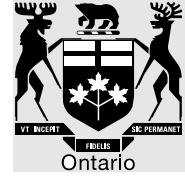


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BY E-MAIL

January 19, 2022

Nancy Marconi
Acting Registrar
Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

Dear Ms. Marconi:

**Re: Enbridge Gas Inc. – EB-2021-0002
Application for new DSM Framework and 2022-2027 DSM Plan**

In accordance with Procedural Order No. 3, please find attached a complete set of responses to interrogatories on OEB Staff's expert evidence produced by Optimal Energy Inc.

The interrogatory responses have been sorted by the Final Issues List. Optimal Energy Inc. has provided the responses to all but one interrogatory, 7-EGI-1-OEB Staff.1, on pages 23-24. OEB staff has provided the response to this interrogatory.

Yours truly,

Josh Wasylyk
Senior Advisor – Application Policy & Conservation

cc: All parties in EB-2021-0002

**Interrogatory Responses on OEB Staff's Expert Evidence
2022-2027 Demand Side Management Framework and Plan Application**

**Enbridge Gas Inc.
EB-2021-0002**

January 19, 2022

Issue 1

Interrogatory from Environmental Defense

1-ED-1-OEB Staff.1

Reference:

Exhibit L.OEB STAFF.1, p. 17

Preamble:

"we... recommend the interest rate set at the utility cost for borrowing money, or the short-term carrying cost of debt."

Question(s):

(a) In Ontario, what is the current utility cost for borrowing money, or the short-term carrying cost of debt?

(b) Please confirm that the following document at page 158 describes the Ontario government's cost of borrowing as being 1.9%: Government of Ontario, 2021 Ontario Economic Outlook and Fiscal Review,
<https://budget.ontario.ca/2021/fallstatement/pdf/2021-fall-statement-en.pdf>.

(c) Please comment on the concept of delivering gas and electricity efficiency programs through a one-stop-shop government agency that is able to borrow at Ontario government borrowing rates.

(d) If the current DSM budget were amortized over 10 years, what would the incremental interest charges be as between the utility's cost of debt and the cost of equivalent debt to the Ontario Government?

Response

- (a) The current utility short-term cost of debt is shown provided in:
<https://www.oeb.ca/regulatory-rules-and-documents/rules-codes-and-requirements/cost-capital-parameter-updates>

Currently it is 1.17%. We do not know what length of time is reflected in the OEB definition of short-term debt.

- (b) Yes, the document states that “Ontario’s average cost of borrowing in 2021-2022 is forecast to be 1.90 per cent, unchanged from the forecast in the 2021 budget.”
- (c) This seems like it could be a feasible way to run fuel-agnostic programs and can provide a more efficient one-stop-shopping service.
- (d) Based on the rates cited above, the Government would pay about \$6 million more over 10 years than the utility.

Issue 2

Interrogatory from Low Income Energy Network

2-LIEN-2-OEB Staff.2

Reference:

Exhibit L.OEBStaff.2 page 5-6 of 99

Preamble:

Regarding the Mass Save Existing Building Incentive Structure, the Massachusetts program provides incentives to render the dwelling ready for weatherization by offering incentives to replace knob and tube wiring and remedy combustion and safety concerns.

Question(s):

- (a) What are the specific pre-weatherization measures offered and the associated incentive for each?
- (b) Is there a cap on the limit of total incentive for pre-weatherization measures per dwelling and if so, what is the cap?
- (c) What is the average total cost of the upgrade and average total incentive per dwelling provided to upgrade the dwelling ready for weatherization? Please provide this data for the last five years, and if it is not available over this period, please provide what is readily available.

Response

- (a) According to the program website, income qualified customers are eligible for grants of up to \$7,000 for knob and wire tubing, up to \$7,000 for vermiculite, and \$4,000 for asbestos. There are also 0% interest loans available, up to \$25,000, to address pre-weatherization barriers.

See here for more information. <https://www.masssave.com/saving/energy-assessments/enhanced-residential-program>

- (b) We do not know if there is a limit on the total incentives per dwelling. See above for incentive rates. There are also 0% interest loans available to help with costs associated with pre-weatherization barriers that are not covered by the incentive.
- (c) We did not perform this analysis in our evidence. See here for EM&V results for the MA programs: <https://ma-eeac.org/studies/>

Interrogatory from Low Income Energy Network

2-LIEN-3-OEB Staff.2

Reference:

Exhibit L.OEBStaff.2 page 73 of 99, footnote 21

Preamble:

Optimal Energy Inc. (Optimal), in “Table 3: Low Income Overview”, summarizes and compares low-income program offerings in four jurisdictions: Enbridge Gas-Ontario, National Grid-Rhode Island, Centerpoint-Minnesota, and Ameren-Illinois. Optimal states in footnote 21 accompanying Table 3: “The Ameren low income program costs per unit of savings are very low for two reasons: 1) Ameren offers extensive other low cost programs for low income, such as midstream retail products programs, and also counts a proportional share of market-based program participation as low income; 2) Ameren is a combined electric-gas utility and has significant gas funding budget caps, and therefore electric ratepayers cover a major share of programs costs; and 3) Much of Ameren’s spending and savings are related to joint programs with the state of Illinois that use significant state and federal funding to supplement Ameren’s contributions, while still allowing Ameren to claim full savings for the program.”

Question(s):

- (a) Please provide additional details or websites with information about each of the program offerings in each jurisdiction set out in Table 3 (excluding Ontario) as follows:
- i. Single Family, Multi Family (National Grid-Rhode Island)
 - ii. Single Family, Multi Family, Rentals, Non Profit, Heating System Tune-up (Centerpoint, Minnesota)
 - iii. Single Family, Multi Family, Gas Kits (Ameren, Illinois)
- (b) Please provide additional details about the “extensive other low cost programs” offered by Ameren, including
- i. the Midstream retail products program, and
 - ii. joint programs with the State of Illinois.

Response

(a)

- i) Program Website: <https://www.nationalgridus.com/RI-Home/Energy-Saving-Programs/Income-Eligible-Services>

Other related documents: <https://rieermc.ri.gov/>

- ii) Program Website: <https://www.centerpointenergy.com/en-us/residential/save-energy-money/efficiency-programs-rebates/income-qualified-programs?sa=mn>

2020 Annual Report:

<https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={20063479-0000-C918-B3C5-F2EC7CCE4C65}&documentTitle=20215-173787-01>

- iii) Program Website: <https://amerenillinoisavings.com/residential/>

Other related documents: <https://www.ilsag.info/>

(b)

- i) The midstream retail products program promotes efficient consumer products at the retail level, through incentives to retailers to buy down the customer retail price. Ameren claims a portion of these sales as going to low income customers depending on the retailer and its location, even though the program is available to all customers.
- ii) Ameren provides program services and funding jointly with the State and Federally funded Low Income Weatherization Assistance Program. This approach leverages existing government funded services and existing infrastructure.

Issue 3

Interrogatory from Federation of Rental-Housing Providers of Ontario

3-FRPO-1-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, pp.1-3

Preamble:

In the Introduction, the evidence lays out the challenges with the disincentives for an Investor-Owned Utility (IOU) to pursue conservation of natural gas.

Question(s):

Please provide examples of jurisdictions and examples where the comprehensive delivery of DSM or conservation programs is provided by a contracted third-party (i.e., not the IOU).

- (a) Are these third parties engaged through RFP?
- (b) Please comment on the pros and cons of a third-party being contracted to provide these services.
- (c) Please comment on the economic effectiveness of a contracted third-party providing these services.

Response

Vermont, Hawaii, Oregon, Wisconsin, Maine, Delaware, New York, New Jersey, and the District of Columbia all use third-party efficiency program administrators to provide all or a portion of the ratepayer funded efficiency programs.

- (a) In some cases, yes.
- (b) Pros of a third-party administrator include that:
 - 1. it avoids financial incentives between selling more energy and delivering more efficiency
 - 2. it is easier to provide, and for markets to respond to, a single coordinated set of programs for the entire jurisdiction
 - 3. it is easier to create a fuel-blind approach and coordinate electric and gas services
 - 4. the organizational structure of the administrator can in some instances be entirely dedicated to efficiency, rather than having split obligations

5. it can offer financial savings due to decreased administrative expenses, and lower performance incentives

Cons of a third-party administrator include that:

1. they often do not have existing relationships with the customers, and as easy access to customer data
2. short-term contracts may introduce uncertainty and inhibit longer-term planning
3. the utility(ies) must work with the program administrator during resource planning, and may need to cooperate by providing customer data, etc.

(c) A third party provider could be just as economically effective as a utility provider, and could possibly be more effective, due to potential administrative cost savings, economies of scale, and potentially lower performance incentive requirements.

Interrogatory from Federation of Rental-Housing Providers of Ontario

3-FRPO-2-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, pp.1-3

Preamble:

Staff evidence provides: To address the foregone earnings opportunity, some sort of positive return on efficiency investment can be provided. This can be from simply providing the same rate of return (ROR) on efficiency investments as is earned from supply-side investments, putting efficiency and supply on a relatively equal footing.

We would like to understand this approach respecting different sources of funds.

Question(s):

Please comment on the appropriateness of providing rate of return on efficiency investments made from ratepayer providing funds versus supply-side investments from shareholder acquired capital.

Response

We think it's appropriate to provide some rate of return for successful efficiency investments, to put them on a relatively equal footing as supply side investments. As indicated in Exhibit L.OEB Staff.1, ideally this return should be tied to actual performance. The specific rate of return for efficiency investments does not need to match that of supply side investments, as there is generally less risk associated with cost recovery for efficiency programs than with supply-side investments that may go

over budget and not be used and useful. We do not see a significant conceptual difference in investments made from ratepayers providing funds versus supply-side investments from acquired capital, as the principal and interest payments of financed supply-side investments come from ratepayers even if the initial cost was financed through the marketplace.

Interrogatory from School Energy Coalition

3-SEC-1-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. iv, 37

Question(s):

Please comment on whether a multi-year target and budget approach as set out in Recommendation 1 could be coupled with a continuous rolling verification system rather than annual verifications as described in Recommendation 2.

Response

Yes, a multi-year target and budget would work with a continuous rolling verification, though we would still recommend periodically estimating the performance incentive mid-term so that it is not all given during the last year of the cycle.

Issue 5

Interrogatory from Pollution Probe

5-PP-1-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1

Question(s):

- (a) Would amortizing DSM costs make them more comparable to OEB treatment of traditional pipeline capital investments? If no, why not.
- (b) Would amortizing DSM costs make them more aligned with proposed IRP alternative treatment from the recent gas IRP Decision in EB-2020-0091? If not, why not.
- (c) If the OEB decides that amortizing DSM costs makes sense, would it be better to use a proxy average measure life for the portfolio like is done for pipelines (e.g. pipeline amortization is typically 40 years even though specific pipeline life may be longer or shorter)?
- (d) Is there a benefit to using the same amortization period for DSM costs and pipeline capital costs to promote a level playing field, remove disincentives and promote more innovative energy solutions? Please explain.

Response

- (a) Yes, because traditional pipeline capital investments are amortized over their expected life.
- (b) We are not very familiar with this decision. However, it indicates that if it is similar to infrastructure builds and Enbridge owns and operates the IRP alternative it will be eligible for inclusion in rate base, while if it is an enabling payment to a competitive service provider and Enbridge does not own or operate the asset, then it will be considered an O&M expense. We therefore can see an argument either way – since EE programs are mostly investments in capital equipment, maybe amortizing aligns it more with treatments of IRP alternatives. On the other hand, since Enbridge doesn't own the capital equipment procured through efficiency, maybe full annual cost recovery would align better with how IRP alternatives are treated.
- (c) Yes, we would recommend using the same amortization term for all programs, even if some of the programs actually have somewhat longer or shorter measure lives. Ideally, the term would reflect the approximate weighted average life of the entire portfolio of EE program savings.

- (d) We do not advise using an amortization period that is longer than the weighted average measure life, as it would mean that ratepayers would have to continue paying off the program costs after they have stopped producing any benefits. Amortizing over the average measure life sufficiently places energy efficiency on similar financing footing as pipeline costs as in both cases costs are paid over the time that the investment will produce benefits.

Interrogatory from Pollution Probe

5-PP-2-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1

Preamble:

There are two main ways to recover efficiency program costs:

- Under full contemporaneous cost recovery, efficiency program costs are fully recovered in rates each year.
- Under amortization, program costs are treated more akin to capital costs, and financed over a fixed loan term.

Question(s):

- (a) What option is the best if a proponent wanted to maximize DSM value for Ontario consumers and communities?
- (b) What option aligns best with delivering the increased DSM results proposed in the Ontario Environment Plan and the Ontario DSM Potential Study?
- (c) What option aligns best with the outcomes outlined in the OEB's 2021 Mandate letter (Reference: EB-2021-0002 Procedural Order No. 6, Schedule A)

Response

- (a) Both funding models can maximize DSM value for Ontario. However, if a significant ramp up in DSM spending is needed in order to maximize value, then an amortization model can do this with lower impact on short- and medium-term rates.
- (b) See above.

- (c) The letter appears to indicate a desire for increased efficiency funding. If a ramp up in DSM funding is hindered due to concerns around higher short-term rates, then cost amortization may align better.

Interrogatory from Pollution Probe

5-PP-3-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1

Preamble:

Recommendation 4:

We recommend a process to allow updates, or midterm modifications, of the targets during the 2023-2027 term.

Question(s):

Midterm assessments and adjustments have typically not been made by the OEB for DSM portfolios, even though they have been part of the process for decades. Which best practice recommendations are available to better enable midterm adjustments under the DSM Framework?

Response

Absent a major change in market conditions, we don't think it's appropriate to change the goals mid-term. We recommend this as an alternative to the proposed Target Adjustment Mechanism (TAM), where savings targets are set based on achieved savings from the previous year, because we believe savings targets should be set for the entire plan cycle. Under our recommendation, targets would be set for every year of the plan in advanced. However, if market conditions changed enough where Enbridge felt it not possible to meet the spending and savings targets, they could petition the OEB to convene a stakeholder/regulatory process where they propose updated targets and make the case for why they are necessary. This would resemble a streamlined version of the process used to approve the current application and would ultimately need buy-in from regulators and/or other stakeholders.

Interrogatory from Pollution Probe

5-PP-4-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1

Preamble:

Recommendation 6: We recommend that no automatic updates to savings targets be made in response to information from the OEB's EM&V process such as net-to-gross ratios.

Question(s):

Please confirm that any EM&V or other adjustments to target and savings for a year should be done symmetrically when they are applied (regardless if they are applied either retroactively or prospectively).

Response

As stated in Recommendation 6, we do not recommend targets be adjusted based on EM&V results within a plan cycle, regardless of how the EM&V results impact savings. Therefore, we do not believe there should be symmetry between targets and savings in terms of any EM&V adjustments. Instead, Enbridge should respond to the results by changing the measure mix of their programs or updating the design in ways to manage the new EM&V information. If Enbridge does not feel this is possible, they should make that case formally in a mid-term adjustment process. Even though savings and targets should not be adjusted symmetrically, we do agree that the same adjustments should be made whether the evaluation results in higher or lower than anticipated savings. In the event that OEB rejects our recommendation and decides to continue to use the target adjustment mechanism to make midterm adjustments, then it would be appropriate to consider any known EM&V results at that time for both savings and targets.

