ONTARIO ENERGY BOARD

EB-2019-0137

IN THE MATTER OF the *Ontario Energy Board Act*, 1998, S. O. 1998, c. 15, Schedule B;

AND IN THE MATTER OF a consultation to review natural gas supply plans

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COMMENTS ON THE DRAFT SUPPLY PLAN BY ENVIRONMENTAL DEFENCE

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Summary

Environmental Defence strongly supports the Board's efforts to ensure that gas supply plans appropriately balance the guiding principles and deliver value to customers. Environmental Defence provides these comments on Enbridge's draft plan in the hope that improvements could lead to a better, more integrated planning process and ultimately bring about lower costs for consumers.

Our primary concern with the current draft is that it treats important public policy directives as mere inputs.[1] For example, energy efficiency is addressed in the plan simply by reducing the demand forecast by the expected volume of demand side management ("DSM") gas savings.[2] This represents a siloed approach where supply planning is kept separate from other important planning process. Much more work is needed to fulfill the Board's directives to implement integrated resource planning, prepare supply plans that "support" public policy objectives, and to ensure that energy bills are as low as possible through least-cost planning approaches.

Environmental Defence submits that the Draft Supply Plan should be amended to:

1. Compare DSM to supply options as part of the supply option and risk mitigation analysis;
2. Report on previous infrastructure projects to determine if the utility's assessment of benefits was accurate;
3. Identify the need for any additional facilities highlighted by the supply plan with a discussion of how non-pipe alternatives will be considered; and
4. Set public policy performance measures based on the actual government targets.

Compare DSM in Options and Risk Analysis

DSM should be compared to supply plan options as part of the supply option and risk mitigation analysis in the supply plans. As detailed below, this is important because:

1. DSM provides supply planning benefits (e.g. risk and price reductions);
2. Integrated resource planning would benefit from this approach;

[1] EB-2019-0137, Transcript, Stakeholder Conference Day 1, September 23, 2019, pp. 73 ("we would see those types of [public policy] items affecting the demand forecast, which will then affect the gas supply plan as sort of how we see them being woven in") & 99-100 (Q: "Can you give us some examples of how you … take into consideration public policy?" A: "a lot of the public-policy-type items like DSM get incorporated into the demand forecast, which then affects the gas supply forecast. So it is sort of through the demand forecast for a lot of public-policy items.")
[2] *Ibid.*

3. The comparison would provide important information for other applications; and

4. This is necessary to *support* public policy, as required by the Board's framework.

DSM Provides Supply Planning Benefits

DSM should be analyzed in the supply plan in much more detail. DSM provides many benefits from a supply planning perspective. For example, DSM reduces commodity price risk and portfolio risk, which are central goals of gas supply planning. DSM programs are a hedge against rising gas prices and rising carbon prices.[3] They can be seen as a low-cost long-term fixed-price contract with respect to both natural gas and carbon.

DSM involves an up-front investment that results in reductions in gas and carbon emissions long into the future at a fixed price. The following table illustrates this.[4] It shows the flow of gas and carbon reduction benefits from Enbridge's 2018 DSM programs. The total program costs, second row from the bottom, are all incurred in 2018. But the m3 of gas savings and tonnes of carbon savings accrue each year into 2033. For example, in 2028, 76 million m3 of gas will be saved, expected to be worth $18 million. The cost to achieve those 76 million m3 (i.e. the price) was fixed in 2018 and will not increase if gas prices increase.

Similarly, in 2028, 144,717 tonnes of CO2e will be avoided. The cost to achieve those emission reductions (i.e. the price) was fixed in 2018 and will not increase if carbon prices increase.

