16	2015	December 2017
DS17	2015	December 2017
DS18	2015	December 2017
DS19	2015	December 2017
DM20a	2015	December 2017
DM20b	2015	December 2017
DM20c	2015	December 2017
DM21	2015	December 2017
DM22	2016	October 2018
FR1	2015	December 2017
FR2	2015	December 2017
FR3	2015	December 2017
FR4	2015	December 2017
FR5	2015	December 2017
FR6	2015	December 2017
FR7	2015	December 2017
FR8	2017/2018	March 2020
FR9	2017/2018	March 2020
FR10	2017/2018	March 2020
FR11	2017/2018	March 2020
All Commercial & Industrial Prescriptive Program NTG Verification Recommendations	2017/2018	March 2020

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

[General]

Question:

For each program or offering that was not cost-effective in any of the years 2015 through 2019, please describe the Applicant's plans for that program or offering in 2020 and 2021, including specifics of any actions that will be undertaken to ensure that they are cost-effective in those years.

Response

As per the OEB's 2015-2020 DSM Framework Filing Guidelines,¹ "for a prospective program to be deemed cost-effective, it must achieve a screening threshold benefit/cost ratio of 1.0 or greater", and "[t]o recognize that low-income natural gas DSM programs may result in important benefits not captured by the TRC-Plus test, these programs should continue to be screened using a lower threshold value of 0.70."²

Between 2015 and 2018, in the current multi-year DSM plan period,³ the Performance-Based Program offered in the Union rate zones, has screened below the TRC-Plus screening threshold with both offerings, RunSmart and Strategic Energy Management ("SEM"), screening below a TRC-Plus ratio of 1.0.

Gas savings results for RunSmart projects have been lower than were forecasted, Enbridge Gas is therefore reviewing the design of this offer and is considering changes in 2020 including improving data analysis approaches in an effort to identify those

¹ EB-2014-0134, OEB Filing Guidelines to the Demand Side Management Framework for Natural Gas Distributors (2015-2020) (December 22, 2014), p. 26.

² Ibid

³ Data from the 2019 program year is being compiled at the time of this submission, and therefore is not currently available.

customers who have greater potential savings opportunities and would benefit more from active participation in this offer.

Similarly, gas savings calculations attributable to the SEM offer were not as high as initially forecast, because in some cases participants limited their efficiency improvements due to competing financial priorities. Given the nature of the multi-year participation in SEM, Enbridge Gas is not enrolling new customers. Enbridge Gas is focused on continuing to support participants already enrolled and in the process of implementing energy management plans, with the aim of identifying efficiency opportunities and realizing greater savings. This is expected to improve cost-effectiveness for this offering.

The Run It Right offering (included in the Resource Acquisition program) in the EGD rate zone, as well as the Furnace End-of-Life and Indigenous offerings (part of the Low Income program) in the Union Gas rate zones screened below the TRC-Plus screening thresholds, however the programs were cost-effective.

Enbridge Gas is currently reviewing the design of its Run It Right offer and is examining approaches to better target participants through data analysis to help identify participants with the most significant opportunities to benefit from the Run It Right process, analyzing energy performance and optimizing building operations.

Though the Furnace End-of-Life offering on its own, has had low cost-effectiveness, it is beneficial to specific customers in the right situation, particularly given the challenges in this customer segment. In an effort to maintain overall cost-effectiveness for the Low Income program, Enbridge Gas has been careful not to actively promote this offering in the mass market, but provide support where appropriate. For the time being, Enbridge Gas is not promoting the Furnace End of Life offering.

The Indigenous offering has a lower cost-effectiveness as the average cost of energy efficiency and health and safety measures are higher for projects in these communities relative to the balance of the Low Income single family participant. However, this offering continues to benefit vulnerable participants in Indigenous communities. Enbridge Gas believes there continues to be value and benefit in supporting these communities, and therefore does not intend to change the offering at this time.

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

[General]

Question:

It is likely that, if this Application is approved either as filed or in a modified form, subsequently (late in 2020 or early in 2021) the Applicant will have a clear view of the Board's expectations for the next framework starting in 2022. Assuming that is the case, please:

- a. Provide a detailed explanation of the Applicant's ability to adjust the spending, programs, offerings, scope, and other DSM aspects in 2021 as a result of the directions taken in the next framework.
- b. Include in that explanation i) adjustments to ensure 2021 spending and programs are as efficient as possible, ii) adjustments to ensure that the transition to 2022 is as smooth as possible, and iii) adjustments ordered by the Board to specifically apply to 2021.
- c. Identify the extent to which any adjustments are dependent on the timing of the Board's approval of the final DSM framework for 2022 and beyond.

Response

- a) - c)
Detailed explanations of adjustments required to transition to what is a yet undetermined Post-2020 DSM Framework requires speculation as to what the future framework will ultimately be, including the goals, objectives and principles underlying such framework. Speculation on the final result of the Post-2020 DSM Framework consultative (including as to when Enbridge Gas will have "a clear view of the Board's expectations for the next framework") exceeds the scope of this proceeding

as defined by the OEB in its Procedural Order No. 1.¹ Please also see the responses at Exhibit I.BOMA.4 and at Exhibit I.IGUA.1.

¹ EB-2019-0271, OEB Procedural Order No. 1 (February 24, 2020), p. 3.

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

Preamble:

There is certainly the potential that the COVID-19 pandemic could have an impact on the program delivery in 2020 and planning for 2021 and beyond.

Question:

Provide a summary of the current expected impacts, and any plans you have to mitigate those impacts.