Interrogatory from Pollution Probe

5-PP-5-OEB Staff.1

Question(s):

If adjustments to targets and actuals are made symmetrically on a prospective basis, why is the TRC Plus test not an objective metric of performance?

Response

First, we believe symmetric retroactive adjustments would create a moving target and undermine the measurement of performance. By adjusting the savings symmetrically with the targets, it would effectively hold Enbridge harmless for poor performance by simply adjusting the original targets in a corresponding fashion to the achieved savings performance. Regardless of whether any adjustments are made, and/or whether they might be symmetric or not, our recommendation for using net benefits from the program administrator cost (PAC) test plus carbon, instead of the TRC Plus test come from two primary considerations:

1. While the program expenses used in the PAC test are very well defined, the customer contributions and non-energy customer benefits used in the TRC test can only be estimated with a high degree of uncertainty, and therefore can be subject to dispute and may not be able to be estimated objectively.
2. It is easy to objectively say whether something is cost-effective from a utility point of view (was it cheaper to acquire than the cost of supply?). However, consumers make purchasing decisions with a complex web of quantifiable and non-quantifiable benefits and costs, which may not be able to be objectively measured by the utility and stakeholders. Therefore, the use of the PAC, which is highly correlated with the TRC Plus Test, can serve essentially the same purpose while avoiding potential controversy and disagreements. Note our recommendation is that all variable inputs to the PAC calculation (e.g., avoided costs) be set in advance, and not changed during the Plan period.

Interrogatory from School Energy Coalition

5-SEC-2-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p.1, 20, 35

Question(s):

Please comment on whether the conflicting goals of Enbridge and other IOUs – increasing load and rate base vs. reducing load through energy efficiency – are a barrier to success in Enbridge DSM programs. Please provide the expert's view on whether a) assigning responsibility for delivery of DSM programs to an independent entity that has no incentive to increase load or rate base, or b) leaving DSM program delivery with Enbridge but creating an independent supervisory body to whom the Enbridge DSM group would report, EB-2021-0002 EGI DSM Framework and Plan 2023-2027 SEC IRs Page 2 could improve the effectiveness of DSM programs in Ontario. Please provide examples of this type of structure with which the expert has experience in other

jurisdictions. Please comment on the extent, if any, to which such a structure necessarily must include both gas and electric conservation, as in some U.S. structures.

Response

The conflicting goals are a barrier, but a barrier that can be largely overcome through effective policy, cost recovery and rate-making mechanisms. While the use of financial incentives to overcome this barrier may be an additional ratepayer cost, it may be offset by other efficiencies such as better program delivery. Assigning responsibility for delivery of DSM program to non-utility entities is currently done, in whole or in part, in Vermont, Hawaii, Oregon, New York, New Jersey, Delaware, Wisconsin, and the District of Columbia, and has been largely successful. Independent supervisory bodies (in addition to the relevant regulatory authority) have worked successfully in states such as Massachusetts, Rhode Island, Connecticut, and Delaware, and could certainly help improve program delivery in Ontario as well. Neither structure has to necessarily include both electric and gas conservation, but we would highly recommend it, as one of the key benefits of these structures would be to create a fully integrated, fuel blind approach to efficiency.

Interrogatory from School Energy Coalition

5-SEC-3-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, pp. 18-20

Question(s):

Other than anecdotal evidence from utility managers agreeing that they like shareholder incentives, what empirical evidence can the experts provide as to the level of shareholder incentives necessary to overcome the natural utility incentive to increase load and build rate base?

Response

This is a very difficult issue to study empirically, as the sample size is limited and there are many confounding variables. That said, there is some quantitative evidence that areas with performance incentives achieve higher savings than those without. For example, an ACEEE study found that states with performance incentives saved 0.9% of sales, compared to 0.5% for states with no performance incentives. However, it should be noted that states with performance incentives may also be ones with other policies that tend to favor higher performance. That said, in general, cost recovery from EE expenditures are generally a lower risk investment than supply, and therefore, a lower return should serve to remove the financial disincentive.

<https://www.aceee.org/sites/default/files/publications/researchreports/u1504.pdf>

Interrogatory from School Energy Coalition

5-SEC-4-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 19, 25

Question(s):

Please provide the expert's view on whether it is appropriate to make shareholder incentives conditional on actual measured reductions in natural gas use in Ontario, and if so:

- (a) Whether any such requirement should apply by rate class or grouping of customers,
- (b) Whether any such requirement should be weather normalized, or measured by average use per customer, or normalized for variations in Gross Domestic Product, or adjusted for any other reason.
- (c) Without limiting the generality of the above, please provide the expert's view on making the shareholder incentive otherwise allocable to any rate class conditional on the average gas use per customer in that rate class declining on a weather normalized basis (as a further threshold in addition to the proposed 75% of scorecard objectives).

Response

While this approach is being used in New York for some shareholder incentives, there are many challenges, particularly around adjusting for other factors influencing gas usage – weather, economic conditions, etc. We do not recommend it because it means that actual estimates of performance would be based largely on things outside of the utility's control or influence, and not necessarily attributed to the efficiency programs. See our discussion in the Cost Recovery and Performance Incentive report under "Non-Programmatic Performance Metrics."

- (a) While we do not recommend an absolute gas usage metric approach, if a total gas consumption metric was adopted, we believe it would be enhanced by treating major customer segments separately, so that appropriate adjustments that may impact different segments differently can be more accurately adjusted for. These would include, but are not limited to, weather, economic conditions, manufacturing productivity, and electrification activity.

- (b) We would recommend attempting to normalize for as many significant external factors that are not in the utilities' control as possible, including weather and variations in GDP.
- (c) As discussed in Exhibit L.OEB Staff.1, we do not recommend this approach. We believe it is problematic for numerous reasons as articulated above and in evidence generally.

Issue 6

Interrogatory from Environmental Defense

6-ED-2-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 14

Preamble:

While this level of funding has achieved significant savings for Ontario, the achievement is still well below the full cost-effective potential. In 2018, for example, the legacy natural gas utility DSM plans together achieved about 108 cubic meters of annual gas savings for a cost of \$128 million. While this is significant, it compares to a maximum cost-effective achievable potential of 338 cubic meters per year found by a 2019 potential study for Ontario.

Question(s):

Please provide the DSM savings levels and budget levels (annual average) necessary to achieve the GHG reductions from gas outlined in the Environment Plan. Please base this on the 2019 potential study. As necessary, please seek clarification from Board Staff involved in the development of the 2019 potential study. Please provide the underlying figures and calculations.

Response

We did not rely on either the potential study or the Environment Plan while developing the evidence, and have not performed this calculation.

Interrogatory from School Energy Coalition

6-SEC-5-OEB Staff.2

Reference:

Exhibit L.OEB Staff.2, p. 1

Question(s):

Please advise the extent, if any, that the expert, in comparing Enbridge costs per cubic meter and targets to other jurisdictions, took into account the long history of Enbridge

DSM programs, and the level of existing efficiency already in place in Ontario vs. the other jurisdictions named.

Response

Comparison jurisdictions were chosen in part because they all have long histories of gas efficiency.

Interrogatory from School Energy Coalition

6-SEC-6-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 1, 4

Question(s):

Please confirm that, unless efficiency investments earn a rate of return equivalent to supply side investments, or are equally compensated in profits through some other mechanism, it will always be in the economic interests of the utility to prefer the latter. Please comment on the extent, if any, to which the “existential threat” to gas utilities due to the move to a lower carbon future either increases this effect (i.e. more incentive to increase load now) or decreases this effect (i.e. more incentive to diversify profits away from gas rate base).

Response

We’re not sure that the rate of return for efficiency has to be equivalent to that of supply side investments because efficiency investment is generally lower risk than supply-side investments. It is our experience that performance incentives representing lower returns still elicit significant attention from upper management. However, all else equal, in general, utilities should have a financial interest in making the investments where they can achieve the biggest risk-adjusted returns. We don’t have particular insight on how gas utility executives are thinking of the “existential threat” of a low-carbon future, but imagine it is highly dependent on the specific leadership of the utility in question. While efficiency can help a utility avoid a supply-side investment that may pose a stranded asset risk to the utility, it also creates upward rate pressure that may be perceived as accelerating an eventual migration away from the gas system.

Interrogatory from School Energy Coalition

6-SEC-7-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 5

Question(s):

Please confirm that, in the current interest rate environment, most homeowners can borrow long term for home renovations such as energy efficiency at lower interest rates than the utility's weighted average cost of capital (about 7-8%).

Response

We are not experts on consumer loans, but the interest rate will be highly dependent on the credit score and income of the specific consumer, as well as if the renovation loan is unsecured or secured by the value of the home. This Wells Fargo improvement loan advertises interest rates of between 5.74% and 19.99%. If the purchases are made on credit cards, interest rates would be closer to 20%. Some utilities offer low-interest financing for efficiency improvements, at rates lower than 7-8%, but they generally need to buy down the interest rates to make this viable.

<https://www.wellsfargo.com/personal-loans/home-improvement/>

Interrogatory from School Energy Coalition

6-SEC-8-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 6, 15

Question(s):

Please confirm that the primary difference between Full Cost Recovery and Amortized Cost Recovery is that in the first case, the customers pay DSM costs immediately as they arise, whereas in the second case the customers effectively borrow the money from the utility's shareholders to pay the costs, and pay interest on that borrowing until it is paid off.

Response

Assuming the term “full cost recovery” refers to expensing costs and recovering them annually, yes, that is correct.

Interrogatory from School Energy Coalition

6-SEC-9-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 8

Question(s):

Please confirm that the discrete loans vs. cumulative loans approaches have the same net effect if incentives are not integrated into their design.

Response

Yes, that is correct.

Interrogatory from School Energy Coalition

6-SEC-10-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 10

Question(s):

Please provide evidence that longer mortgage terms are generally the result of implicit discount rates applied by individuals, rather than the result of affordability concerns in the higher monthly payments from shorter terms. Please confirm that, in general, customers would prefer amortization of DSM budgets only if the result is a reduction in their current gas bills.

Response

We are not aware of any surveys asking homebuyers why they chose 30-year mortgages over shorter-term mortgages. However, we do not think the two options above are mutually exclusive - affordability concerns about higher monthly payments would be a factor in why people have high implicit discount rates. We agree with the

second statement that, if for some reason, amortization did not result in a reduction in current gas bills (as compared to full annual cost recovery), customers would not prefer it. However, the reduction in current bills is one of the primary reasons to shift to an amortization approach.

Interrogatory from School Energy Coalition

6-SEC-11-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 14

Question(s):

For each of the comparators discussed, please provide the most recent DSM spending per customer and compare to Enbridge DSM spending per customer.

Spending per Customer	Enbridge - ON	National Grid - RI	Centerpoint - MN	Ameren - IL
Res/LI	\$15.04	\$68.08	\$28.74	\$11.61
C&I	\$94.00	\$270.83	\$139.01	\$67.21

Issue 7

Interrogatory from Consumer Council of Canada

7-CCC-1-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 16

Preamble:

The evidence states, “We believe that amortization of program expenses could be an elegant way to increase overall spending on gas efficiency programs so that a greater level of overall natural gas savings can be achieved in Ontario while avoiding sudden, large rate increases by aligning the timing of the costs and the benefits of the programs”.

Question(s):

What level of increases (over and above the proposed spending levels) would justify moving to an amortization approach?

Response

There’s no magic number, but generally amortization should be considered if concerns over short-term rate increases are constraining program budgets below levels needed to capture all desired energy efficiency.

Interrogatory from Consumer Council of Canada

7-CCC-2-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 16

Preamble:

The evidence states, “The interest rate can have a large impact on the success of amortization, as discussed above. This should be very low, as there is an extensive stakeholder process to develop, review and approve program budgets that are then approved by the OEB. This process ensures an extremely low risk that program expenditures will not be recovered. Further, the amortized balance will be approved

annually and become a regulatory asset, further ensuring security to any potential lender. We therefore recommend that this be set at the utility's cost of debt.

Question(s):

Should it be the cost of long-term debt or short-term debt? How often should it be reset? Given the statement that "it should be very low" what is the rationale for using the cost of debt?

Response

The purpose of providing interest is to allow the utility to fully recover its costs, including its carrying costs of debt. Therefore, the interest rate should reflect the cost of debt related to the term of amortization. The rationale for only paying the actual cost of debt is that risk of non-repayment is very low. If there were a high risk of non-repayment, one could justify a risk premium. We recommend the term of the interest rate to reflect approximately the weighted average lifetime of the efficiency savings. To the extent interest rates are volatile, we recommend resetting annually when the amortized balance is approved. If they are very stable, one could decide to reset the interest rate less often, such as once every plan cycle.

Interrogatory from Enbridge Gas Inc.

7-EGI-1-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, Executive Summary, p. i

Preamble:

"This report looks at the North American landscape of cost recovery and performance incentives for energy efficiency plans, in support of future ratepayer funded natural gas demand side management (DSM) plans approved by the Ontario Energy Board (OEB)."

Question(s):

(a) Was Optimal Energy sole sourced to complete this report or did Optimal respond to an RFP? What additional details regarding the scope of work for this research/report were provided to Optimal beyond the details included in OEB Staff's summary of evidence submitted to the OEB on September 15, 2021? Please provide copies of the complete RFP and responses thereto and all documentation exchanged with respect to scope of work and engagement of Optimal Energy.

- (b) Please produce any and all communications (including copies of emails, letters and draft reports with comments received from OEB Staff) between Optimal Energy and OEB Staff regarding the content of the reports submitted into evidence?
- (c) Did Optimal Energy undertake any communication with any of the other expert witnesses or parties that have also submitted evidence in the proceeding regarding Optimal Energy's efforts in drafting its expert evidence? If so, please provide all details including topics of discussions and copies of notes and correspondence.
- (d) Did Optimal Energy have any communications with respect to other expert evidence? If so, please provide details including topics of discussions and copies of notes and correspondence.

Response

The response below has been prepared by OEB Staff, not Optimal Energy.

- (a) The OEB initiated a competitive procurement process on June 24, 2020 to retain a consultant to complete research and analysis to support developing two separate reports: one that reviewed cost recovery and performance incentive structures, including amortization; and the other that reviewed program best practices in other jurisdictions. The OEB's procurement was initiated as part of the policy consultation to develop a new DSM framework as part of EB-2019-0003. The section of the Request for Services (RFS) document that includes the project information and requirements (called Supplement A) is attached as Attachment 1. The invitation was sent to nine different consulting companies, all of which are included on the OEB's Vendor of Record List. In response to the RFS, three proposals were submitted. Included as Attachment 2 to this response is the introduction and section of the Optimal Energy proposal that sets out the "Work Scope". The final scope of work is also provided as Attachment 3.

OEB staff is of the view that all other procurement related documents are not relevant to the issues in this proceeding and therefore will not be providing them.

- (b) OEB staff is of the view that the requested documents are not relevant to the issues in this proceeding and providing them will not provide value to parties and/or the panel. Further, these documents are subject to litigation privilege (see *Moore v. Getahun*, 2015 ONCA 55).

