

19 January 2022

Nancy Marconi, Registrar
Ontario Energy Board

VIA RESS AND EMAIL

Dear Ms Marconi:

Re: EB-2021-0002 – EGI 2022-2027 DSM – GEC/ED IRRs to STAFF Interrogatories

Please find interrogatory responses filed by GEC-ED in response to IRs from STAFF on the evidence of Energy Futures Group.

Sincerely,

A handwritten signature in black ink, appearing to read "David Poch". The signature is written in a cursive style with a large, stylized "P" and "C".

Cc: All parties

GEC/ED Responses of Energy Futures Group to STAFF Interrogatories

6.OEB Staff.1.GEC/ED.1

Reference: Exhibit L.GEC/ED.1, pp. 13-14

2019 Integrated Ontario Electricity and Natural Gas Achievable Potential Study,
Navigant Consulting Ltd., September 13, 2019, p. 116

The report discusses the various scenarios that were examined as part of the 2019 Achievable Potential Study and notes that the “constrained potential” modeled in Scenario A used a budget of \$80 million. In the 2019 APS, it provides additional information on the budgets for each scenario, noting that “the program costs in each achievable scenario presented below represent the cost of energy efficiency program portfolios to non-free rider participants....When proposing a budget for a future DSM or CDM portfolio or program based on the potential scenarios included in this potential study, a program delivery agent should consider the incremental program costs to account for future program net-to-gross ratios and fixed portfolio overhead costs with supporting rationale and evidence.” The gross budget for the DSM potential in Scenario A was \$117M, based on a net-to-gross ratio of 75% and overhead costs of \$10M.

- a) Please discuss if your analysis changes at all using the gross, not net, Scenario A budget.

Response

EFG’s report mistakenly did not adjust for the portions of a DSM portfolio budget that would be associated with either (1) paying incentives to free riders; or (2) portfolio level administrative costs. Thus, the last part of the last sentence of the first sentence of section II(6) of the report, which references the cost of the “constrained scenario” should be struck as follow:

~~“As Figure 5 shows, Enbridge’s 2023-2027 Planned level of savings are slightly below the constrained potential forecast by the study — despite the fact that Enbridge is forecasting to spend roughly double (on average, over five years) the potential study’s constrained budget level.”~~

6.OEB Staff.2.GEC/ED.1

Reference: Exhibit L.GEC/ED.1, pp. 16-17, 34-40

The report discusses different options to expand DSM budgets while being mindful of rate impacts, including program design changes and eliminating programs and shifting funds elsewhere within the portfolio.

- a) Please provide your recommendation on changes to the overall DSM budget and how that budget should be allocated to the various programs you support. As part of your response, please include a brief discussion on the general level of natural gas savings from each program/sector that can be expected, even at a high level, to provide context for any budget changes.

Response

Consistent with Procedural Order No. 3, the proposed scope of our report (as filed with the Board) – and related expectations that Staff’s consultants would focus more on the mix and design of programs in Enbridge’s proposed program portfolio – EFG has not conducted analysis necessary to respond to this question at the level of detail requested.

At a high level, our principal concern with Enbridge’s proposed plan is its lack of commitment to substantial increases in cost-effective savings. As we suggested in our report, there are a variety of ways in which the level of savings from Enbridge’s proposed plan would be increased with relatively modest program and portfolio design modifications within the DSM budget it has proposed. They include:

1. Eliminating its new construction market transformation programs and related budget;¹
2. Removing investment in gas heat pumps;
3. Eliminating rebates for gas consuming equipment (e.g. furnaces and water heaters) from its residential whole home program;
4. Expediting efforts to integrate its residential program spending with the federal Greener Homes program in the manner we have recommended in our report to minimize program overhead costs while maximizing results;
5. Reducing portfolio overhead costs – as our response to 10-EP-1-GEC/ED.1 shows, Enbridge has proposed portfolio costs of \$18.4 million in 2023, which is an increase of about 70% above the average spending on such costs from 2017 to 2020;²
6. Increasing budgets for low income programs to address equity concerns; and

¹ Note that we would alternatively support allocating funds to a truly independent third party that could approach the question of ideal building codes from a fuel-neutral perspective.