Response

The purpose of this response is to provide background on the impacts of the COVID-19 pandemic on program delivery, it also explains the approach Enbridge Gas has used for responding to the numerous interrogatories in this proceeding under these highly unusual circumstances. At the time of this submission, Ontario has declared a state of emergency. The Ontario Government advises, "Everyone in Ontario should be practicing social distancing [referred herein as "physical distancing"] to reduce their exposure to other people. Everyone in Ontario should do their best to avoid close contact with people outside of their immediate families. Close contact includes being within two (2) meters of another person."¹

Enbridge Gas has recently informed the OEB of measures it is taking to ensure the safety of its staff, contractors, customers and the general public in the wake of the COVID-19 pandemic.² Further, Enbridge Gas has also recently informed the Board that it has suspended disconnections related to non-payment for all residential and small commercial customers consuming less than 50,000 m³ per year until July 31, 2020.³ The rapid evolution of COVID-19 has prompted Enbridge Gas's Distribution Operations

¹ <https://www.ontario.ca/page/2019-novel-coronavirus>

² Please see Attachment 1.

³ Please see Attachment 2.

to re-evaluate the work performed by field employees and service providers. This supports the greater need to practice physical distancing wherever possible, both for our team and our customers, while maintaining safe and reliable operations. Enbridge Gas has scaled back work to emergency response and high priority work including projects, ensuring that we provide essential services to customers reliably now and in the future (i.e. heat and hot water). The Energy Conservation and Marketing (“ECM”) team, together with the majority of Enbridge Gas employees, are operating under a work from home protocol, supportive of Ontario’s request to respect physical distancing guidelines.

Enbridge Gas has also suspended operation of most customer facing/interactions across the conservation program portfolio, while continuing to acquire potential participants through remote or electronic means. As an example, the Home Energy Rebate program offering has suspended in-home energy audits. Extensions will be allowed for partially completed participants to ensure all participants can complete the program once normal operation is resumed. Acquisition of participants will continue, with bookings of in-home energy audits being deferred to a later date. Similar suspensions of in-person activities are taking place across the program portfolio. These actions are to ensure the health and safety of employees, customers and business partners, which is Enbridge Gas’s number one priority. At this time, there are no plans to terminate any DSM programs.

Enbridge Gas’s 2021 DSM Plans application simply seeks approval to continue the incentive regulation framework established by the Board in its 2015-2020 DSM Framework, which includes productivity factors that increase targets formulaically and holds overhead costs and budgets without inflationary increases. In its Report on the 2015-2020 DSM Framework the Board stated, “there is no license condition mandating that the gas utilities undertake DSM activities” and put in place a balanced scorecard approach that aligns shareholder interests with ratepayers across several policy objectives.⁴ Enbridge Gas asks that all these balanced scorecard elements be rolled over such that efforts of its staff, stakeholders and the Board can be focused on the development of the Post-2020 DSM Framework. In its Procedural Order No. 1, the Board states, “The OEB is mindful of the costs and resources required to thoroughly review, critique and make material changes to the currently approved DSM plans and agrees with Enbridge Gas that resources are best directed to the policy consultation.”⁵

Despite the challenges in the current operating environment discussed above, Enbridge Gas has attempted to be as responsive as possible to the large number of intervenors

⁴ EB-2014-0134 Report of the Board: Demand Side Management Framework for Natural Gas Distributors (2015-2020) (December 22, 2014), Section 5.0, pp. 19-20.

⁵ EB-2019-0271 OEB Procedural Order No. 1 (February 24, 2020).

(17) and numerous overlapping interrogatories received, numbering over 220 questions in total, while adhering to the OEB's procedural timeline (established in February 2020). Enbridge Gas's efforts underscore the importance that it places upon maintaining the timelines and focus on development of the Post-2020 DSM Framework. More than ever, Enbridge Gas believes that the approvals sought in this proceeding to extend the 2015-2020 DSM Framework and roll-over the 2020 budget into 2021 are in the best interests of ratepayers and that timely approval of this application is critical. The current environment has enough uncertainties. Customers planning to invest in conservation activities should not question whether they will receive support from their utility programs. In its Procedural Order No.1 the Board stated, "the OEB does not expect material changes to the programs and no increase to the overall DSM budget." Given the current environment, it is even more important now to avoid material changes to programming. Given the Board's direction, Enbridge Gas highlights the following key assumptions that have been made across all interrogatory responses:

2019 Forecasts/Actuals

As 2019 data is still being compiled at the time of this submission, Enbridge Gas has assumed that all metrics will reach a level of 100% based on the audited 2018 results. This assumption is flowed through the target adjustment mechanism ("TAM") with all OEB-approved productivity factors applied so that 2019 targets can be numerically calculated. Enbridge Gas intends to file Pre-Audited 2019 DSM program year results with the OEB by May 29, 2020.⁶

2020 Forecast

Enbridge Gas has assumed that all 2020 metrics will reach a level of 100% and that 2020 metrics are based on achieving 100% 2019 results. This assumption is flowed through the TAM with all OEB-approved productivity factors applied so that 2020 targets can be numerically calculated.

2021 Forecast

Enbridge Gas has assumed that all 2021 metrics will reach a level of 100% and that 2021 metrics are based on achieving 100% 2020 results. This assumption is flowed through the TAM with all OEB-approved productivity factors applied so that 2021 targets can be numerically calculated.

The assumptions set out above are reasonably necessary to respond to the many data intensive interrogatories posed as: (i) the audit outcomes for 2019 results are not currently known; (ii) 2020 actuals are not currently known; and (iii) COVID-19 conditions are fluid and 2020 outcomes cannot be forecast with certainty. Although

⁶ EB-2015-0245 OEB Letter: 2019 Draft Demand Side Management Evaluation Reports (April 3, 2020).