(c-d)

OEB staff is of the view that the requested documents/correspondence are not relevant to the issues in this proceeding and therefore is not providing them. However, consistent with the OEB's direction that parties work co-operatively and that evidence for intervening parties not duplicate that of OEB staff, Optimal had some discussions with other parties' experts/consultants to ensure that the areas that would be covered in the reports did not materially overlap and duplicate work.

Interrogatory from Enbridge Gas Inc.

7-EGI-2-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, Executive Summary, p. iii

Preamble:

Amortization Consideration 3: Performance Incentive – as discussed in greater detail below amortization approaches can combine cost recovery and performance incentives. However, we do not recommend this approach. Rather, we suggest approaching the performance incentive separately from the cost recovery approach, as is currently done in Ontario. This eliminates compounding performance earnings and higher costs to ratepayers.

Amortization Consideration 4: Lost Revenues – these are recurring annual expenses and should not be amortized with program costs. We suggest continuing the current practice in Ontario and allowing for annually recovery and incorporating into future forecasts.

Question(s):

Please describe in greater detail how your recommendation for “approaching the performance incentive separately from the cost recovery approach, as is currently done in Ontario” and “continuing the current practice in Ontario and allowing for annually recovery” of lost revenues would be combined with your recommendations to amortize program cost recovery. At a minimum, please include the following details:

(a) Specifically, do you recommend that cost recovery in an individual year be calculated as:

- Amortization of Program Costs (PC), plus full Performance Incentive (PI), plus full Lost Revenue (LR), i.e.: $PC_{\text{amortized}} + PI + LR$
- Amortization of the sum of Program Costs/Performance Incentive/Lost Revenue, i.e.: $(PC + PI + LR)_{\text{amortized}}$
- Some other approach. If so, please describe.

(b) Please describe your recommendations for the timing of calculating and recovering performance incentives and lost revenue relative to the program year for which they apply. (e.g., for 2023 performance, when would performance incentives and lost revenues be calculated, and over what period would amounts be recovered?)

Response

- (a) We recommend including program costs and performance incentives in the amortization, but not lost revenue.
- (b) As stated in (a) above, performance incentives should be amortized along with program costs and covered over the term of the loan. Lost revenue should be recovered on an annual basis. This is because lost revenue is simply compensating the utility for fixed costs that are already in existing rates and would otherwise be collected annually absent any EE programs.

Interrogatory from Enbridge Gas Inc.

7-EGI-3-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 4

Preamble:

“Because utility investment in efficiency programs does not create a traditional capital “asset” through ownership and control of the efficiency energy resource (e.g., the customer-owned efficient equipment) and the on-going nature of utility efficiency investments, traditionally it has been treated as operating costs, with full recovery every year, roughly contemporaneous with the spending.”

Question(s):

In drafting its report, did Optimal Energy explore recent developments in Ontario, including the OEB’s July 22, 2021 Decision and Order on Enbridge Gas Inc. (EB-2020-0091) Integrated Resource Planning Proposal wherein the OEB decided project costs related to alternatives to infrastructure builds (which could include potentially geo-targeted energy efficiency or demand response) should only be eligible for inclusion in rate base where Enbridge Gas owns and operates the asset. Where Enbridge Gas does not own or operate the assets, these costs would be categorized as O&M and recovered as an operating expense? If not, does review of this decision impact your recommendations. Please explain. How, did/does this recent OEB Decision factor into Optimal Energy’s recommendations?

Response

The report was mostly written before the referenced decision. However, the report is meant to give our recommended considerations when deciding on cost recovery approaches going forward, regardless of current policy. Further, our reading of that

decision is that it applies to demand response and geotargeted efficiency, but not the type of efficiency programs described in the application.

Interrogatory from Enbridge Gas Inc.

7-EGI-4-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, pp. 4-5

Preamble:

Optimal Energy proposes that amortization of all or some portion of efficiency investment can provide benefits including the following: "may allow ratepayers to benefit from Federal and Provincial tax accounting practices to defer some payments interest free", and: "Potentially creates positive net present value to ratepayers because the utility's cost of capital is generally lower than that of private consumers, who also tend to have high implicit discount rates."

Question(s):

Please further elaborate or explain each of these statements and how each would occur?

Response

- 1) In the US, accumulated deferred income taxes are treated as a reduction in ratebase, thus reducing utility revenue requirements. We are unsure whether this same treatment applies in Canada.
- 2) There is significant evidence indicating that consumers have a relatively high discount rate. See, for example, the study cited in Exhibit L.OEB STAFF.1, page 10 (also linked below), for a study that finds a mean consumer discount rate of about 20%. When a customer borrows money at an interest rate lower than their discount rate, this creates a positive net present value compared to paying the equivalent cost upfront.

https://www.nber.org/system/files/working_papers/w20969/w20969.pdf

Interrogatory from Enbridge Gas Inc.

7-EGI-5-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 7

Preamble:

“Further, the average rate of return for US utilities is over 10%,⁹ which is significantly greater than what is shown necessary to incent utilities for efficiency spending.”

Question(s):

- (a) What level is shown to be necessary to incent utilities (both gas and electric) to spend on efficiency, and what evidence from Canada/U.S. supports that conclusion?
- (b) What evidence exists to illustrate and differentiate the rate of return necessary for utilities who are subject to mandated energy efficiency delivery requirements vs. those who are not and undertake such efforts on a voluntary basis?

Response

- (a) It is not possible to quantitatively determine an exact optimal number for the performance incentive. However, as Table 6 – Summary of Performance Incentives by Jurisdiction in the Cost Recovery and Performance Incentive report shows, there are several jurisdictions that run successful efficiency programs with performance incentives set at rates below the rate of return – see for example, Rhode Island, which gets 6.25% of spending and Massachusetts, which gets 3.6% of spending.
- (b) There is evidence (see the ACEEE report linked below) that a performance incentive is more necessary for jurisdictions with no legal requirements for energy delivery requirements. However, we are not aware of any studies or analyses looking at how these legal requirements may impact the optimal size of the performance incentive.

ACEEE Study:

<https://www.aceee.org/sites/default/files/publications/researchreports/u1504.pdf>

Interrogatory from Enbridge Gas Inc.

7-EGI-6-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 7

Preamble:

Implementation Details

Question(s):

In the event the gas utility is faced with the task of adapting the approach for cost recovery of DSM budgets from the current full contemporaneous rate recovery to an amortized model, the gas utility is interested in implementation timelines following an OEB decision. Please detail the process including how long such an exercise has taken in the other jurisdictions to appropriately consider/determine/execute on the various details and complexities involved so as to ensure a well-considered evolution if required, for the both the utility and ratepayers.

Response

We have not performed this research. However, we see no reason that amortization should require any more time to set each annual rate surcharge as would be the case with full contemporaneous recovery. Either way, it is simply a straightforward calculation of the amount to be recovered annually divided by the forecasted sales. Amortization typically goes into effect as a result of a commission order for the next program year, just as any surcharge would.

Interrogatory from Enbridge Gas Inc.

7-EGI-7-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, Executive Summary, p. 9

Preamble:

"With reasonable interest rates, savings for the ratepayers are high enough in the early years under amortization that the net cumulative costs of an amortization approach are always lower than the net cumulative costs of full annual recovery. This is particularly true if the deferred taxes are triggered and credited to ratepayers."

Question(s):

Please provide an example in a live workbook, outlining all input assumptions to illustrate this statement. Please specifically address what constitutes "reasonable interest rates" for the utility.

Response

See Attachment 4 for the workbook. This statement was made referring to looking at the values on a net present value basis. The purpose of the analysis was not to make specific claims as to a "reasonable" interest rate, but to illustrate how the size of the interest rate impacts net benefits of amortization, under various assumptions for a customer discount rate.

Interrogatory from Enbridge Gas Inc.

7-EGI-8-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, pp. 9-12, Tables 1-4

Question(s):

Regarding the analysis of costs and benefits of amortization, please provide:

- (a) All workpapers including live working calculations/spreadsheets, data inputs and assumptions, in their native form used to develop the graphs presented in Tables 1 through 4. Also detail the balance of unrecovered payments at the end of the period for each Table to illustrate the amount still outstanding.
- (b) A description of how taxes are treated in the analysis (i.e. are the expenses assumed to be fully tax deductible in the year of incurrence, or are they deducted for tax purposes over the amortization term?)
- (c) Confirmation that the discount rate reflected in Table 2 and Table 4 is only used to calculate notional cumulative savings of the recovery of efficiency expenses through the amortization or annual method, and does not impact the actual amounts recovered through rates charged to customers.
 - i. Also, please confirm whether Optimal believes a 10% discount rate is appropriate, and if so why, and if not, what would be more appropriate.
 - ii. Also please provide examples of any jurisdictions where the example illustrated in Table 2 is in place, where the discount rate applied is greater than the amortization interest rate.

- (d) Confirmation that this scenario illustrated in Table 3 is indicative of the actual costs that would be expected to be incurred by ratepayers.
- (e) A version of each of the live spreadsheet models with formulas intact which compares the cost to ratepayers of the current full contemporaneous cost recovery vs. a fully amortized schedule of costs that would accrue to ratepayers up to and including the terminal year of amortization and reflects five years of DSM budgets including \$150 million in year one escalated by 5% annually for four further years, amortized for a 16 year term (to reflect the average measure life as proposed by Optimal Energy).

Response

- (a) See response to 7-EGI-7-OEB.STAFF.1
- (b) The analysis assumes that deferred income taxes from the amortized balanced are treated as a no-interest loan and serve to reduce the regulatory asset base. This is how the accounting would work in the United States, and there may be differences in Canada.
- (c) That is correct.
 - i. Yes, we believe that 10% is a reasonable representation of a typical hurdle rate for utility customers. Note that this is distinct from the discount rate we would advocate using for cost-effectiveness screening, which should use a much lower societal discount rate.
 - ii. The discount rate in tables 2 and 4 in the analysis is not meant to be “applied” in any way that impacts loan repayments or the cost-effectiveness of efficiency. Rather, it is meant as a representation of the time value of money for a typical utility customer, so we can better determine whether upfront payment or amortization of program costs would be more desirable from the customer’s perspective.
- (d) The scenarios in Tables 1-4 are all indicative of actual costs under the specific assumptions described in each scenario. We would argue Tables 2 and 4, which include a customer discount rate, are more representative of actual costs incurred by ratepayers, because it is well established that people value current money more than future money.
- (e) See Attachment 5

Interrogatory from Enbridge Gas Inc.

7-EGI-9-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 13

Preamble:

Table 5: Summary of Jurisdictions Using Amortization for Cost Recovery

Question(s):

- (a) Please confirm that for jurisdictions where the interest rate is noted to be the "Rate of Return" or "Approved Rate of Return" Optimal is referring to the return on equity, and that in those cases the unamortized efficiency costs are assumed to be fully funded by equity (as opposed to through debt and equity or the utility's capital structure).
- (b) In jurisdictions where amortization of energy efficiency spending has been instituted, has the treatment been in compliance with local financial accounting guidelines (i.e. USGAAP), and if not how has the accounting been handled by the utility?
- (c) Please provide support for the treatment of amortization in Missouri, including:
 - i. Identification of utilities currently using amortization to recover program cost
 - ii. If amortization is only used to recover a portion of total portfolio costs, a description of program costs recovered through amortization
 - iii. Copies of legislation requiring or allowing amortized cost recovery
 - iv. Copies of Commission orders requiring or allowing amortized cost recovery
 - v. Detailed explanation of the reasoning used to justify that short term debt costs adequately compensate the utilities for amortizing program costs over a 5 year period.
- (d) Please provide support for the treatment of amortization in Delaware, including:
 - i. Identification of utilities currently using amortization to recover program costs
 - ii. If amortization is only used to recover a portion of total portfolio costs, a description of program costs recovered through amortization
 - iii. Copies of legislation requiring or allowing amortized cost recovery
 - iv. Copies of Commission orders requiring or allowing amortized cost recovery

Response

- (a) Yes, this is referring to return on equity. The table only looks at the interest rate received on the unamortized balance. We did not look into how the utility actually funds the programs.
- (b) We have not done this specific research.
- (c) The electric utilities have historically amortized efficiency program expenses, but may have switched to full annual recovery. We are further investigating this issue and if necessary, will update Exhibit L.OEB Staff.1.
- (d) Amortization applies for Delmarva run programs. See Attachment 6, Appendix C, for a description of how it works and originated.

Interrogatory from Enbridge Gas Inc.

7-EGI-10-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 13

Preamble:

"In others, such as Maryland, it was a decision by the relevant regulatory agency¹⁶."

Question(s):

- (a) This statement refers to Maryland however the reference provided by Optimal Energy at footnote number 16 links to a New Jersey Public Utilities document. Please provide the correct reference for the noted Maryland decision.
- (b) Please describe in greater detail the current situation and challenges in Maryland facing the utility and ratepayers in the face of the cost recovery situation wherein over \$800 million of unamortized program costs remain outstanding.

Response

- (a) See Attachment 7 for the correct reference.
- (b) See Attachment 8 for a more detailed discussion of the issues relating to the amortization.

Interrogatory from Enbridge Gas Inc.

7-EGI-11-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 16

Preamble:

We believe that the amortization of program expenses could be an elegant way to increase overall spending on gas efficiency programs so that a greater level of overall natural gas savings can be achieved in Ontario while avoiding sudden, large rate increases by aligning the timing of the costs and benefits of the programs²⁴.

Question(s):

- (a) Please indicate the reference or instruction from the OEB which documents the desire to expand programs and forms the basis for the evidence provided.
- (b) Given that in its December 1, 2020 letter, the OEB stated it anticipates modest budget increases to be proposed by Enbridge Gas, and given that Enbridge Gas has therefore proposed a 2023 DSM budget approx. 7.7% greater than the 2021 and 2022 OEB approved budgets, based on Optimal Energy's recommendation regarding amortization being "contingent on a desire to expand the programs", at what budget increase does Optimal Energy believe consideration of amortization of DSM program expenses would be appropriate?

Response

- (a) This recommendation is conditional on a desire to expand efficiency efforts without sharp rate increases and is not based on any specific OEB guidance.
- (b) This is largely a policy question that is dependent on the specific concerns and comfort levels with the various stakeholders. Our position is that if it is the case that concerns over short-term rate impacts are preventing an increase in cost-effective efficiency savings, then amortization could both allow for an expansion in EE programs while mitigating the concerns over rate impacts.

²⁴This statement is contingent on a desire to expand the programs. We would not recommend amortization without an accompanying expansion in the efficiency program goals and costs.

Interrogatory from Enbridge Gas Inc.