² We have not delved into the details of Enbridge’s proposed portfolio costs, but note that the biggest proposed increase is in portfolio administration – e.g., \$11.3 million proposed for 2023 compared to actual average spending of between \$3.4 and \$6.4 million per year from 2017 through 2020 (Attachment to I.6.EGI.Staff.13). It is hard to understand why portfolio administration costs need to increase so much, particularly given the merger of Union and Enbridge which should allow for economies in administration.

7. Increasing budgets for its commercial and industrial (C&I) programs which produce the biggest savings per budget dollar and could likely be ramped up without major changes in program design (either through increased marketing and/or strategic increases in incentive levels).

These changes could potentially be made by Enbridge in a relatively quickly produced revised filing.³ That said, the improved levels of savings resulting from such changes, while important and valuable, would likely represent relatively modest gains relative to the gap between Enbridge's proposed savings and the level of savings of leading North American gas utilities. Thus, we would also suggest that a more expansive revisiting of Enbridge's plan – ramping up to the level of savings currently being achieved by the leading gas utilities we have referenced in our report – would be appropriate. That would include, in addition to the items listed above, a more detailed assessment and likely substantial increases in prescriptive C&I rebates for many individual measures, a revisiting of incentive design and approach to growing custom C&I savings (including strategies to reduce free ridership), potentially expanding the residential smart thermostat program to increase participation as proposed by Staff's experts' report, and various other changes. Such a more expansive plan revision would clearly require additional budget. Given the scope of our report, we have not developed an estimate of magnitude of the additional budget needed. We would suggest that Enbridge develop such an estimate as part of the plan revision. The Board and other parties could then weigh the reasonableness of the proposal.

If the Board were to determine that this more expansive change to Enbridge's plan could not be acted upon in time to launch in January 2023, it could potentially approve the Company's plan for 2023 with the more modest modifications listed above and require that the Company submit a more substantially revised plan in early 2023 for application to 2024 through 2028.

Note that the more expansive revision to the Company's DSM plan should be supported and encouraged by a Board ruling to incent better planning, that tied the magnitude of the maximum shareholder incentive to the level of savings targeted by the revised plan. For example, the Board could peg the \$21 million maximum incentive in 2023 to achieving incremental annual savings of 0.60% of eligible sales (along with an average measure life of something like 15 years) – roughly a one-third increase over the Company's proposed savings levels. The Board could further require that the maximum incentive increase or decrease in proportion to the actual savings achieved. Thus, for savings equal to only 0.40% of sales (along with an average measure life of 15 years), the maximum incentive would be one-third lower, or only \$14 million. In contrast, if savings were 0.80%, the maximum shareholder incentive would increase by one-third to \$28 million.⁴

³ Note that there would need to be related changes in the shareholder incentive structure and specific performance metrics.

⁴ We would further suggest that the maximum incentive be adjusted annually for inflation.

13.OEB Staff.3.GEC/ED.1

Reference: Exhibit L.GEC/ED.1, pp. 41-43

The report recommends that the OEB adopt the use of a real discount rate of 0.5% as opposed to the real discount rate of 4% as proposed by Enbridge Gas.

- a) Using the 2020 Annual Verification results, please provide an example of the impact on cost-effectiveness and NPV of benefits of switching from a real discount rate of 4% to 0.5%, as proposed.
- b) Please provide some examples of longer-lived measures that may not receive the attention they deserve based on a higher discount rate.

Response

- a) EFG does not have the 2020 Annual Verification results in a format that would allow for recomputing the cost-effectiveness of Enbridge's 2020 DSM programs with a different discount rate. However, in an attempt to address what we assume to be the objective of the question, we have computed how the net present value of the benefits (avoided costs) of a gas efficiency measure with a 16-year life would change with a real discount rate of 0.5% instead of 4.0%.⁵ We use 16 years because that appear to be the average life of the measures and programs Enbridge is planning to promote (see footnote 48 on p. 29 of our the EFG report). As the tables below show, the effect of using a 0.5% real discount rate instead of a 4.0% real discount rate is to increase the estimated benefits of efficiency measures by about 30%. Enbridge has estimated that its 2023 programs would produce about \$535 million in benefits, \$163 million in costs, net benefits of \$372 million and a benefit cost ratio of 3.3 to 1.⁶ If benefits were increased by 30%, those values would change to \$696 million in benefits, \$163 million in costs, \$533 million in net benefits and a benefit-cost ratio of about 4.3 to 1.⁷ Importantly, a 30% increase in benefits translates to more like a 43% increase in net benefits.