Enbridge Gas has well over two decades of experience effectively delivering conservation programs in Ontario, the current environment is simply unprecedented.



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VIA EMAIL

March 27, 2020

Brian Hewson
Vice President, Consumer Protection & Industry Performance
Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

Re: COVID-19 Impact on Service Quality Requirements ("SQRs")

Dear Mr. Hewson:

The purpose of this letter is to inform the Ontario Energy Board ("Board") of the concern of Enbridge Gas Inc. ("EGI") that the COVID-19 pandemic will impact EGI's ability to meet the SQRs, as described in the *Gas Distribution Access Rule* ("GDAR"), for the year 2020. Impacts experienced to date, as well as those that may ensue in the coming weeks, are a direct result of EGI's efforts to ensure the safety of its staff, contractors, customers and the general public in the wake of the COVID-19 pandemic. Some of these measures include:

- i) instituting a broad work-from-home requirement for all non-essential staff whose roles and responsibilities can be fulfilled remotely;
- ii) reducing in-office call centre staff by 50% to ensure appropriate physical distancing;
- iii) implementing a phased-in work-from-home program for some call centre staff;
- iv) the use of health-related personal protective equipment for field staff; and
- v) modifications to field work relating to SQRs, such as the suspension of indoor meter reading and the implementation of physical distancing requirements while working in the field.

As noted, some of the impacts of COVID-19 and EGI's related safety measures have begun to impact SQRs, while other impacts are either anticipated or may occur depending on the severity and duration of the COVID-19 pandemic. EGI is not seeking a GDAR exemption relating to the SQRs at this time, but rather wishes to inform the Board in advance of expected impacts. Enbridge Gas may be required to request an exemption in the future under section 1.5.1 of the GDAR.

The table provided in Attachment 1 to this letter lists the SQRs which are or may be impacted. Each SQR is accompanied by a description of the cause or possible cause underpinning EGI's challenge to meet the SQR in question.

If you have any questions, please contact me at (519) 365-0320.

Yours truly,

(Original Signed)

Mark Kitchen
Director, Regulatory Affairs

cc:

Theodore Antonopoulos (OEB)
Christine Long (OEB)
Malini Giridhar (EGI)

Attachment 1: Service Quality Requirements Impacted by COVID-19

OEB SQR Metric	SQR Definition	Target	Description of Impact
7.3.1.1 Call Answering Service Level	The percentage of all calls to the general inquiry phone number, including IVR calls that are answered within 30 seconds. This measure will track the percentage of attempted calls that are satisfied within the IVR or successfully reach a live operator within 30 seconds of reaching the distributor's general inquiry number. The operator must be ready to accept calls and to provide information.	The yearly performance standard for the Call Answering Service Level shall be 75% with a minimum monthly standard of 40%.	Reduced call centre staff and the possibility of IT-related interruptions experienced by work-from-home staff will reduce EGI's ability to manage this SQR. To the degree EGI staff are unable to work due to illness or related COVID-19 issues this will further impact EGI's ability in this area. Under current circumstances, EGI's ability to acquire and train new staff will be limited. COVID-19 is expected to result in increased call traffic as an increasing number of customers experience difficulty paying their gas bill. EGI is prioritizing emergency and other high priority work, which is expected to impact EGI's ability to handle less urgent customer requests.
7.3.1.2 Abandon Rate	The abandon rate means the percentage of callers who hang up while waiting for a live operator. This measure will track the percentage of callers that hang up before they reach a live operator.	The performance for this standard shall not exceed 10% on a yearly basis.	Reduced call centre staff and the possibility of IT-related interruptions experienced by work-from-home staff will reduce EGI's ability to manage this SQR. To the degree EGI staff are unable to work due to illness or related COVID-19 issues this will further impact EGI's ability in this area. Under current circumstances, EGI's ability to acquire and train new staff will be limited. COVID-19 may result in increased call traffic as an increasing number of customers experience difficulty paying their gas bill. Customers will be

OEB SQR Metric	SQR Definition	Target	Description of Impact
			encouraged to leverage self-service options such as myAccount and chat functions. EGL is prioritizing emergency and other high priority work, which is expected to impact EGL's ability to handle less urgent customer requests.
7.3.2 Billing Performance	The billing performance standard is a quality assurance standard. The standard requires gas distributors to have a verifiable quality assurance program in place. 7.3.2.1 Audits Distributors must audit their billing data for accuracy. Manual checks must be done to validate data when meter reads fall outside criteria, as set out in the quality assurance program, for excessively high or low usage. In addition, the quality assurance program must include random audits of data quality and billing accuracy.	No specific metric is attached to this requirement.	Reduced back office staff and the possibility of IT-related interruptions experienced by work-from-home staff will reduce EGL's ability to manage this SQR. The same restrictions may make the timely completion of audits more challenging.
7.3.3.1 Meter Reading Performance Measurement	The meter reading performance measurement requirement will measure the percentage of meters with no read for four consecutive months. Callers who call in their meter reads will be considered to have had their meters read.	This measurement shall not exceed 0.5% on a yearly basis.	EGL has suspended indoor meter reading and is experiencing an increase in missed outdoor meter reads due to physical distancing requirements. EGL's ability to meet this target is dependent on having qualified personnel and personal protective equipment (PPE). A significant loss of staff due to COVID-19 or an inability to acquire appropriate PPE may impact EGL's ability to meet this SQR.
7.3.4.1 Appointments Met Within the Designated Time Period	This measurement will identify the percentage of appointments, including meter related or other customer related work, that are met within their 4 hour scheduled time/date as arranged with the customer.	The minimum performance standard for this measurement shall be 85% averaged over a	EGL's ability to meet this target is dependent on having qualified personnel and PPE. A significant loss of staff due to COVID-19 or an inability