Value of Lifetime GHG Emissions Reductions from 2018 Total DSM Program

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Forecast Annual Gas Savings m3	76,648,833	76,648,833	76,648,833	76,648,833	76,648,833	76,648,833	76,648,833	76,648,833	76,648,833	76,648,833	76,648,833	76,648,833	76,648,833	76,648,833	76,648,833	76,648,833	1,226,381,328
Forecast Annual GHG Reductions (t C02e)	143,717	143,717	143,717	143,717	143,717	143,717	143,717	143,717	143,717	143,717	143,717	143,717	143,717	143,717	143,717	143,717	2,299,465
Forecast Carbon Price ($/t C02e)	$17.00	$18.00	$18.00	$19.00	$20.00	$21.00	$31.00	$36.00	$43.00	$50.00	$57.00	$60.88	$65.02	$69.44	$74.16	$79.20	n/a
Value of GHG Reduction	$2,443,182	$2,586,898	$2,586,898	$2,730,615	$2,874,331	$3,018,048	$4,455,213	$5,173,796	$6,179,812	$7,185,828	$8,191,844	$8,748,889	$9,343,814	$9,979,193	$10,657,778	$11,382,507	$97,538,648
Cost of Gas ($/m3)	$0.1766	$0.2112	$0.1993	$0.2038	$0.2085	$0.2133	$0.2182	$0.2232	$0.2283	$0.2335	$0.2388	$0.2443	$0.2499	$0.2556	$0.2614	$0.2674	n/a
Total Program Costs	$56,267,166	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	$56,528,979
Avoided Cost of Gas	$13,534,684	$16,186,976	$15,274,834	$15,624,364	$15,981,891	$16,347,600	$16,721,677	$17,104,314	$17,495,707	$17,896,056	$18,305,566	$18,724,447	$19,152,913	$19,591,183	$20,039,483	$20,498,040	$278,479,736

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[3] Energy Futures Group, *Mid-Term Review Stakeholder Meeting Presentation*, September 6, 2018, p. 7 (LINK).
[4] EB-2017-0224, exhibit JT2.1, Enbridge Undertaking Response.
[5] EB-2017-0224, exhibit JT2.1, Enbridge Undertaking Response.

Board Staff's first report on DSM in 1991 noted this connection between DSM and risk avoidance:

> As noted previously, considerable uncertainty exists for natural gas planning both for supply-planning assumptions and sales forecasting. These uncertainties affect the security of the gas resource. The lifetimes of supply-side options range from extremely short to quite long, depending on whether the option is a short-term contract, long-term contract, or pipeline/storage facility. **The avoided costs should reflect the impact of DSM on supply acquisition; the longer the impacts of DSM,** the greater the avoided supply-side costs and **the greater the avoidance of the uncertainties associated with those costs.**[6]

DSM also reduces portfolio risk by adding diversity. For example, a major benefit of DSM is that it reduces reliance on fossil fuels with volatile prices that could be subject to uncertain future environmental regulations.[7] This has significant risk avoidance benefits for the overall portfolio.

The reduction in commodity price risk, carbon price risk, and portfolio risk has a value. It should be calculated and documented.[8]

DSM also reduces risk in comparison to capital spending because DSM can be implemented incrementally, which increases optionality and flexibility, whereas capital projects tend to be one-time, large investments.[9] However, this factor is much more relevant in relation to infrastructure planning.

DSM also avoids commodity costs. Since the inception of their DSM programs, the utilities have saved consumers over $5 billion.[10] This figure is net, after subtracting the costs of the efficiency measures, discounting the value of future benefits through a net present value (NPV) calculation, and discounting for free riders.[11] It is also audited.[12]

DSM also lowers commodity prices for all customers, including for customers who do not participate in the programs. This occurs through two mechanisms. The first is price suppression, whereby energy efficiency reduces demand, which reduces the quantity purchased in the market,

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[6] OEB Staff Report on Gas Integrated Resource Planning, September 16, 1991 (emphasis added).
[7] Tim Woolf, Synapse Energy, *Benefit-Cost Analysis for Distributed Energy Resources, Prepared for the Advanced Energy Economy Institute*, September 22, 2014, p. 47 (LINK).
[8] *Ibid.* p. 45 & 49-53.
[9] *Ibid*. For example, DSM as an alternative to supply-side investments can mitigate the risks of demand forecasting error. If a pipeline is replaced to meet anticipated demand, nothing can be done to reverse that decision if the increase does not come to fruition after the pipeline is built. In contrast, a geo-targeted DSM would be rolled out over time and could be cancelled partway through if it turns out that the demand is not there.
[10] EB-2017-0224: Union Exhibit B.ED.22; Enbridge Exhibit I.1.EGDI.ED.22; Transcript vol. 3, p. 133, lns. 5-9.
[11] OEB, Filing Guidelines to the 2015-2020 DSM Framework, p. 26-31.
[12] *Ibid.*

which in turn lowers the market clearing price.[13] Second, DSM reduces the need to purchase more expensive gas at the margin, which reduces the commodity price passed on to consumers as a whole.[14] The current 5-year DSM plans are estimated to reduce commodity prices through these mechanisms by approximately $165 million.[15] Again, this benefit accrues to all customers, not only those who participate in Enbridge's programs.