⁵ Avoided costs from Enbridge response to 5.ED.16 Attachments 1 and 2.

⁶ Exh D, Tab 1, Sch. 4.

⁷ We assume that virtually all TRC+ costs are incurred in the first year, so that there would be no significant effect on the NPV of costs from changing discount rates.

**16-Year NPV by Discount Rate
 EGD Rate Zone**

	Gas Avoided Costs		Avoided Carbon costs (\$/m3)	Water Avoided Costs (\$/m3)	Electricity Avoided Costs (\$/kWh)
	Baseload (\$/m3)	Weather-Sensitive (\$/m3)			
2023 Measure					
4.0% Real Disc Rate	\$2.34	\$2.71	\$2.94	\$12.54	\$1.90
0.5% Real Disc Rate	\$3.04	\$3.51	\$3.85	\$15.95	\$2.42
% increase	30%	29%	31%	27%	27%
2027 Measure					
4.0% Real Disc Rate	\$2.78	\$3.18	\$3.67	\$13.57	\$2.06
0.5% Real Disc Rate	\$3.60	\$4.10	\$4.70	\$17.26	\$2.62
% increase	29%	29%	28%	27%	27%

**16-Year NPV by Discount Rate
 UG Rate Zone**

	Gas Avoided Costs		Avoided Carbon costs (\$/m3)	Water Avoided Costs (\$/m3)	Electricity Avoided Costs (\$/kWh)
	Baseload (\$/m3)	Weather-Sensitive (\$/m3)			
2023 Measure					
4.0% Real Disc Rate	\$2.09	\$2.66	\$2.94	\$11.12	\$1.90
0.5% Real Disc Rate	\$2.73	\$3.46	\$3.85	\$14.14	\$2.42
% increase	30%	30%	31%	27%	27%
2027 Measure					
4.0% Real Disc Rate	\$2.54	\$3.16	\$3.67	\$12.03	\$2.06
0.5% Real Disc Rate	\$3.28	\$4.07	\$4.70	\$15.31	\$2.62
% increase	29%	29%	28%	27%	27%

- b) As noted in our report, there are several potential disadvantages of using an inappropriately high discount rate. One of them is potentially skewing investments away from longer-lived measures and/or programs. Those effects could be particularly significant for measures and programs that are marginally not cost-effective. We have not conducted an analysis to determine which measures or programs might be affected in this way. Moreover, because Enbridge has only included programs that are cost-effective its portfolio, it is hard to know what programs or program design approaches may have been considered and rejected because of cost-effectiveness concerns. We would observe that Enbridge’s Single Measure Residential Sub-program is estimated to have a benefit-cost ratio of just 1.19, its Prescriptive Midstream Commercial sub-program has a benefit-cost ratio of 1.21 and its Whole Home Residential Sub-program has a benefit-cost ratio of 1.61. If evaluations were to suggest that savings for any of these programs were lower than currently estimated, they could potentially no longer screen under a 4% real discount rate but might still be cost-effective under a 0.5% real discount rate.

Another concern associated with using a higher than appropriate discount rate is that assessments of how much efficiency is cost-effectively achievable (i.e., in a future potential study) can be understated. For example, it appears that about 20% of technical potential was

not economic in the most recent potential study (2019). Some portion of that savings would undoubtedly have been cost-effective under a lower real discount rate.

Using an inappropriately high discount rate also leads to under-reporting of the benefits and net benefits of efficiency. Among other things, that may undermine support for greater investment in programs that promote longer-lived savings relative to those that do not.

Note that if the real discount rate is lowered as we propose and the Board elects to retain the shared savings performance incentive proposed by Enbridge (rather than removing that metric and reallocating incentives to other metrics as we propose), the percentage of net benefits that Enbridge would earn under the shared savings structure would need to be lowered. Otherwise, the Company would earn substantially greater incentives for the same level of performance.