7-EGI-12-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 17 and Executive Summary, p. iii

Preamble:

"The terms of amortization should be set to properly compensate the utility for the carrying costs of the related debt, but not to provide a rate of return. This has been done effectively in many jurisdictions with smaller and more controllable performance incentives that can be separately set." (page 17)

and,

"We therefore recommend that the interest rate be set at the utility cost for borrowing money, or the short-term carrying cost of debt." (Amortization Consideration 1, page iii)

and;

"We suggest using the same loan term for all programs and sectors and basing it on a fixed number of years, approximately representing the average measure life of a typical efficiency portfolio." (Amortization Consideration 2, page iii)

Question(s):

- (a) Optimal Energy's statement on page 17 seems to contradict Table 5 on page 13 which includes seven jurisdictions with the majority using the Approved Rate of Return (or WACC) and, only one, Missouri (electric only) which compensates utilities for carrying costs using the cost of debt. Please describe all other jurisdictions that apply the cost of debt as carrying costs for amortized cost recovery for DSM portfolios. For each jurisdiction and/or utility referenced, please provide:
- i. The amortization term
 - ii. How the cost of debt is calculated (e.g., short term vs. long term debt; capitalization weighting)
 - iii. Reasoning used/circumstances in the jurisdiction to justify how the cost of debt adequately compensates the utilities for the carrying costs incurred to amortize program costs over the amortization period
- (b) Please describe how your recommended interest rate per Amortization Consideration 1 would properly compensate Enbridge Gas for the carrying costs it will incur to recover program costs over your recommended loan term per

Amortization Consideration 2 (which would approximate 16 years based on the current average measure life of the Enbridge Gas DSM portfolio).

Response

- (a) Missouri is the only jurisdiction that was meant to be referred to. However, consistent with our response to 7-EGI-9-OEB Staff.1, while the electric utilities have historically amortized efficiency program expenses, they may have switched to full annual recovery. We are further investigating this issue and if necessary, will update Exhibit L.OEB Staff.1.
- (b) When we say “short-term debt,” we mean as a contrast to debt for pipeline infrastructure, which could be recovered over 40 years. We think that the interest rate on amortization should match the actual costs of acquiring the debt in the market, which we acknowledge could vary based on the specific loan term used.

Interrogatory from Energy Probe

7-EP-1-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. ii, Table 5

Preamble:

Amortization Consideration Option 1 “We therefore recommend that the interest rate be set at the utility cost for borrowing money, or the short-term carrying cost of debt”.

- (a) Has Optimal estimated the annual DSM Portfolio Cost, using 2022 budget base for the costs, using
 - i) EGI Weighted Average Cost of Debt (WACC) and
 - ii) The OEB approved cost of short term debt?

If so please provide the calculations preferably in Excel Format. If not please perform this calculation (Excel)

- (b) In terms of precedents, please list those jurisdictions where the regulator uses WACC and those that use ST debt rates,
- (c) In particular, please indicate what other Canadian regulators using, such, as the Energir and Gazifere DSM Programs in Quebec.

Response

See Attachment 9 for an analysis of the costs. The interest rates used for jurisdictions that amortize costs that we looked at in our report can be found in Exhibit L.OEB Staff.1, Table 5.

Interrogatory from Energy Probe

7-EP-2-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. iii

Preamble:

Amortization Consideration 2: Loan term – the loan term should be set in a straightforward manner and ideally align program costs with program benefits. We suggest using the same loan term for all programs and sectors and basing it on a fixed number of years, approximately representing the average measure life of a typical efficiency portfolio.

- (a) What loan terms has Optimal examined?
- (b) Is a term longer than 5 years reasonable, given potential for
 - i) Discontinuation of DSM programs
 - ii) Inter-generational inequity Please discuss in detail

Response

- (a) It's unclear what is meant by "examined." We've reviewed loan terms used in other jurisdictions that amortize expenses. As indicated in the report, these range from 5 years to the average measure life of the portfolio.
- (b) We think that loan terms up to the average measure life of the programs is reasonable, since this would align the payment term with the period over which the initial investment yields benefits. Potential discontinuation of programs would not be a significant concern, since the benefits from past programs do not disappear when programs are discontinued (the measures installed through the programs are still in place and yielding savings). Similar considerations apply to issues of inter-generational equity. In fact, avoidance of inter-generational inequity is one of the primary reasons for amortizing the costs over the period that the benefits will accrue to ratepayers. Otherwise, the entire burden is placed on existing customers while new customers will benefit by enjoying the benefits that will last through the life of the savings.

Interrogatory from Green Energy Coalition

7-GEC-1-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. ii, Table E1

Question(s):

Regarding Table E1 on p. ii of Staff.1:

- (a) How many years of DSM programs were analyzed? Since non-amortized costs (red) extend out 40 years, that would seem to imply that the analysis looks at 40 years of DSM. Is that the case?
- (b) Over how many years was a given year of DSM expenditure /amortized?
- (c) Is the 10% discount rate a real rate (i.e., with inflation removed) or nominal rate (i.e., including inflation)?
- (d) What perspective is the 10% discount rate intended to reflect? The perspective of any individual ratepayer?
- (e) Ontario has historically used a 4% real discount rate – equal to a 6.08% nominal discount rate – for cost-effectiveness analyses of DSM programs. Please replicate this graph with a 6.08% nominal discount rate.
- (f) In their testimony for GEC and ED, Mr. Neme and Ms. Sherwood suggest a societal real discount rate of 0.5% be used. That equates to a nominal discount rate of 1.0251%. Please replicate the graph with that nominal rate.
- (g) Would Optimal agree that regulators and other policy-makers who consider the economic merits of DSM from a more societal view (e.g., including consideration of climate impacts) could also reasonably consider the cumulative effects of rate impacts from a societal view (rather than from a typical individual customer view)? If not, why not?

Response

- (a) We extended the analysis for 40-years because we wanted to show that net benefits from amortization persist even over a long time period.
- (b) We assume a loan term of 10 years for illustrative purposes as a reasonable (although likely short) approximation of the weighted average measure life of the entire portfolio.

- (c) The 10% is a nominal rate.
- (d) Yes, the 10% discount rate is intended to reflect the perspective of a typical private ratepayer. It is meant to be used to help inform whether a typical ratepayer would prefer amortized program costs or full contemporaneous recovery.
- (e) See Attachment 10 for a version of the spreadsheet with a 6.08% nominal discount rate. However, we want to be clear that we think that the societal discount rate used for cost-effectiveness analyses should be separate and different than the discount rate used when evaluating whether amortization might be preferred by a typical ratepayer. For the latter, we would advocate for a discount rate reflective of a customer's hurdle rate, which is generally accepted to be significantly higher than a societal discount rate. We do believe use of a societal discount rate is most appropriate to assess overall cost-effectiveness and influence public policy decisions.
- (f) See Attachment 11. However, we reiterate that we think the societal discount rate used for cost-effectiveness screening can and should be different than the discount rate used when evaluating whether amortization makes sense from a utility customer perspective.
- (g) Our view is that, for a given program budget and savings, the choice of whether or not to amortize does not impact cost effectiveness from a societal perspective, nor the decision on whether it is a good societal investment and policy. We agree that decisions on whether to make the efficiency investment should focus on a societal view, and that it would be good public policy to invest in all efficiency that provides positive net benefits compared to the alternative of traditional supply, calculated using a societal discount rate. Once a decision to invest is made however, the issue becomes one of distributional equity, and consideration of customer preferences and intergenerational equity can reasonably be considered from the customers perspective. This is particularly true if amortizing expenses can enable more cost-effective savings (and thus societal benefits) by mitigating concerns over rate impacts.

Interrogatory from Green Energy Coalition

7-GEC-2-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 9, Table 1

Question(s):

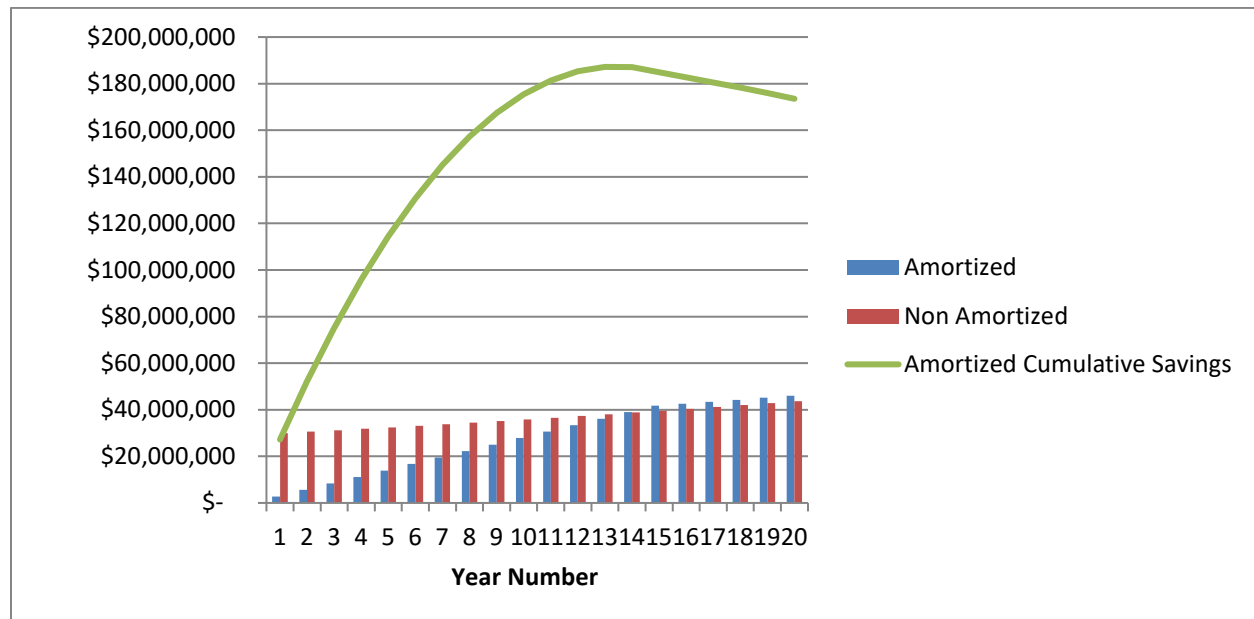
Regarding Table 1 on p. 9 of Staff.1:

- (a) How is the 30% tax rate used in the calculations used to create the graph?
- (b) If the loan term was 15 years instead of 10, which would be more in line with the average measure life of Enbridge's proposed DSM savings, what would be the first year in which amortized costs exceed unamortized costs?
- (c) If DSM spending increased at 10% per year for ten years and grew at the rate of inflation in years 11 and beyond, what would be the first year in which amortized costs exceed unamortized costs?
- (d) Please provide the Excel file with the calculations underpinning the creation of this graph.

Response

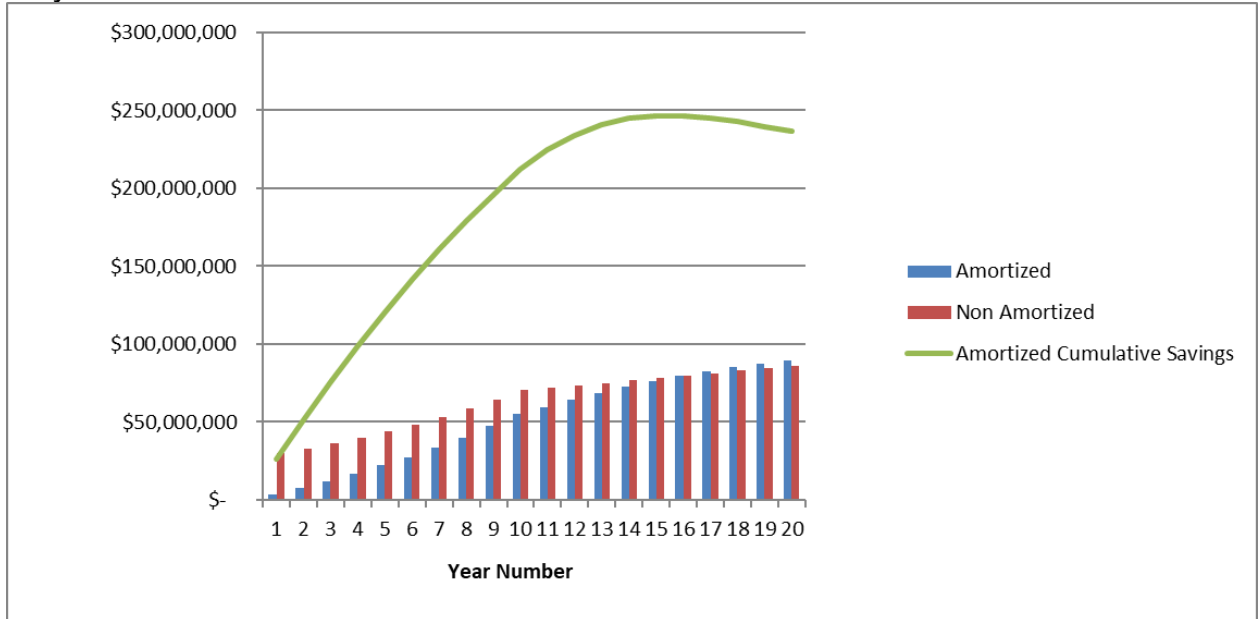
- (a) The analysis assumes that deferred income taxes reduce the regulatory asset base and thus the revenue requirements. It is applied to the cumulative regulatory asset (Total expenses – amortization payoff) to determine the rate base. While this is common in the US, we are unclear whether this practice is done in Ontario.

- (b) Year 14, see below.

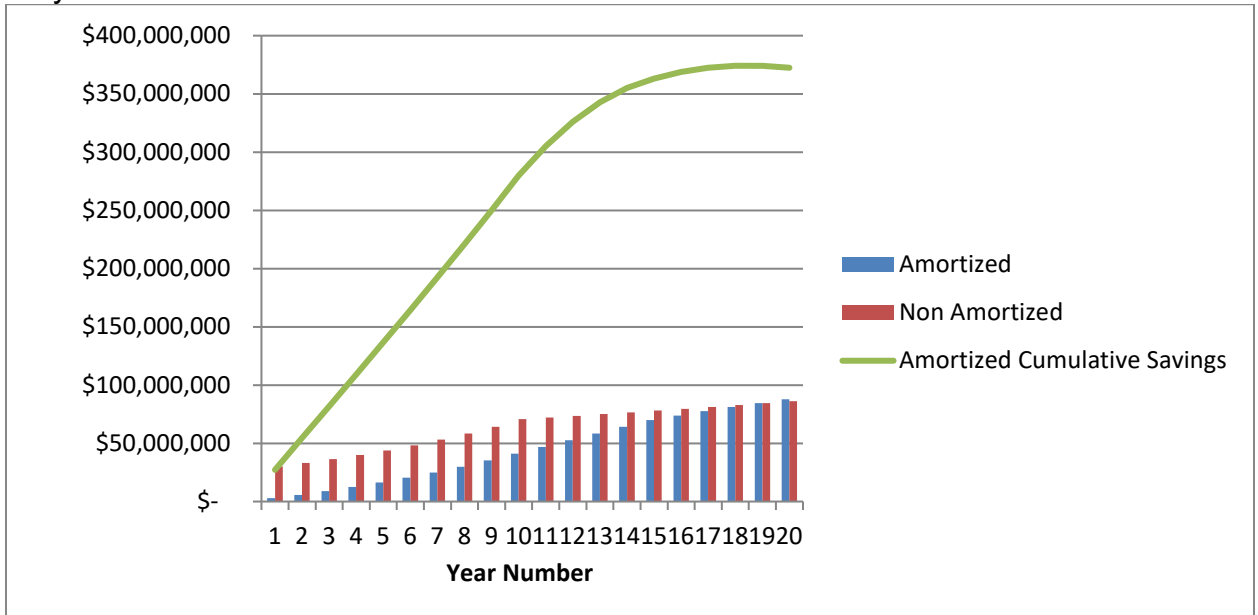


- (c) Year 17 with a 10-year loan term, or year 20 with a 15-year loan term, see below for graphs with a 10 and 15 year loan term, respectively.