OEB SQR Metric	SQR Definition	Target	Description of Impact
	This includes appointments for installations, meter reads and reconnection appointments (not including those due to non-payment).	year.	to acquire appropriate PPE may impact EGI's ability to meet this SQR.
7.3.4.2 Time to Reschedule a Missed Appointment	This measurement tracks the time taken to contact the consumer to offer to reschedule a missed appointment. This includes appointments for meter related customer requests or other customer requested work such as installations, meter reads and reconnection appointments not due to non-payment. At minimum, the distributor must contact the customer to reschedule the work within 2 hours of the end of the original appointment time.	The minimum performance standard shall be that 100% of affected customers will receive a call offering to reschedule work within 2 hours of the end of the original appointment time.	EGI's ability to meet this target is dependent on having qualified personnel and technology infrastructure in place and available to call customers to reschedule a missed appointment. A significant loss of staff or technology due to COVID-19 may impact EGI's ability to meet this SQR.
7.3.5.1 Percentage of Emergency Calls Responded to Within One Hour	This measurement will track the average response time to emergencies such as gas leaks, damages and other high priority situations. The response time is calculated from the time the caller reaches a live representative from the distribution company to the time the gas representative arrives on site.	The minimum performance standard shall be that 90% of customers have received a response within 60 minutes of their call reaching a live person. The standard shall be calculated on an annual basis.	Reduced call centre staff and the possibility of IT-related interruptions experienced by work-from-home staff will reduce EGI's ability to manage this SQR. EGI's ability to meet this target is dependent on having qualified personnel and PPE. A significant loss of staff due to COVID-19 or an inability to acquire appropriate PPE may impact EGI's ability to meet this SQR.
7.3.6.1 Number of Days to Provide a Written Response	The distributor will send a substantive written response to a customer grievance within 10 days of receiving the written complaint. If the grievance needs to be investigated further and more time is required to fully respond to the complaint, an interim response will be sent until a final response can be sent. A substantive response is a response that addresses the issues raised by the complainant. If the customer wishes to have a verbal response instead of a written one, it will not be counted in this measurement.	The minimum performance standard shall be that 80% of customers will receive a written response in 10 days of the distributor receiving the complaint.	Possibility of IT-related interruptions experienced by work-from-home staff will reduce EGI's ability to manage this SQR. COVID-19 may result in an increased number of cases requiring investigation and a written response as an increasing number of customers experience difficulty paying their gas bill and EGI's ability to adhere to other SQRs is impacted by COVID-19.

OEB SQR Metric	SQR Definition	Target	Description of Impact
7.3.7.1 Number of Days to Reconnect a Customer	Once the customer is in good standing as a result of a payment made, the reconnection should be made within 2 business days.	The minimum performance standard shall be that 85% of customers are reconnected within 2 business days of bringing their accounts into good standing.	EGI's ability to meet this target is dependent on having qualified personnel and PPE. A significant loss of staff due to COVID-19 or an inability to acquire appropriate PPE may impact EGI's ability to meet this SQR. EGI has suspended disconnections related to non-payment for all residential and small commercial customers consuming less than 50,000 m³ per year until July 31, 2020, which may mitigate impacts to this SQR.



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VIA EMAIL

March 25, 2020

Brian Hewson
Vice President, Consumer Protection & Industry Performance
Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

Re: COVID-19 Disconnection Suspension

Dear Mr. Hewson:

The purpose of this letter is to inform the Ontario Energy Board ("OEB") that Enbridge Gas Inc. ("EGI") will be suspending disconnections related to non-payment for all residential and small commercial customers consuming less than 50,000 m³ per year until July 31, 2020. EGI has taken this step recognizing, that as a result of the COVID-19 pandemic, residential and small commercial customers may have difficulty paying their gas bills. EGI is committed to working with customers and the OEB to continue to provide the safe and reliable service on which our customers depend.

If you have any questions, please contact me at (519) 365-0320.

Yours truly,

(Original Signed)

Mark Kitchen
Director, Regulatory Affairs

cc: Malini Giridhar (EGI)
Theodore Antonopoulos (OEB)
Christine Long (OEB)

ENBRIDGE GAS INC.

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition (VECC)

Interrogatory

Reference:

General

Question:

- a) Please provide the actual Percentage of Lifetime Natural Gas Savings from 2017 to 2019 DSM Programs by customer segment for the Union and Enbridge rate zones.
- b) Please provide the forecast Percentage of Lifetime Natural Gas Savings from 2020 to 2021 DSM Programs by customer segment for the Union and Enbridge rate zones.

Response

- a) The natural gas savings details set out in Tables 1 and 2 below: (i) represent net CCM natural gas savings only, and do not include results from Enbridge Gas offerings that are measured by non-CCM metrics (i.e. participants or market transformation offerings); (ii) are Draft as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB; and (iii) exclude 2019 DSM program year details which are still being compiled at the time of this submission and are not currently available.