10-year Loan Term



15-year Loan Term



- (d) See Attachments 4, 10, 11 (same basic file with variation in inputs as requested above)

Interrogatory from London Property Management Association

7-LPMA-1-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, pp. 9-12

Question(s):

Please provide versions of Tables 1 through 4 that are based on the same assumptions used in the evidence, but assume that 50% of the costs are amortized and 50% of the costs are expensed and not amortized.

Response

We did not do an analysis of this additional scenario, but as noted previously, we are providing unlocked excel sheets (Attachments 4, 10 and 11) for parties to review and edit with additional scenarios if they choose.

Interrogatory from London Property Management Association

7-LPMA-2-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, pp. 9-12

Question(s):

Please provide versions of Tables 1 through 4 that are based on the same assumptions used in the evidence, but assume that 50% of the costs are amortized and 50% of the costs are expensed and not amortized over the first five years shown with costs in year 6 and beyond being 100% amortized.

Response

We did not do this analysis.

Issue 8

Interrogatory from Consumer Council of Canada

8-CCC-3-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 28

Question(s):

Of the performance incentives listed in Table 6: Summary of Performance Incentives by Jurisdiction which does Optimal Energy view as the most successful or optimal approach?

Response

There are different elements of various approaches that we like, but do not have a single example that is our favorite. We give our recommendations for Ontario in the report.

Interrogatory from Consumer Council of Canada

8-CCC-4-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 37

Question(s):

Optimal Energy is recommending moving from the proposed annual targets approach to a true multi-year approach where budgets and targets are cumulative for the full 5-year plan period, and the performance incentive is ultimately determined on the Enbridge Gas's performance towards achievement of the end of term targets. Under this approach how can the OEB determine whether the 5-year targets are appropriate? Please explain, in detail, how this approach would work.

Response

This would be determined through an OEB proceeding via extensive stakeholder input and analysis of Enbridge's assumptions, similar to the current proceeding. Stakeholders could look at past Enbridge performance, performance of gas programs in other jurisdictions, potential studies, and specific programmatic and measure level

assumptions in order to determine whether the proposed spending and savings goals are reasonable. Even when goals are treated as separate annual goals, it is common in most jurisdictions to set multi-year goals for an entire plan cycle. In fact, in some cases, efficiency resource standards exist, either in legislation or by regulation, that establish minimum goals far out into the future. Note that we do not think that basing the targets on the performance in the previous year ensures that the targets are “reasonable.” This practice creates perverse incentives that potentially rewards a utility for poor performance, and allows one year of very bad performance to lower the bar for future efficiency.

Interrogatory from Consumer Council of Canada

8-CCC-5-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 40

Question(s):

Optimal Energy has recommended assigning 70% of the overall performance incentive to a net benefit target and 30% of the overall performance incentive be allocated to a limited number of up to 5 “countervailing metrics” that are independent or actively harmful to net benefits or simply align with critical policy goals. What specific metrics would Optimal Energy recommend?

Response

As indicated in Exhibit L.OEB Staff.1, the particular metrics can depend on specific policy or program goals for the plan period, but some good ideas include low-income spending/savings, comprehensiveness of savings (i.e. portion of participants installing multiple measures or achieving a high depth of savings, etc), peak day reduction in supply constrained areas, or participation among specific hard-to-reach customer segments.

Interrogatory from Consumer Council of Canada

8-CCC-6-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 40

Question(s):

Optimal Energy is recommending that Enbridge Gas proposes natural gas savings targets for the Savings by Design and Low Carbon Transition programs. How should the OEB and stakeholders assess whether those targets are appropriate, once they are proposed by Enbridge Gas?

Response

We suggest some combination of looking at spending and savings for similar programs in other jurisdictions and evaluating the specific programmatic and measure level assumptions used by Enbridge to develop the targets.

Interrogatory from Consumer Council of Canada

8-CCC-7-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 42

Question(s)

Optimal Energy is recommending that the OEB establish the overall incentive amount as a percentage of net benefits in advance of the planning process. How could this approach be implemented with respect to Enbridge's current plan? Please provide examples of where this approach has been adopted.

Response

See Exhibit L.OEB Staff.1, p.42 for an example of how this would work. We are not aware of any other jurisdictions that set the PI in this exact manner. We put this forward as a potential way to eliminate the utility incentive to overestimate budget and/or underestimate savings – an issue that we run into in other jurisdictions.

Interrogatory from Environmental Defense

8-ED-3-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 42

Preamble:

“In order to eliminate utility incentives to overestimate budget and/or underestimate savings, we recommend considering establishing the overall incentive amount as a percent of net benefits, in advance of the planning process. This way, while higher proposed savings (and/or lower budgets) in the efficiency plan would still make it harder to achieve or exceed the full target incentive, it would also increase the overall pot of money available for earnings. In effect, while the incentive for the utility to propose a plan overestimating costs and underestimating savings may still remain, this would also create a countervailing incentive to decrease planned budget and increase planned savings in order to maximize the total available shareholder incentive. While ultimately approval of plans is up to the OEB in any case, we believe this tension provides a good check on the utilities and encourages them to strive for maximum, but realistically achievable, goals.”

Question(s):

- (a) If the current overall incentive amount (i.e. the maximum “pot”) were expressed as a percent of net benefits, what would that be? If there are multiple answers depending on a number of assumptions, please provide those details.
- (b) What amount of incentives does Optimal believe would be reasonable as a percent of net benefits? If possible, please provide a single figure and a reasonable range around that number. Please explain the basis for this.
- (c) Please comment on the concept of establishing the overall incentive amount as a percent of planned program savings (m3). Please comment on the pros and cons of this approach (i) versus the current approach of a fixed maximum and (ii) versus incentives as a percent of net benefits.
- (d) If the current overall incentive amount (i.e. the maximum “pot”) were expressed as a percent of cubic meters, what would that be? If there are multiple answers depending on a number of assumptions, please provide those details.
- (e) What amount of incentives does Optimal believe would be reasonable as a percent of cubic meters? If possible, please provide a single figure and a reasonable range around that number. Please explain the basis for this.

Response

- (a) The maximum incentive pot for 2023 is \$21.29 million, with forecasted net benefits of \$372.26 million. This translates to a maximum incentive of 5.7% of forecasted net benefits. The recommendation was intended to temper the current incentives to underestimate savings and/or propose higher than necessary budgets, rather than to propose a dramatically different overall level of incentive. In general, our experience is that incentives around 5% of spending are sufficient to motivate utilities to pursue

exemplary performance. This would likely result in approximately 2% of net benefits based on the current proposed budget for 2023.

- (b) We haven't done this calculation, but would recommend it be set to an equivalent of 5-10% of program spending. Please see Exhibit L.OEB Staff.1, p.42 for additional discussion.
- (c) We do not see how it is feasible to set the overall incentive amount as a percent of planned program savings, as the savings have units of m³ and the performance incentive needs to be paid in dollars. The incentive could be set as a fixed \$/m³. While this would minimize the inherent incentive to propose low savings goals, it is inferior to an approach that is a fixed percentage of net benefits because the latter also addresses the inherent incentive to propose excessive budgets. The main issue with the current approach of a fixed maximum incentive is that it gives Enbridge a theoretical incentive to propose both higher costs and lower savings in their plans – since less ambitious plans will be easier to achieve and thus make it easier to earn the full incentive, and having a higher budget makes it further easier to achieve. When the incentive amount is set as a percent of net benefits, any utility incentive to propose low goals and/or higher than necessary budgets to maximize chances of earning an incentive will be offset by the fact that the total amount of the performance incentive would also decrease.
- (d) We do not see how you can express an incentive amount as a percent cubic meters, since the units are different. However, assuming what is mean is expressed as a \$/m³, it would be \$0.2/m³. This is derived by dividing the 2023 budget by the proposed 2023 total m³ of savings.
- (e) We think the easiest way to think about the size of the PI is in terms of percent of program budget, and that 5-10% is a reasonable range for a maximum incentive. In terms of the 2023 plan, an incentive of 5% of budget would be about \$0.07/m³.

Interrogatory from Enbridge Gas Inc.

8-EGI-13-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, Executive Summary, p. iii

Preamble:

"We also perform a survey of PIs in other jurisdictions, looking at the target amount, threshold amount, cap, and how the PI is calculated in general. We look with greater detail at the mechanisms used in New York, Illinois, and Massachusetts, as these states

all have high performing efficiency programs but calculate the performance incentives very differently."

Question(s):

Optimal Energy has elected to look in detail at the performance incentives of New York, Illinois and Massachusetts. Please confirm that gas utilities in each of New York, Illinois and Massachusetts are mandated, in accordance with legislated state policy to deliver energy efficiency programs including binding energy savings targets and this is not consistent with Ontario where the implementation of DSM programming is a voluntary business function.

Response

Yes, that is generally the case. However, in Massachusetts, the legislative state policy is only to pursue all cost-effective efficiency. There are no actual binding energy savings targets. Rather, savings goals are worked out through a collaborative stakeholder process and approved by the Department of Public Utilities. In Illinois, while there are legislatively set gas utility savings goals, these can be modified by the Commission, and in actuality the Illinois Commerce Commission approves the utility energy savings goals and have routinely approved goals much lower than those nominally in statute based on individual plan filings. We also note that gas utilities in Illinois do not earn any performance incentives. The goals in New York were established by Commission Order, not by any legislation.

Interrogatory from Enbridge Gas Inc.

8-EGI-14-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, Executive Summary, p. vi

Preamble:

Recommendation 13 and Recommendation 14

Question(s):

Please explain the difference between Recommendations 13 and 14

Response

Recommendation 13 regards the level of the threshold. Enbridge proposed beginning earning at 50% of goal, which is lower than past practice and lower than other

jurisdictions surveyed. We recommend using a 75% threshold to begin earning. Recommendation 14 regards the speed at which earnings accrue once the threshold is passed. Many utilities get a large portion of the incentive as soon as the threshold is passed, whereas Enbridge gradually increases its earnings as savings rise above the threshold. We recommend maintaining the current approach of gradually earning above threshold rather than providing a large earning immediately upon reaching the threshold level.

Interrogatory from Enbridge Gas Inc.

8-EGI-15-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, Executive Summary, p. vii

Preamble:

Recommendation 17: We recommend considering establishing the overall performance incentive amount as a percent of net benefits, in advance of the planning process. This way, while higher proposed savings (and/or lower budgets) in the efficiency plan would still make it harder to achieve or exceed the full target incentive, it would also increase the overall pot of money available for earnings.

Question(s):

Given the direction provided by the OEB on December 1, 2020 in the DSM Letter, when would Optimal Energy propose this recommendation might be implemented in Ontario?

Response

This recommendation applies to a program that aims to achieve all cost-effective savings. We would not recommend it for the current program plan. Note that the report had two separate recommendations regarding net benefits. The one cited above is in regard to how to determine the size of the performance incentive and how to structure it in a way that reduces Enbridge's incentive to overestimate budget and underestimate savings during planning. This recommendation only applies to a plan that is pursuing all-cost effective efficiency without budget constraints. The other recommendation is to use net benefits as a primary metric to determine what percentage of the maximum incentive amount Enbridge earns. This recommendation applies to any plan, whether or not it seeks to achieve all cost-effective efficiency.

Interrogatory from Enbridge Gas Inc.

8-EGI-16-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p.1

Preamble:

"[U]nder traditional regulation, investor-owned utilities (IOUs) have inherent disincentives to pursue aggressive energy efficiency ...key disincentives include lost revenues from lower sales and foregone earnings from not getting a rate of return on efficiency program investment."

Question(s):

Can Optimal Energy confirm that its recommended cost recovery approach is that capitalized/amortized DSM costs would be entirely funded by debt (as opposed to debt and equity - as performance incentives would be kept separate)? If so:

- (a) Does Optimal agree that their recommendation does not alleviate the disincentive of foregone earnings that investor owned utilities face in pursuit of energy efficiency? If not, please explain.
- (b) Does Optimal agree this would result in annual DSM activities being eligible for performance incentives only in the year in which they occur, as opposed to over an extended period as would be the case if a return on equity was included in the funding?
- (c) Is Optimal aware that Enbridge Gas is required to maintain an OEB approved capital structure for its regulated utility operations (currently 36% equity and 64% debt)? How would Enbridge Gas maintain this requirement if it were to finance all capitalized/amortized DSM costs solely through debt financing?

Response

We make no specific recommendation as to how Enbridge might choose to fund its investment, just on how to set the interest rate. That is a management decision that would not impact the ratepayers.

- (a) We agree. The lost revenue recovery mechanism is designed to alleviate this disincentive, and performance incentives are designed to provide a positive earning incentive, neither of which is impacted by our recommendation to consider amortizing program costs. Cost recovery is simply designed to fairly reimburse Enbridge for its program costs.

- (b) Yes. Ignoring the fact that our proposal suggests treating the savings goals and performance incentives for the entire plan period as a single set of cumulative goals rather than five separate discrete annual ones.
- (c) We make no assumptions about how Enbridge chooses to fund the program investments.

Interrogatory from Enbridge Gas Inc.

8-EGI-17-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p.2

Preamble:

“To address the foregone earnings opportunity, some sort of positive return on efficiency investment can be provided. This can be from simply providing the same rate of return (ROR) on efficiency investments as is earned from supply-side investments, putting efficiency and supply on a relatively equal footing. Alternatively, many jurisdictions have pursued more nuanced mechanisms that can provide similar earnings opportunities but are based on the IOU’s performance in delivering efficiency, rather than simply an ROR on investment. Because these performance incentives (PIs) create incentives to strive for exemplary performance (and potentially penalties for poor performance) rather than rewarding spending, they can be a superior policy approach.”

Question(s):

Please provide specific evidence of examples from other jurisdictions of performance incentive mechanisms (including specifically for gas utilities), that are based on performance in delivering efficiency, that can provide similar earnings opportunities to an ROR on investment, and include illustrations of how they would work.

Response

Please see Exhibit L.OEB Staff.1, Table 6.

Interrogatory from Enbridge Gas Inc.

8-EGI-18-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p.21, footnote 35

Preamble:

"From a financial opportunity cost perspective, a utility should be indifferent between a dollar lost and a dollar gained. However, in actuality, it is likely utilities may respond more aggressively to avoid penalties than to earn awards simply because they perceive penalties as associated with failure, where awards are viewed as incentives for exceeding expectations."

Question(s):

Please provide references from the jurisdictional research that support this assertion.

Response

We are not aware of any research from the efficiency sector that quantitatively evaluates this assertion. However, it aligns with our anecdotal experiences in the industry. Note that we do not recommend any penalty for Ontario.

Interrogatory from Enbridge Gas Inc.

8-EGI-19-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p.41

Preamble:

"Further, most PI designs give utilities a relative windfall incentive when the threshold is reached, for example giving 75% of the target incentive amount immediately upon reaching 75% of target."

Question(s):

Please confirm that payouts in the Enbridge Gas proposal are lower between 75% and 100% than the incentive payouts given in "most PI designs" as summarized in the table below.

Performance	Payout %	
	Enbridge proposal	Most PI's
75%	50%	75%
85%	70%	85%
95%	90%	95%
100%	100%	100%

Response

We can confirm that it is common for many PIs to give an equal percentage incentive of the total achievement once the threshold is reached, ramping up to 100% when meeting 100% of the goal, as shown. However, there are many other specific differences such as the precise threshold level, how quickly the incentive ramps up, and the maximum incentive level. As such, it is not feasible to state that Enbridge's approach is lower than "most PIs" without considering the full design. For example, 50% of Enbridge's maximum incentive equates to about 7.5% of program budget, but 100% of Rhode Island's maximum incentive is only 6.25% of program budget.

Interrogatory from Energy Probe

8-EP-3-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. iv

Preamble:

Target Adjustment Mechanism: Recommendation 3: We recommend considering that instead of the proposed Target Adjustment Mechanism (TAM), structure the performance incentive as a true 5- year target with annual milestones and a true-up process in the final year. If this approach is not taken, the TAM should still be eliminated, in favor of setting fixed annual targets for each year of the plan.

Question(s):

Is Optimal's recommendation because the TAM is complex, or is replacement for other reasons. Please discuss.

Response

See Exhibit L.OEB STAFF.1 page 38, where we discuss our concerns about the TAM in greater detail. In summary, our concerns are not related to the complexity of the mechanism, but to the potentially perverse incentives this could create for Enbridge.

Interrogatory from Energy Probe

8-EP-4-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. iii

Preamble:

Recommendation 7: We recommend simplifying the performance incentive structure using a main metric based on net benefits for 70% of the incentive amount. Specifically, we recommend adapting Program Administrator Cost (PAC) net benefits, plus carbon, to avoid the potentially contentious challenges of estimating participant costs and benefits as can be the case when using Total Resource Cost (TRC)-Plus net benefits³.

Question(s):

- (a) Does Optimal agree that PAC costs and benefits are difficult to track and calculate?
- (b) If so, why not use a different test either instead or as well as PAC, for example the Rate Impact Test. If not, please justify this recommendation based on precedents in other jurisdictions.
- (c) Please discuss the above in detail

Response

- (a) No. Optimal has recommended the PAC because it is relatively easy to track.
- (b) First, the Rate Impact Test is not a true cost-effectiveness test, and does not estimate net benefits, but rather simply measures the rate impact. Further, good policy should focus on the overall net benefits to society, or at least to the energy system and ratepayers. Typically, whenever pursuing efficiency is less costly than supply, ratepayers will benefit, however, rates will go up in the short term. Ratepayers should be concerned with the overall benefit and bill reductions they will enjoy. We are not aware of any jurisdiction that currently relies on the rate impact test as a primary test to evaluate energy efficiency programs. Exhibit L.OEB Staff.1

provides information on some jurisdictions that use a variation of the PAC test for performance incentives.

(c) See above.

Interrogatory from Energy Probe

8-EP-5-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. vi

Preamble:

Threshold and Cap: Recommendation 13: Enbridge Gas proposes to start earning the performance incentives at 50% of the goal, an extremely low threshold compared to other utilities. We recommend raising this, consistent with past OEB approvals, so Enbridge Gas starts earning only at 75% of a target. This approach provides a much stronger incentive to continue to increase savings once the threshold is crossed and provides greater protection to ratepayers.

Question(s):

Does Optimal suggest that with the proposed Threshold and Cap. the Scale of rewards should remain as at present or be increased; i.e. more reward for 110% achievement etc.? Please discuss and provide examples.

Response

Our recommendation is to set an incentive based on the planned net benefits. If actual net benefits are 110% of planned net benefits, then Enbridge would receive 110% of the base incentive.

Interrogatory from Green Energy Coalition

8-GEC-4-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 42

Preamble:

On p. 42 of Staff.1, Optimal proposes that the maximum incentive for a given DSM plan period be tied to economic net benefits.

- (a) Would Optimal agree that this would create a disincentive to develop plans that include substantial investment in efficiency measures and programs that, though cost-effective, are much less cost-effective than average (e.g., measures/programs with a benefit-cost ratio of, say, 1.3 to 1, compared to a portfolio average of 3 to 1)? If not, why not? Wouldn't the increase in total incentive be too small to encourage the company to propose significant investment in such programs?
- (b) Would Optimal agree that this approach could also discourage investment in programs that target low income customers and others market segments that are harder to reach? If not, why not?
- (c) If the answer to either "a" or "b" is yes, is there an alternative structure or modification to the structure proposed by Optimal for establishing the maximum incentive that could mitigate against these potential concerns?

Response

- (a) This disincentive would exist if the programs are budget constrained. If not, the incentive still exists to include the program, as it would increase net benefits and thus performance incentive. Net benefits will be maximized by pursuing all cost-effective energy efficiency, which aligns with our recommendation.
- (b) In a budget-constrained environment, with no carveout for low-income programs that are not cost-effective, this would be true.
- (c) This recommendation is primarily intended to apply if there aren't budget constraints, and the administrator is pursuing all cost-effective efficiency. Given budget constraints, there is no perfect way to get around the utility incentive to underestimate savings and overestimate cost, beyond a robust stakeholder process that ensures that the final plan has appropriately aggressive savings targets, for reasonable costs. Therefore, unless current policy changes to eliminate budget constraints and pursue all cost-effective efficiency, it is likely better to just base the size of the incentive on the planned program budget.

Interrogatory from London Property Management Association

8-LPMA-3-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 19

Question(s):

The evidence notes that if performance incentives are tied to actual spending, the incentive can encourage the utility to be less cost efficient and spend more funds than may be necessary to increase rewards. Would this potential for a perverse incentive be reduced or eliminated if the incentive was tied to the Board approved budget spending rather than actual spending?

Response

Yes, tying the incentive to approved spending is significantly better than tying it to actual spending. However, this still provides some perverse incentive at the planning stage in that planning for excessive budgets can benefit the utility.

Interrogatory from Pollution Probe

8-PP-6-OEB Staff.1

Question(s):

(a) When targets are significantly exceeded in early years, what incentive is there under a multi-year performance incentive to maintain high performance in the final years of the plan?

(b) What is best practice to mitigate this issue?

Response

(a) By continuing to reward the utility for overachieving up to a cap above 100%, the utility should still have incentive to maximize savings.

(b) Best practice is to allow utilities to earn more than 100% of the base performance incentive for exemplary performance that exceeds 100% of the utility's goal.

Interrogatory from Pollution Probe

8-PP-7-OEB Staff.1

Question(s):

What is the best practices to incent an efficient DSM portfolio delivery (i.e. high results while managing fixed costs)?

Response

Please see our general recommendations on performance incentives in Exhibit L.OEB Staff 1. Largely basing the incentive on net benefits strikes a good balance by both encouraging high savings and spending discipline.

Interrogatory from Pollution Probe

8-PP-8-OEB Staff.1

Question(s):

For the jurisdictions that do not have a utility incentive, what tools do they put in place to ensure utility performance and/or reward performance excellence?

Response

In some cases, potential explicit penalties may exist for not meeting goals. For example, in Illinois gas utilities may be exposed to a financial penalty of making a contribution to the State low income heating assistance program. In general, the implicit penalty is that regulators may deny cost recovery based on a finding of imprudence, or the regulators or legislators may choose to replace the utility with an alternative program administrator.

Interrogatory from School Energy Coalition

8-SEC-12-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 39

Question(s):

Please provide a more detailed explanation of the advantages and disadvantages of using the TRC+ or Societal Cost Test to measure benefits, vs. the PAC (plus carbon) test.

Response

An advantage of the TRC+ or Societal Test is that it includes most of the important costs and benefits relevant for policy making. A disadvantage is that these benefits are often harder to quantify than the costs (especially non-energy benefits for the program participant), and the test can therefore end up biased towards the cost side. The PAC test ignores the participant costs and benefits, which in theory are important, but which can be hard to estimate. As stated in Exhibit L.OEB Staff.1, p.39, the PAC does provide advantages for use only as a performance metric because it is highly correlated to the TRC+ or Societal Cost test but is much more straight forward and simple to monitor, track, calculate, and mitigates controversy over ultimate performance.

Interrogatory from School Energy Coalition

8-SEC-13-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, p. 42

Question(s):

Please confirm that an intended effect of setting the maximum incentive based on target results rather than actual is to incent the utility to aim high in their planning.

- (a) Is Enbridge Gas's proposed annual maximum shareholder incentive, including structure, and amount appropriate?
- (b) Is Enbridge Gas's proposed Long Term shareholder incentives appropriate?
- (c) Is Enbridge Gas's Annual Net Benefits Shared Savings proposal appropriate?

Response

Yes, that is one of the reasons.

- (a) Please see the discussion in Exhibit L.OEB STAFF.1. The section starting on page 37 gets into this topic in the most detail.

- (b) Please see the discussion in the Exhibit L.OEB STAFF.1, page 40. In short, we do not like the proposed design for the GHG Reduction initiative, or Low Carbon Transition Program.
- (c) Please see the discussion in Exhibit L.OEB.STAFF.1, page 41. In short, we do not like the net benefits shared savings incentive as proposed by Enbridge.

Interrogatory from Enbridge Gas Inc.

8c-EGI-20-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, Executive Summary, p. v

Preamble:

Recommendation 7: We recommend simplifying the performance incentive structure using a main metric based on net benefits for 70% of the incentive amount. Specifically, we recommend adapting Program Administrator Cost (PAC) net benefits, plus carbon, to avoid the potentially contentious challenges of estimating participant costs and benefits as can be the case when using Total Resource Cost (TRC)-Plus net benefits³. While this diverges from a pure focus on gas savings in physical units, we believe net benefits is a better and more comprehensive approach. Gas savings will produce the vast majority of benefits, so the two are highly correlated, and it still directly provides the incentive to maximize savings. However, it also ensures utilities value such things as cost efficiency, capacity benefits, and longevity of savings.

Question(s):

- (a) As outlined by OEB Staff in its description of expert evidence submitted to the OEB on September 15, 2021, "The first report is related to Issue 7¹ and will generate expert analysis on energy efficiency cost recovery approaches and performance incentives in other jurisdictions [emphasis added] (the Cost Recovery and Performance Incentive Report). Please provide specific references to identify which other jurisdiction(s) Optimal's recommended performance incentive structure (found at Page v of the Cost Recovery and PI Report, Executive Summary) is in place (specifically using a main metric based on net benefits for 70% of the incentive amount based on a Program Administrator Cost (PAC) net benefits, plus carbon).
- (b) Please confirm that a program with a positive PAC result does not necessarily result in total lower costs to customers. If confirmed, please explain why not. If not confirmed, please explain why.

- (c) In recommending that net benefits should be determined utilizing PAC/UCT as opposed to TRC, Optimal Energy suggests this “ensures utilities value such things as cost efficiency, capacity benefits and longevity of savings” (page 39). Please explain how PAC would include capacity benefits. In your response, please be specific regarding how this differs from gas savings and TRC.
- (d) It is widely accepted that the cost-effectiveness test most appropriately utilized in a given jurisdiction should reflect the objectives for the energy efficiency framework of that jurisdiction. Please detail how each of the PAC/UCT and the current TRC-plus (15% NEBS and cost of carbon) compare in reflecting the OEB’s stated primary/secondary objectives for DSM in its December 1, 2020 Letter (pages 2 and 3) as well as supporting other desired goals shared by the OEB, for example ensuring low income and small volume customers are well served?
- (e) How does Optimal Energy believe increasing the weighting on net benefits to 70% of the shareholder incentive opportunity vs. approximately a 1/3 weighting in Enbridge Gas's proposal, impact how the utility may be incented to refocus efforts on large industrial customers vs. low income, hard-to-reach or small volume customers highlighted as a priority by the OEB in its December 1, 2020 DSM letter?

Response

- (a) We did not base our recommendations on a single jurisdiction, but rather chose elements of various other incentive structures that we felt were particularly well designed. See Exhibit L.OEB STAFF 1, Table 6 for a description of the performance incentive in various jurisdictions.
- (b) Normally, the PAC test considers whether the energy system is reducing total costs, and therefore a positive PAC test means lower total long-term costs to all customers collectively. However, if the PAC includes some non-gas energy benefits so it is possible the total gas system costs will not decline. Finally, from a participant perspective, the PAC test does not consider costs that are not reimbursed by the utility program. The portion of the equipment cost paid by the individual participant could be high enough to increase their total overall costs.
- (c) Some jurisdictions explicitly quantify peak-day capacity benefits as a separate component of their avoided costs. Where they are not explicitly broken out in avoided costs, they will still generally be embedded into avoided costs and will be reflected by the differing value of gas at different times of the year.
- (d) To be clear, our recommendation for the PAC (plus carbon) is related to the primary metric for the performance incentive, not the test to be used to determine whether or not to offer programs and measures, where we support the TRC Plus or Societal test. The primary objective of the latter is to provide overall societal benefits to the Ontario economy and to help homes and businesses become more efficient in order better manage energy bills, and the secondary objectives are to lower annual gas

consumption, reduce GHG emissions, and avoid/defer future infrastructure projects. In our view, the test that most aligns with these objectives is the TRC Plus or Societal Cost Test.

- (e) Enbridge's proposed incentive design reserves about 13.7% of the total incentive for low-income and 6.8% for small volume commercial customers. A similar weighting can easily be maintained within the framework of our recommendations, which reserves 30% of the total incentive for countervailing metrics, including performance in the low-income and small-business sectors.

Issue 9

Interrogatory from Enbridge Gas Inc.

9-EGI-21-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, Executive Summary, p. iv

Preamble:

Recommendation 1: We recommend moving from the proposed annual targets and metrics approach to a true multi-year approach, where budgets and targets are cumulative for the full 5-year plan period, and the performance incentive is ultimately determined based on the Enbridge Gas's performance towards achievement of the end-of-term targets.

Question(s):

- (a) Please confirm that in its December 1, 2020 DSM Letter the OEB stated: "The OEB encourages Enbridge Gas to develop a longer-term natural gas savings reduction target, separate from the annual targets, that it will work to achieve by the end of the next multi-year DSM term", clearly indicating the expectation for annual targets in Enbridge Gas's DSM proposal.
- (b) Enbridge Gas is interested in better understanding this recommendation. Please provide an illustrative example that shows all relevant details, including full term Performance Incentive, annual measurement and interim payments for PI, thresholds for earnings and earning caps both annually and on a full term basis, and impacts to ratepayers based on when payments are made.
- (c) Please provide references and details for jurisdictions where this structure (i.e. a true multi-year plan as described in the preamble above) has been already been adopted.

Response

- (a) Yes, that is stated in the letter. We believe our recommendations align with that direction better than Enbridge's current plan, as a true multi-year plan would still have annual interim targets, and the current plan does not have a long term target or specific annual targets beyond year 1.
- (b) The details on this would be dependent on the specific design of the incentive, but we will provide a simple conceptual example for a PI based on total annual savings.