Table 1
Union Rate Zones

Sector	2017 % of Total Natural Gas Savings (Lifetime)	2018 % of Total Natural Gas Savings (Lifetime)
Residential (non-Low Income)	16%	18%
Low Income	5%	5%
Commercial/Industrial	68%	69%
Large Volume	11%	8%
Sector Total	100%	100%

Table 2
EGD Rate Zone

Sector	2017 % of Total Natural Gas Savings (Lifetime)	2018 % of Total Natural Gas Savings (Lifetime)
Residential (non-Low Income)	24%	25%
Low Income	11%	16%
Commercial/Industrial	64%	59%
Sector Total	100%	100%

- b) The natural gas savings details set out in Tables 3 and 4 below: (i) represent net CCM natural gas savings only, and do not include results from Enbridge Gas offerings that are measured by non-CCM metrics (i.e. participants or market transformation offerings); and (ii) are based on the forecasted 100% OEB-approved targets. As OEB targets for the Resource Acquisition scorecards do not delineate between Residential (non-Low Income) and Commercial/Industrial, Enbridge Gas is unable to provide forecasts at that level.

Table 3
Union Rate Zones

Sector/Scorecard	2020 % of Total Forecast Natural Gas Savings (Lifetime)	2021 % of Total Forecast Natural Gas Savings (Lifetime)
Resource Acquisition (Residential (non-Low Income) and Commercial/Industrial)	78%	79%
Low Income	8%	8%
Large Volume	15%	13%
Total	100%	100%

Table 4
EGD Rate Zone

Sector/Scorecard	2020 % of Total Forecast Natural Gas Savings (Lifetime)	2021 % of Total Forecast Natural Gas Savings (Lifetime)
Resource Acquisition (Residential (non- Low Income) and Commercial/Industrial)	86%	87%
Low Income	14%	13%
Total	100%	100%

ENBRIDGE GAS INC.

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition (VECC)

Interrogatory

Reference:

General

Question:

- a) Please provide the actual Program Spending as a Percentage of Overall 2017 to 2019 DSM Budgets by customer segment for the Union and Enbridge rate zones.
- b) Please provide the forecast Program Spending as a Percentage of Overall 2020 and 2021 DSM Budgets by customer segment for the Union and Enbridge rate zones.

Response

- a) Please see Tables 1 and 2 below for actual program spending as a percentage of DSM budgets by customer segment for the Union and EGD rate zones.

Table 1
Program Spending as a % of Budgets - Union Rate Zones

Sector	2017 % of Total Program Spend	2018 % of Total Program Spend
Residential (non-Low Income)	42%	45%
Low Income	18%	17%
Commercial/Industrial	36%	33%
Large Volume	4%	5%
Sector Sub-Total	100%	100%

NOTES:

Union rate zones details include program overheads but do not include portfolio overheads.

Table 2
Program Spending as a % of Budgets - EGD Rate Zone

Sector	2017 % of Total Program Spend	2018 % of Total Program Spend
Residential (non-Low Income)	56%	54%
Low Income	17%	21%
Commercial/Industrial	27%	25%
Sector Sub-Total	100%	100%

NOTES:

EGD rate zone do not include program or portfolio overheads.

As 2019 DSM program year spending details are still being compiled at the time of this submission, they are not currently available.

- b) Please see Tables 3 and 4 below for forecast program spending as a percentage of 2020 OEB-approved DSM budgets by customer segment for the Union and EGD rate zones.

Table 3
Program Spending as a % of Budgets - Union Rate Zones

Sector	2020 % of Total Program Budget	2021 % of Total Program Budget
Residential (non-Low Income)	26%	26%
Low Income	26%	26%
Commercial/Industrial	42%	42%
Large Volume	7%	7%
Sector Sub-Total	100%	100%

NOTES:

Union rate zones figures include program overheads but do not include portfolio overheads.

Market Transformation overhead assumed 50/50 Residential to Commercial/Industrial split.

Table 4
Program Spending as a % of Budgets - EGD Rate Zone

Sector	2020 % of Total Program Budget	2021 % of Total Program Budget
Residential (non-Low Income)	43%	43%
Low Income	22%	22%
Commercial/Industrial	35%	35%
Sector Sub-Total	100%	100%

NOTES:

EGD rate zone figures do not include program or portfolio overheads

ENBRIDGE GAS INC.

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition (VECC)

Interrogatory

Reference:

General

Question:

- a) Please provide the residential program's participation targets and results for the years 2017 to 2019 for the Union and Enbridge rate zones.
- b) Please provide the residential program's forecast participation targets for the years 2020 and 2021 for the Union and Enbridge rate zones.

Response

- a) The only residential OEB targets consisting of participants are the Union and EGD rate zones' Home Efficiency Rebate ("HER") participants metric. The remaining residential targets consist of natural gas savings metrics.

2017 and 2018 savings targets for Union and EGD rate zones' HER offerings, and the EGD rate zone adaptive thermostat offering, are combined with other offerings as part of the OEB-approved scorecard structure. Standalone savings targets for these residential offerings do not exist.

- For the Union rate zones, the savings targets detailed in Table 1 below are for the entire Resource Acquisition scorecard and include other offerings such as the Commercial/Industrial Prescriptive offering, for example.
- For the EGD rate zone, the savings targets detailed in Table 2 below are for the Small Volume Savings metric on the Resource Acquisition scorecard, and include other offerings, such as the Commercial/Industrial Prescriptive offering, for example.

For Draft 2017 DSM program year residential targets and results (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC 12 Attachment 3.

For Draft 2018 DSM program year residential targets and results (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC 12 Attachment 4.

As 2019 DSM program year results are still being compiled at the time of this submission, they are not currently available. 2019 residential forecast targets are set out in Tables 1 and 2 below. These forecast targets are the OEB 100% targets.

Table 1
Targets - Union Rate Zones

METRIC	Forecasted Target
2019 Resource Acquisition Savings Metric Target	747,423,721 lifetime m ³
2019 HER Participant Target	8,308 homes

Table 2
Targets - EGD Rate Zone

METRIC	Forecasted Target
2019 Resource Acquisition Small Volume Savings Metric Target	298,490,829 lifetime m ³
2019 HER Participant Target	11,606 homes

- b) 2020 and 2021 savings targets for Union and EGD rate zones' residential programs are combined with other offerings as part of the OEB-approved scorecard structure.
- The Union rate zones' 2020 and 2021 Resource Acquisition scorecard forecasted savings target set out in Table 3 below, is equal to the forecasted 100% OEB targets.
 - The EGD rate zone's 2020 and 2021 Small Volume Savings metric forecasted targets on the Resource Acquisition scorecard set out in Table 4 below, are equal to the forecasted 100% OEB targets.

Table 3
Targets - Union Rate Zones

METRIC	100% OEB Target
2020 RA Gas Savings CCM Metric Target	800,897,893
2020 HER Participant Target	8,474
2021 RA Gas Savings CCM Metric Target	816,915,851
2021 HER Participant Target	8,643

Table 4
Targets - EGD Rate Zone

METRIC	100% OEB Target
2020 RA Small Volume CCM Metric Target	310,549,859
2020 HER Participant Target	12,075
2021 RA Small Volume CCM Metric Target	316,760,856
2021 HER Participant Target	12,317

ENBRIDGE GAS INC.

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition (VECC)

Interrogatory

Reference:

General

Question:

- a) Please provide the low-income program's participation targets and results for the years 2017 to 2019 for the Union and Enbridge rate zones.
- b) Please provide the low-income program's forecast participation targets for the years 2020 and 2021 for the Union and Enbridge rate zones.

Response

- a) The only low-income OEB target consisting of participants is the EGD rate zone Low Income New Construction target. The remaining low income targets consist of natural gas savings metrics.

For Draft 2017 DSM program year Low Income targets and results (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC 12 Attachment 3.

For Draft 2018 DSM program year Low Income targets and results (as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB), please see the response at Exhibit I.SEC 12 Attachment 4.

As 2019 DSM program year 2019 results are still being compiled at the time of this submission, they are not currently available. 2019 Low Income forecast targets are set out in Tables 1 and 2 below. These forecast targets are the OEB 100% targets.

Table 1
Targets - Union Rate Zones

METRIC	2019 100% Targets
Low Income Single Family Gas Savings	43,788,749
Low Income Social Multi-Family Gas Savings	19,984,040
Low Income Private Multi-Family Gas Savings	6,270,959

Table 2
Targets - EGD Rate Zone

METRIC	2019 100% Targets
Low Income Single Family Gas Savings	20,605,874
Low Income Multi-Residential Gas Savings	102,227,700
Low Income New Construction Participants	11

- b) The only low income OEB target consisting of participants is the EGD rate zone Low Income New Construction target. The remaining low income targets consist of natural gas savings metrics.

2020 and 2021 Low Income forecast targets are set out in Tables 3 and 4 below.
These forecast targets are the OEB 100% targets.

Table 3
Targets - Union Rate Zones

METRIC	2020 100% Targets	2021 100% Targets
Low Income Single Family Gas Savings	46,088,981	47,010,760
Low Income Social Multi-Family Gas Savings	24,028,714	24,509,289
Low Income Private Multi-Family Gas Savings	7,540,171	7,690,975

Table 4
Targets - EGD Rate Zone

METRIC	2020 100% Targets	2021 100% Targets
Low Income Single Family Gas Savings	21,435,170	21,863,873
Low Income Multi-Residential	106,357,692	108,484,846
Low Income New Construction	11	11

ENBRIDGE GAS INC.

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition (VECC)

Interrogatory

Reference:

EB-2017-0127/0128 Mid-Term Review of the Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020) P7 & P32

Page 7: It is expected that the merger of Enbridge Gas and Union Gas will result in greater efficiencies and more consistent program delivery throughout the province.

Page 32: The OEB expects that as the merger between Enbridge Gas and Union Gas proceeds, the utilities will strive for cohesion and begin planning for a combined DSM plan in the post-2020 term. The OEB expects further efficiencies as a result of having a single utility providing natural gas conservation programs to customers.

Question:

- a) Please provide a summary of all DSM programs that are candidates for harmonization.
- b) Please identify all of the DSM programs in part (a) that have been harmonized and provide an update.
- c) Please identify all of the DSM programs in part (a) that have not been harmonized and explain why.
- d) Please provide details and discuss how Enbridge's DSM human resource strategy and compliment has been adjusted as a result of the merger and how it impacts DSM plans in 2021.

Response

- a) - d)
Please see the responses at Exhibit I.OSEA.1 a) and at Exhibit I.PP.5 d), for discussion of program alignment. Please see the response at Exhibit I.STAFF.4, for discussion of optimization of program administration and overhead costs.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition (VECC)

Interrogatory

Question:

Please discuss if Enbridge has identified any new opportunities for smaller customers, residential and low income, and explain how this impacts Enbridge's 2021 DSM Plans.

Response

Enbridge Gas will be pursuing a variety of new opportunities in 2020 and 2021 to enhance offerings and increase participation amongst its residential, low income and small volume commercial and industrial customers. From a commercial and industrial perspective, expansion of the mid-stream and direct install offers to include additional measures, distributors and delivery agents will present new opportunities for small volume customers to participate. Residential and low income customers will benefit from a more accessible adaptive thermostat offering as new retailers will be added and delivery methods enhanced. Additional incentives and emphasis will also be placed on supporting envelope measures to encourage broader adoption by residential customers, and uptake of exterior cladding for low income multi-residential customers. Please see the response at Exhibit I.OSEA.6, for further discussion of Enbridge Gas's efforts to achieve high levels of participation.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition (VECC)

Interrogatory

Reference:

EB-2017-0127/0128 Mid-Term Review of the Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020) P32

The Mid-term review states, "The natural gas utilities should continue to re-examine the design and delivery of their programs to ensure they are optimized to provide the best value to customers."