Say there is a 3-year goal for 3,000 m³ of savings. This is split into annual goals of 1,000 m³ per year. The PI is \$1,000 per year, and the administrator can earn 75% of the total at 75% of the goal, and this ramps linearly to 100% of the goal. In year one, the program administrator gets 900 m³ of verified savings, and there would be an interim payment of \$900 (90% of the total). In year two, the program administrator also achieves 900 m³ of savings. For this year, the administrator would also receive \$900. Then, in year 3, the administrator exceeds the annual target and achieves 1,200 m³. This means the total achievement is 3,000 m³, compared to a 3-year goal of 3,000 m³. In this case, the administrator would receive an additional \$1,200 in year 3, since the total 3-year earned performance incentive is \$3,000 and \$1,800 was already paid in years 1 and 2.

(c) See footnotes 44-46 in Exhibit L.OEB Staff.1, p.37. The sources are also included as Attachments 12, 13 and 14.

Interrogatory from Enbridge Gas Inc.

9-EGI-22-OEB Staff.1

Reference:

Exhibit L.OEB Staff.1, Executive Summary, p. 28

Preamble:

Table 6: Summary of Performance Incentives by Jurisdiction

Question(s):

Please provide the detailed metrics, incentive structure, threshold and maximum amount for each of the jurisdictions listed in Table 6. Please also clearly indicate which data in the Table pertains to gas utility programs as opposed to electric.

Response

The performance incentive details are outlined in Table 6. Please see the discussion in the filed evidence for recommendations on Enbridge's Performance Incentive. The section starting on page 37 of Exhibit L.OEB STAFF.1 gets into this in the most detail.

Interrogatory from Green Energy Coalition

9-GEC-3-OEB Staff.1

Reference

Exhibit L.OEB Staff.1, p. 40

Preamble:

On p. 40 of Staff.1, Optimal states that Enbridge’s proposed Savings by Design and Low Carbon Transition program performance metrics be modified to “savings metrics” (rather than participation and trade ally training metrics) “to allow the OEB and stakeholders assurance that these programs are contributing to the overall objectives of DSM.”

Question(s):

- (a) Is Optimal suggesting that there still be separate performance metrics for these programs, but that they just be modified to be savings metrics?
- (b) If the answer to part “a” is “yes”, why does Optimal believe it would be appropriate to retain any separate performance metrics for these programs? Why not simply let the results of these programs be captured in the primary net benefits metric Optimal has proposed?

Response

- (a) This statement was intended to apply to the case where our recommendation to move to a net benefits metric is not adopted and the scorecard structure is left largely in place.
- (b) See above. If our recommendation to move to a net benefits metric for 70% of the total is adopted, there still could be a case where a countervailing metric would be designed to encourage performance in a program that is underperforming or deemed particularly important.

Interrogatory from Building Owners and Managers Association

9d-BOMA-2-OEB Staff.1

Reference

Exhibit L.OEB Staff.1, p. v

Preamble:

Choice of Metrics Recommendation 7: “simplifying the performance incentive structure using a main metric based on net benefits for 70% of the incentive amount.”

Question(s):

- (a) Given that EGI has reported that only about 15% of annual savings are measured at the meter, should gas savings for commercial buildings included in net benefits be, to the greatest practical extent, verified at the meter?
- (b) Given the increasing availability of publicly reported data for individual commercial market segments, should overall province-wide actual savings be included in net benefits?

Response

- (a) We believe that current evaluation practices are sufficient. It is not clear whether greater emphasis on billing analysis would improve savings estimation accuracy.
- (b) All savings in Enbridge territory that are attributable to Enbridge's efficiency programs should be included in net benefits.

Interrogatory from Building Owners and Managers Association

9d-BOMA-7-OEB Staff.1

Reference

Exhibit L.OEB Staff.1, p. 26

Preamble:

"In the 2015-2020 DSM Framework, the OEB expressed its interest in exploring a "pay-for-performance" structure, in which "both budget recovery and shareholder incentive payments would be included in one single rate (\$/m³) and paid to the utility based on final net natural gas savings." This type of mechanism is very uncommon... and ...we do not believe that this type of model is this best approach for Ontario. Most of the theoretical benefit of the pay-for-performance approach (encouraging aggressive efficiency savings and the pursuit of all cost-effective efficiency possible) can be achieved through thoughtful design of more traditional performance incentive mechanisms."

Question(s):

Please relate Enbridge's proposed Energy Performance program to this assessment and whether this recommendation applies to that program. If so, how would "thoughtful design" achieve the intended results of that program?

Response

The “pay for performance” structure referenced above relates to how Enbridge recovers its costs for running efficiency programs and earns a shareholder incentive. The proposed Energy Performance Program relates to how Enbridge gives incentives to its customers that install efficiency measures. These are two separate considerations, so the recommendation does not apply to that program.

Issue 10

Interrogatory from Pollution Probe

10-PP-9-OEB Staff.2

Question(s):

For Resource Acquisition programs, how does the incentive (variable) costs to fixed cost ratio for the proposed Enbridge portfolio compare to best practice DSM portfolios? What improvements would Optimal Energy recommend?

Response

We did not perform this comparison. As indicated in Exhibit L.OEB Staff.2, moving to an integrated electric and gas program may be able to reduce some redundant administrative costs, thus improving the ratio. Further, the ratio will likely improve somewhat as programs scale up, as there are certain administrative costs that are fixed regardless of program size.

Interrogatory from Consumers Council of Canada

10a-CCC-8-OEB Staff.2

Reference:

Exhibit L.OEB Staff.2, p. 10

Question(s):

Please describe, in detail, the best model from Optimal Energy's perspective for facilitating coordination between Enbridge Gas and the IESO to offer an integrated Whole Home program. Please provide examples of natural gas and electric combined programs.

Response

Please see the discussion on page 34 of Exhibit L.OEB Staff .2. We suggest two potential models that have seen success in other jurisdictions, but do not take a position on which would be best for Ontario.

Interrogatory from Consumers Council of Canada

10a-CCC-9-OEB Staff.2

Reference:

Exhibit L.OEB Staff.2, p. 10

Question(s):

With respect to the Whole Home Program:

- (a) Has Optimal Energy reviewed the cost-effectiveness of the Whole Home program? If so, is the program cost-effective from your perspective?
- (b) If the audit was free instead of subsidized how would this impact the cost-effectiveness of the program;
- (c) Has Optimal Energy assessed whether the introduction of advanced thermostats at a significant discount or for free would be cost effective in the Ontario context?
- (d) What is a typical free rider rate for these types of programs?

Response

- (a) We have not done a detailed review of the cost-effectiveness of this program. We have no reason to doubt the [2020 Annual Verification results](#), which found that the program has a benefit cost ratio of 1.48 once program costs are included. In general, we would recommend that Enbridge screen each program using the proposed costs and savings to ensure cost-effectiveness going forward.
- (b) It is difficult to predict how this would impact cost-effectiveness. Presumably, it would encourage greater participation. However, it is not clear what portion of the additional audit participants would follow through with adoption of efficiency measures. It could therefore increase or decrease cost-effectiveness.
- (c) We have not assessed for Ontario, but this measure has been cost-effective in other jurisdictions, and the report discusses a program that has done this in Illinois at Exhibit L.OEB Staff.2, p.4.
- (d) See Table 1 in Exhibit L.OEB Staff.2

Interrogatory from Environmental Defense

10a-ED-4-OEB Staff.2

Reference:

Exhibit L.OEB Staff.2

Preamble:

“Our specific recommendations include ... 5. Eliminate furnaces and boilers completely as offered measures, as they are now code baseline, and any promotion through the program creates a lost opportunity for electrification.”

Question(s):

- (a) Does Optimal believe that Enbridge should eliminate gas water heater measures? Please explain the answer. And if not, please discuss how to address the lost opportunity for electrification.
- (b) Does Optimal agree with the following analysis by EFG on page 36 of its report: “Energy Star water heaters are similarly not cost-effective. The 2020 Ontario Gas Technical Resource Manual estimates that an Energy Star tank water heating will provide 68.3 m3 of savings for 16 years at an incremental cost of \$545. Analysis using Enbridge rate zone avoided costs suggests that such a water heater installed in 2023 would provide only \$360 in avoided gas and avoided carbon tax benefits. That translates to a TRC+ benefit-cost ratio of 0.66.”

Response

- (a) This depends on Ontario’s policy on fuel switching and electrification. We do note that heat pump water heaters are a well-established, efficient, and relatively easy to install technology, and make sense as a good first step in a policy environment that wants to encourage electrification. On the other hand, if Enbridge stops promoting gas water heaters, there is a danger that customers that don’t want to electrify will now install a less efficient gas water heater, due to the lack of utility support. There is also potentially a middle ground, where Enbridge’s Whole Home Program encourages switching to electric water heater, but there is also a prescriptive incentive for gas water heaters aimed to capture the people who will buy a gas unit anyway. If policy is not trying to promote electrification, then measures that are cost-effective should be promoted.
- (b) We have not reviewed that analysis. If the measure is not cost-effective, we would not recommend promoting it through Enbridge’s programs.

Interrogatory from Environmental Defense

10a-ED-5-OEB Staff.2

Reference:

Exhibit L.OEB Staff.2

Question(s):

- (a) Please comment on the appropriateness of Enbridge's proposed discount rate for DSM programs of 6.08%. Please provide an answer in light of NSPM recommendations regarding discount rates.
- (b) Please comment on the impact of a lower discount rate on the cost-effectiveness of measures that involve a high up-front cost and that generate benefits over time long into the future.
- (c) If a societal discount rate were used, what percent would be appropriate?

Response

- (a) We would recommend using a societal discount rate, which would be lower than 6.08% for cost-effectiveness analysis.
- (b) Lower discount rates would mean that these measures have higher cost-effectiveness.
- (c) We recommend using the rate on a 10 or 15 year government bond as a proxy for a societal discount rate.

Interrogatory from Green Energy Coalition

10a-GEC-5-OEB Staff.2

Reference:

Exhibit L.OEB Staff.2

Preamble:

On p. 3 of Staff.2, Optimal states that "if Enbridge Gas brought residential costs to halfway between where they currently are and what is achieved by Illinois...savings would increase by 0.23% of load."

Question(s):

- (a) Would Optimal agree that the average cost of savings could potentially be reduced one of two ways: (1) adding spending addressing lower cost savings; and/or (2) shifting spending from higher cost savings such as whole building retrofits to lower cost programs?
- (b) Which of the two approaches in “a” is Optimal recommending?

Response

- (a) Yes, though we would add a third way – more delivery of the same measures and savings more cost-efficiently and/or reductions in administrative and other non-measure related costs.
- (b) We would advocate for option 1 and 3. We would not advocate, for example, shifting spending on building envelope to items like low-flow showerheads.

Interrogatory from Building Owners and Managers Association

10c-BOMA-3-OEB Staff.2

Reference:

Exhibit L.OEB Staff.2, p. ii

Preamble:

Optimal Suite of Programs – Commercial Sector Recommendations 21 and 22: “Evaluate the effectiveness and extent of current account management for large and medium customers and encourage account managers to push to create multi-year Memoranda of Understanding outlining specific energy commitments. Alternatively, expand the Energy Performance (Whole Building P4P) program to include all large C&I customers; and Consider adding RCx/SEM/Energy Manager programs.”

Question(s):

- (a) Given the growing evidence that a substantial share of the achievable gas savings is to be found in improved building operations, maintenance and controls and that owners need technical support over a number of years to identify, implement and make permanent these savings, should these recommendations be merged into an integrated program offering with expanded account management, dedicated owner support, savings measured at the meter and full integration with the IESO?

(b) Is there any reason in your opinion that this type of programming could not be expanded into commercial office and retail segments (like the IESO's EPP)?

Response

(a) We think that this is a good idea.

(b) No, we think it can and should be expanded into these segments, especially in large offices and retail buildings.

Interrogatory from Building Owners and Managers Association

10c-BOMA-4-OEB Staff.2

Reference:

Exhibit L.OEB Staff.2, p. iii

Preamble:

Optimal Suite of Programs – Commercial Sector Recommendation 31: “Offer financial incentives on Commercial New Construction, in addition to training and workshops.”

Question(s):

Given the growing evidence that many new buildings designed to exceed code fail to operate efficiently post construction, should part of the incentive be held back until design performance levels are achieved?

Response:

Yes, a portion of the incentive should be held back to ensure that the building is built as designed and that any other program requirements are met (including potentially a commissioning requirement).

Interrogatory from Environmental Defense

10c-ED-6-OEB Staff.2

Reference:

Exhibit L.OEB Staff.2, p. 23

Preamble:

“Low incentive cap. In most C&I programs, including Enbridge Gas’s, the majority of savings come from a small number of very large projects. If there is a low maximum cap on incentive, then these very large projects are likely to be free riders (since the ultimate incentive is very low compared to the size of the project). Enbridge Gas’s commercial custom program, for example, has a cap of \$50,000 per project. If most savings are coming from projects in the \$500,000 - \$3,000,000 range, it does seem likely that this cap is contributing to high free ridership. This number does seem very low compared to Enbridge Gas’s peer programs – FortisBC has cap of \$500,000 for commercial buildings and \$1 million for industrial; and in Massachusetts and Illinois there are no defined incentive caps.”

Questions:

- (a) What is the purpose of a C&I program for C&I programs?
- (b) Does Optimal recommend that Enbridge remove or increase the incentive cap for C&I programs?
- (c) Would removing the incentive cap cause greater uptake and therefore a greater budget? If yes, can Optimal comment on the rough order of magnitude of the cost.

Response

- (a) We assume this question is meant to state “what is the purpose of an incentive cap for C&I customers?” In that case, the purpose is to ensure that the entire program budget isn’t expended by a few very large projects.
- (b) Yes, we recommend increasing it. Maintaining some form of incentive cap would allow for better funding while ensuring that the whole budget isn’t used by one or two very large projects.
- (c) It would likely cause greater program uptake, but we have not done any analysis on specific impacts on budget and savings.

Interrogatory from Environmental Defense

10c-ED-7-OEB Staff.2

Reference:

Exhibit L.OEB Staff.2, p. 23

Preamble:

While Enbridge Gas's programs are largely in line with those of similar jurisdictions, there are a few steps that could lower free ridership, increase depth of savings, and expand participation:

...

22. Consider adding RCx/SEM/Energy Manager programs.

Question(s):

Please comment on the order of magnitude of potential available gas savings RCx, SEM, and Energy Manager programs (e.g. based on program savings in leading jurisdictions). Please also comment on the budget levels associated with the savings levels based on leading jurisdictions.

Response

See Table 6 in Exhibit L.OEB Staff.2

Interrogatory from Environmental Defense

10c-ED-8-OEB Staff.2

Reference:

Exhibit L.OEB Staff.2, p. 32

Preamble:

"In order for a builder to be eligible, Enbridge Gas requires any new construction building to commit to using natural gas as a fuel source for space and/or water heating⁴³. As a first step, the OEB should consider whether this makes sense from a policy perspective, given provincial and national GHG emission reductions goals. New construction is increasingly using heat pumps for space and water heating – Massachusetts program data, for example, indicates that all-electric new construction is the norm in above code construction⁴⁴. Further, there is increasing evidence that all

electric new construction results in lower costs in addition to a significant GHG reduction. A recent study from the Rocky Mountain Institute, for example, finds lower initial costs for all electric homes in most cities examined and lower lifecycle costs for all cities, in addition to GHG savings of between 50% and 93%, depending on the fuel mix of the electricity⁴⁵. In this light, it is unclear if ratepayer funds should be encouraging natural gas in new construction at all.”

Questions:

- (a) Could you please file a copy of the documents cited in footnotes 42, 44, and 45? With respect to footnote 44, we are specifically seeking the document stating that “Massachusetts program data, for example, indicates that all-electric new construction is the norm in above code construction.”
- (b) Does Optimal believe it is likely that there are lower initial costs and lower lifetime costs for all-electric homes in Ontario in the new construction context? Please comment on how the Rocky Mountain Institute report cited above might apply in the Ontario context in light of Ontario’s electricity mix and carbon pricing?
- (c) If Enbridge continues to provide incentives only to those planning to use fossil fuel heating, is there a risk that this could deter customers from implementing more cost effective options, such as electric heat pumps?
- (d) Optimal states that “[n]ew construction is increasingly using heat pumps.” Could you please provide examples of jurisdictions (i) with targets for heat pump penetration and/or (ii) that require or plan to require non-fossil-fuel heating for new construction?
- (e) Could Optimal please provide any other studies or reports showing that “there is increasing evidence that all-electric new construction results in lower costs in addition to a significant GHG reduction”?

Response

- (a) See Attachment 15 for the MA 3-year plan (footnotes 42 and 44), and Attachment 16 for the RMI report (footnote 45). The referenced statement is given on page 79 of the MA 3-year plan.
- (b) We have not done an in-depth look at the cost effectiveness of all-electric homes in Ontario or the relative prices of electricity and gas in Ontario vs other jurisdictions.
- (c) Yes.
- (d) We have not done a comprehensive review of this, but there is an increasing number of jurisdictions with heat pump targets or requirements for all-electric new construction. Maine, Massachusetts and New York, for example, have specific targets for space heating electrification. Jurisdictions requiring, planning to require,

or strongly encourage all-electric new construction include New York City, Ithaca NY, Louisville CO, Brookline MA, and 54 jurisdictions in California including Berkeley, Mountain View, Oakland, and Santa Monica.

- (e) See Attachment 17, a report from e3, looking at electrification in California, which states “All-electric new construction is expected to be lower cost than gas-fueled new construction homes in homes that have air conditioning, resulting in lifecycle savings of \$130 - \$540/year”

Interrogatory from Environmental Defense

10g-ED-9-OEB Staff.2

Reference:

Exhibit L.OEB Staff.2, p. 32

Preamble:

Optimal states: “there is increasing evidence that all-electric new construction results in lower costs in addition to a significant GHG reduction” L.OEB STAFF.2, p. 32

- (a) Enbridge’s avoided electricity figures are as follows (per Exhibit I.5EGI.ED.16, Attachment 1)

IESO Wholesale Weighted Average Year to Date Rate \$/MWh	147.85
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IESO Monthly Market Report
October 2020, accessed Dec
2020

Electricity Avoided Costs	
Year	\$/KWh
2021	0.151
2022	0.154
2023	0.157
2024	0.160
2025	0.163
2026	0.167
2027	0.170
2028	0.173
2029	0.177
2030	0.180
2031	0.184
2032	0.188
2033	0.191
2034	0.195
2035	0.199
2036	0.203
2037	0.207
2038	0.211
2039	0.215
2040	0.220
2041	0.224
2042	0.229
2043	0.233
2044	0.238
2045	0.243
2046	0.247
2047	0.252
2048	0.257
2049	0.263
2050	0.268

Question(s):

- (a) Please confirm that the relative cost-effectiveness of electric heat pumps versus gas equipment will depend in part on the price differential between the assumed avoided electricity price and gas price.
- (b) Please compare Enbridge's avoided cost figures with those of the IESO². If possible, please provide a table comparing the two and the percent difference between them. Please make and state assumptions as necessary to make an apples-to-apples comparison.

² See <https://www.ieso.ca/-/media/Files/IESO/Document-Library/planning-forecasts/apo/APO-Avoided-Costs.ashx> and <https://www.ieso.ca/en/Sector-Participants/Planning-and-Forecasting/Annual-Planning-Outlook>.

- (c) Please comment generally on the appropriateness of Enbridge's avoided electricity prices in light of the work you have done in other jurisdiction and the avoided electricity costs in other jurisdictions.

Response

- (a) Yes.
- (b) We did not look into Enbridge's avoided costs as part of the study. Further, it is difficult to directly compare electric avoided costs to gas avoided costs.
- (c) We have not looked into how the electric or gas avoided costs for Enbridge were developed, and thus cannot comment on their appropriateness.

Interrogatory from Environmental Defense

10j-ED-10-OEB Staff.2

Reference:

Exhibit L.OEB Staff.2, p. 34

Preamble:

While gas fired heat pumps will reduce energy use compared to gas furnaces and boilers, it is unclear what benefits they would have over electric heat pumps, which are lower cost, produce greater emissions reductions, and are currently commercially available. Further, while it is likely that partial electrification does make sense for some buildings, any program not considering full electrification is losing opportunities for GHG emissions reductions.

Question(s):

- (a) In response to the above comments about gas heat pumps, Enbridge may cite the Canadian Gas Association's (CGA) report entitled "Potential Gas Pathways to Support Net-Zero Buildings in Canada."³ Do the points made in this report change Optimal's recommendations and comments regarding gas heat pumps, and if not why not?
- (b) The CGA report describes a net zero pathway for buildings on page 4 that involves "significant adoption of gas heat pumps" (see pathway 1). Could Optimal please

³ <https://www.cga.ca/wp-content/uploads/2021/11/Potential-Gas-Pathways-to-Support-Net-Zero-Buildings-inCanada-CGA-October-2021.pdf>

comment at a high-level on the cost-effectiveness of this in comparison to a pathway relying instead on high-efficiency electric heat pumps? If it is possible to provide an order of magnitude difference in cost between those pathways, please do.

- (c) Market transformation programs are inherently forward-looking. In this light, please comment on the prudence of developing a market in more efficient gas heating (i.e. gas heat pumps and hybrid systems) versus electric cold climate heat pumps.

Response

- (a) We have not reviewed this report in detail, but it does not generally impact our recommendations. In particular, the scenarios in the CGA report rely on significant amounts of renewable natural gases and offsets/negative emissions to reach net zero. We would need more information about the costs and technical feasibility of these pathways, and see how they compare to the costs and technical feasibility to a pathway that relies on electrification. Other decarbonization studies have found that the electrification alternative would have both lower costs and a higher degree of certainty regarding the technical feasibility.
- (b) We have not examined this report or done this analysis. However, given that residential gas-fired heat pumps have very limited market availability (Enbridge expects them to come to market in 2024) and that electric heat pumps are a common, well established, and much more efficient technology, it is likely that gas heat pumps will be more expensive than electric heat pumps when they come to market. If it's the case that 1) they are more expensive than electric units and 2) less efficient than electric units, and 3) they don't decarbonize as much as electric heat pumps, then a path that uses gas-heat pumps to decarbonize will likely be less beneficial than a path that uses electric heat pumps.
- (c) We think it makes more sense to develop a market for electric cold climate heat pumps, given 1) the technology is more mature, 2) they yield more GHG savings, and 3) it is currently thought to be easier to further decarbonize the electric supply than the gas supply.

Interrogatory from Green Energy Coalition

10j-GEC-6-OEB Staff.2

Reference:

Exhibit L.OEB Staff.2, pp. 34-35

Preamble:

On pp. 34-35 of Staff.2, Optimal critiques Enbridge's proposed Low Carbon Transition program. Among other things, Optimal states raises questions about why gas heat pumps should be promoted, states that "a best practices low-carbon program would be fuel agnostic", and suggests that there is a lack of integration between Enbridge's gas efficiency programs and IESO electric programs. Optimal also provides two examples – in Massachusetts and Oregon – for how electric and gas efficiency programs can be integrated. However, unlike for other parts of Enbridge's program portfolio, Optimal does not make specific recommendations for changes to the Low Carbon Transition program.

- (a) Would Optimal recommend that Enbridge not promote gas heat pumps – or at least not through any special market transformation type of program? If not, why not?
- (b) Would Optimal recommend that Enbridge not offer a stand-alone, gas ratepayer funded low carbon transition program because of its inherent lack of fuel neutrality? If not, why not?
- (c) Would Optimal recommend that Enbridge co-fund a fuel-neutral low carbon transition program run by an independent third party empowered to determine the most appropriate mix of low carbon technologies? If not, why not?
- (d) What other specific recommendations does Optimal have for this program?

Response

- (a) That is correct. We do not recommend that Enbridge promote gas heat pumps, because electric heat pumps are currently widely available, more cost-effective, create more initial GHG reductions, will create even more GHG reductions as the grid decarbonizes, and will avoid risks associated with potential future gas rate increases and stranded costs as gas loads diminish due to broader electrification.
- (b) Correct, we do not recommend Enbridge offer a gas-only low carbon transition program
- (c) Yes, this would be a more appropriate way to fund a low-carbon transition program to the extent it is desired for gas ratepayers to contribute.

- (d) Our main recommendation would be to take a holistic, fuel neutral view of decarbonization, and evaluate all technologies on similar metrics, regardless of what fuels they use.

Issue 16

Interrogatory from Environmental Defense

16-ED-11-OEB Staff.2

Reference:

Exhibit L.OEB Staff.2, pp. 34-36

Preamble:

Overall, the largest issue that arises from comparing Enbridge Gas's efficiency programs to those of other gas utilities is the lack of integration with electric efficiency. A fully integrated electric and gas energy efficiency portfolio would not only enhance customer service and participation by providing a more comprehensive efficiency service, but would also significantly save on administration, assessment, evaluation, and other costs. This is especially true as the focus from efficiency programs moves from electric and gas savings to carbon savings (Massachusetts has made this change explicit in the program goals for the upcoming program cycle). We therefore strongly recommend developing a specific plan with tangible steps on how and when this integration will happen – whether it will be coordinating delivery with IESO, or a third-party administrator contracted to the OEB, as is done in Massachusetts (coordinated delivery) and Vermont (non-utility administrator).

Questions:

- (a) Please comment on the possibility of achieving full integration by having Enbridge contract with the IESO to design and/or deliver gas ratepayer funded demand-side management programs to gas customers.
- (b) Optimal cites two examples of integration: (a) coordination between existing utilities and (b) designating a third-party administrator. If gas ratepayer funded programming were designed and delivered by the IESO, would that be more like category (a) or (b) or a third option.
- (c) Please comment on whether Optimal believes legislative changes are necessary for full integration of gas and electric efficiency programming.
- (d) Please comment and elaborate on these potential benefits of fully integrating efficiency programs by having them designed and delivered under IESO via a contract with Enbridge:
 - i. Avoiding the conflict of interest of a utility that profits from pipelines being responsible for programming that would reduce or eliminate the need for pipelines;

- ii. Enabling a fuel-neutral approach;
 - iii. Enabling the benefits of a fuel-neutral approach, such as economic efficiency, rationality, and cost-effectiveness;
 - iv. Access to low-cost government financing for program cost amortization;
 - v. Avoiding the cost of shareholder incentives;
 - vi. Administrative savings;
 - vii. Ease of access for customers;
 - viii. Maintaining access to Enbridge data and customer communications channels; and
 - ix. Greater consideration of electrical system impacts; and
 - x. Balanced and accurate technical assistance, awareness building, training etc.
- (e) Government agency efficiency programming can be inconsistent and unstable because it can expand, contract, or disappear based on the election cycle. Can you comment on institutional structures to have the benefits of this option without the threat of instability?
- (f) Please comment on any potential conflict of interest for Enbridge with respect to DSM relating to: (a) Enbridge earning profits from pipeline capital projects and (b) Enbridge's interest in upstream transportation revenue on pipelines it owns outside of Ontario that serve Ontario. Please confirm that the LRAM does not address these two conflicts.
- (g) Does Enbridge's plan to incentivize gas heat pumps appear to be due to its interest in maintaining demand for gas pipelines in the future?

Response

- (a) We have not analyzed how effective the IESO is in administering its electric programs, but in general this should be a good solution. While we are not aware of any gas utilities that outsource their efficiency programs to electric utilities or electricity system operators, we are aware of examples where smaller utilities contract with neighboring larger utilities to deliver programs in their service territory. If this is done, care would have to be taken to ensure that IESO places appropriate focus on gas savings, in addition to electric savings.
- (b) This would be a third option. Arguably more similar to b in that the IESO is not a utility and there is one entity solely responsible for designing and delivering programs.
- (c) We have not reviewed Ontario laws or Ontario regulations that might impact this.
- (d)
- i. Yes, IESO would not have the same conflict.

- ii. If the contract was set up so that IESO's goals were designed to be fuel neutral.
 - iii. Combining programs with IESO would likely see some administrative cost efficiencies and thus a potential increase in economic efficiency and cost-effectiveness. We are not sure what is meant by rationality.
 - iv. We are not sure whether IESO would have access to cheaper funding than Enbridge.
 - v. Yes, these would be avoided.
 - vi. Yes, we would expect there to be some administrative savings from not having to perform certain redundant administrative activities and benefitting from greater volume.
 - vii. Customers would have easier access in that they should be able to address both gas and electric end uses via a single point of contact.
 - viii. While access to Enbridge customer data may be less efficient for IESO than for Enbridge directly, we would recommend that the OEB Order Enbridge to share certain customer data with IESO under a protective order, as has been done in Vermont.
 - ix. It's not clear that adding gas programs to IESO's efficiency portfolio would result in greater consideration of electrical system impacts. Potentially this is true because gas efficiency programs can impact the costs and availability of gas relied on for electric generation.
 - x. All technical assistance and training would be able to address both gas and electric end uses.
- (e) It is true that funding for government-administered programs can be inconsistent and unstable. However, this is also true for funding for utility-administered programs. For example, the most recent examples of governments reallocating ratepayer funding to non-efficiency expenditures that we are aware of have occurred in Connecticut, which relies solely on utility-administered programs. Legislative action is likely the best way to ensure a stable funding stream.
- (f) These conflicts are inherent in an Enbridge-administered model and are meant to be addressed through the shareholder incentive as an alternative earnings opportunity. It is correct that LRAM does not address them - LRAM is simply ensuring full recovery of existing fixed costs that are currently built into rates.
- (g) We are not familiar with Enbridge's reasoning.

Interrogatory from Pollution Probe

16-PP-10-OEB Staff.2

Reference:

Exhibit L.OEB Staff.2

Question(s):

There has been a policy mandate in Ontario to promote gas DSM program development and delivery in partnership for well over a decade. Yet, it has failed to increase the level of DSM program co-development and partnerships. What best practice approaches are available to include in the DSM Framework or OEB decision to ensure that all applicable programs are designed and deliver in partnership with relevant stakeholders such as IESO?

Response

See our Exhibit L.OEB STAFF.2, p.34, for a discussion on a couple viable ways to structure integrated program delivery.

Interrogatory from Pollution Probe

16-PP-11-OEB Staff.2

Reference:

Exhibit L.OEB Staff.2, Recommendation 22

Preamble:

Consider adding RCx/SEM/Energy Manager programs.

Question(s):

Other delivery agents such as IESO already support energy manager programs and supporting infrastructure. Please confirm that it is more cost-effective to co-design and partner with partners like IESO on these types of programs than to create additional stand-alone programs.

Response

Yes, we confirm this is the case.