Question:

Please explain how Enbridge has responded to the above and how it impacts Enbridge's 2021 DSM Plans.

Response

Enbridge Gas strives to routinely examine the design and delivery of its DSM program offerings to determine if they are best meeting the needs of customers and being responsive to evolving markets and industry trends. In addition, Enbridge Gas seeks the feedback of external stakeholders including delivery agents, business partners and industry experts to provide insights into whether various DSM activities, processes and outreach are effective or how they might be improved.

Amalgamation has provided an opportunity for Enbridge Gas to optimize aspects of its DSM program offerings for customers by aligning many of the customer facing aspects, such as marketing and outreach, incentive or rebate levels, eligibility criteria and streamlining customer service assistance. Please also see the responses at Exhibit I.OSEA.1 a), and at Exhibit I.PP.5 c), for overviews of efforts to align and merge program offerings following the amalgamation of the utilities, some specific examples are discussed below:

Through harmonization in the Commercial and Industrial sectors, Enbridge Gas has re-examined the design and delivery of the Direct Install, Mid-stream, and Prescriptive offers. Similarly, the offerings in the Residential and Low Income sectors, specifically,

Home Efficiency Rebate (residential) and Home Weatherization (low-income) and Adaptive Thermostat, have been harmonized across Ontario in order to provide the best value to customers. This past year Enbridge Gas re-focused the delivery of the Adaptive Thermostat offer to the residential market by introducing point of sale rebates for customers to increase awareness of incentives to drive purchases and improve the ease with which participants can obtain rebates. Enbridge Gas is also supporting Direct Install of Adaptive Thermostats to the Low Income sector.

Enbridge Gas consistently looks for potential gas/electric program collaboration for opportunities to optimize programs so that they provide the best value for customers. Enbridge Gas is actively engaged with the IESO and has recently launched a jointly delivered Direct Install offer for the commercial foodservice sector, where customers will have access to gas and electric incentives through a single point of contact.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition (VECC)

Interrogatory

Reference:

EB-2017-0127 Mid-Term Review of the Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020) P32

The Mid-term review states “The OEB expects the natural gas utilities to continue to strive for cost efficiencies in its overheads and administration, including marketing and promotion costs, especially considering the merger of Enbridge Gas and Union Gas.

Question:

- a) Please explain how Enbridge has achieved cost efficiencies in its marketing and promotion costs and quantify the savings.
- b) Please discuss marketing and promotion cost efficiencies planned for 2021 and beyond.

Response

- a) b)
The Enbridge Gas Marketing team has reviewed all DSM Program Marketing/Promotional elements, as well as tradeshow and sponsorships for opportunities to harmonize activities and drive cost efficiencies. Annualized savings resulting from these efforts are estimated to be approximately \$750K on a full year effective basis. For a more detailed explanation of these efforts, please see the response at Exhibit I.STAFF.4.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition (VECC)

Interrogatory

Question:

Please identify which program areas have a greater opportunity for more inclusion.

Response:

Enbridge Gas believes there is opportunity for greater program inclusion, or participation among traditional non-participants in DSM programs, across all sectors (residential, low income, commercial and industrial). Enbridge Gas's DSM programs continue to drive new/incremental participation through enhanced targeted marketing and delivery, as well as by providing customers with a variety of different offerings that leverage collaborations and partnerships wherever possible. Please see the response at Exhibit I.OSEA.6, for further discussion regarding Enbridge Gas's efforts to design programs to achieve high participation levels.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition (VECC)

Interrogatory

Question:

Please identify program areas where significant potential remains.

Response

Increasing participation among traditional non-participants is the area where the most significant program potential remains. Please see the response at Exhibit I.OSEA.6, for discussion of Enbridge Gas's efforts to identify and increase program participation levels across all sectors.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition (VECC)

Interrogatory

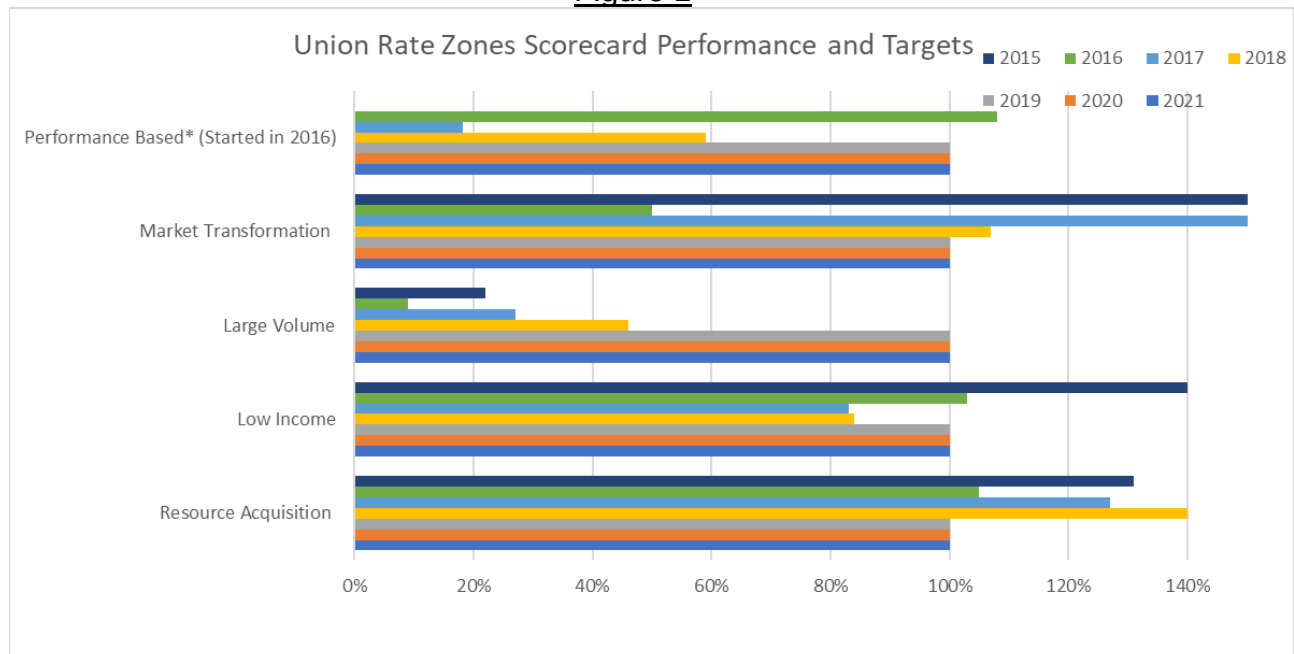
Question:

- a) Please provide verified scorecard achievements by both natural gas utilities for the years 2015 to 2019 in the same format as Figure 1 and Figure 2 on Page 10 of the Mid-Term Review.
- b) Please provide the scorecard targets for 2020 and 2021 in the same format as part a.

Response

- a) b)
Please see Figures 1 and 2 below summarizing the Union rate zones' and EGD rate zone's achievements from 2015 to 2021.

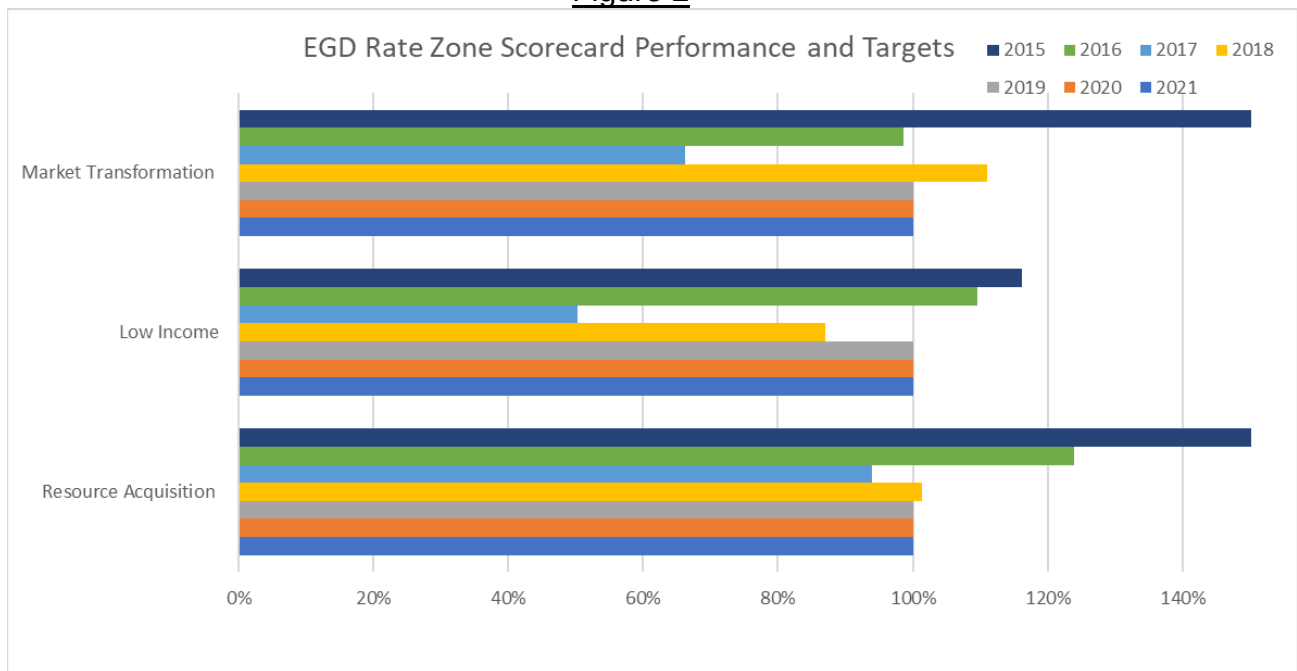
Figure 1



NOTES:

- 2017 and 2018 DSM program year achievement details are Draft as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB;
- As 2019 DSM program year achievement details are still being compiled at the time of this submission and are not currently available, Enbridge Gas has provided the forecasted 100% OEB target (please see the response at Exhibit I.SEC.16 for discussion of the relevance of this target); and
- 2020 and 2021 forecasts are the forecasted 100% OEB target (please see the response at Exhibit I.SEC.16 for discussion of the relevance of this target).

Figure 2



NOTES:

- 2017 and 2018 DSM program year achievement details are Draft as Enbridge Gas has not yet filed a 2017/2018 DSM Deferral and Variance Account Clearance application with the OEB;
- As 2019 DSM program year achievement details are still being compiled at the time of this submission and are not currently available, Enbridge Gas has provided the forecasted 100% OEB target (please see the response at Exhibit I.SEC.16 for discussion of the relevance of this target); and
- 2020 and 2021 forecasts are the forecasted 100% OEB target (please see the response at Exhibit I.SEC.16 for discussion of the relevance of this target).