The price reduction benefits accrue to ratepayers not only for energy efficiency, but also for fuel switching. For example, heat pumps are often cheaper than natural gas expansion to new communities after considering the NPV of all the relevant capital and operational costs.[16] If heat pumps are implemented, this will reduce gas demand in comparison to the alternative of natural gas expansion. As it does with energy efficiency, the demand reductions will generally result in lower gas prices.

DSM provides significant supply benefits by way of reduced risk and reduced prices.

IRP Requires a Non-Siloed Approach

Integrated resource planning ("IRP") requires that all relevant supply-side and demand-side options be considered in an integrated manner to ensure that the lowest cost solutions are selected. The current approach in the draft supply plan is inconsistent with this because it treats DSM as a mere input into the draft plan, particularly the demand forecast.[17] This is an excessively siloed approach. An integrated approach requires that the supply-side options be considered and assessed alongside the demand-side options. The ultimate goal is better planning processes that are more likely to land on the least-cost solution consistent with reliability and safety.

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[13] EB-2015-0029/49, Direct Testimony of Paul Chernick, Corrected August 12, 2015 (LINK); Tim Woolf, Synapse Energy, *Benefit-Cost Analysis for Distributed Energy Resources, Prepared for the Advanced Energy Economy Institute*, September 22, 2014, p. 22 (LINK).

[14] EB-2015-0029/49, Direct Testimony of Paul Chernick, Corrected August 12, 2015 (LINK); EB-2015-0029/49, Transcript Volume 7, August 27, 2015, p. 97 (Andrew Welburn of Enbridge: "you would have a reduction in the more expensive supply procurement ports as a result of a reduction in demand.").

[15] EB-2015-0029/49, Evidence of Chris Neme, Energy Futures Group, p. 18, table 3 (LINK).

[16] EB-2016-0004, Evidence of Dr. Stanley Reitsma, Ontario's Low Carbon Future: Geothermal Heat Pumps, March 21, 2016 (LINK).

[17] EB-2019-0137, Transcript, Stakeholder Conference Day 1, September 23, 2019, pp. 73 ("we would see those types of [public policy] items affecting the demand forecast, which will then affect the gas supply plan as sort of how we see them being woven in") & 99-100 (Q: "Can you give us some examples of how you ... take into consideration public policy?" A: "a lot of the public-policy-type items like DSM get incorporated into the demand forecast, which then affects the gas supply forecast. So it is sort of through the demand forecast for a lot of public-policy items.")

The Board mandated integrated resource planning almost 30 years ago.[18] Since that time, the Board has indicated in numerous cases that IRP is a mandatory requirement.[19] Although the focus has been on implementing cost-effective DSM to avoid infrastructure costs, DSM is also able to reduce commodity price risks, avoid commodity costs, and reduce commodity prices. It is important to consider this in the supply planning process and to bring the knowledge and expertise of supply planners to bear on this issue.

Plans Should Feed Into Other Applications

One might ask why DSM should be considered as part of the supply plan seeing as no decisions about the quantity or type of DSM will be made as part of the supply plan or approved by the Board in this process. The answer is that the supply plan is intended to provide inputs into other Board processes. For example, Board's supply plan framework states that "that information provided in the gas supply plan will be used to inform other gas supply-related applications submitted to the OEB."[20]

It would be helpful in other proceedings, including leave to construct, IRP, and DSM proceedings, for the supply plan to include information comparing DSM to the supply options from a risk and cost perspective. This will help ensure that the benefits of DSM from a supply planning perspective are understood.

Plans Should "Support" Public Policy

The Board requires that supply plans "support public policy."[21] Considering DSM as a mere input into the demand forecast does not *support* the policy of achieving all cost-effective DSM. The current consideration of DSM is not supportive of that policy in any way. It merely recognises factually that DSM will occur. Indeed, DSM would need to be factored into the demand forecast regardless of any directive to support public policy. That is required simply to ensure that the demand forecast is accurate.

DSM is a key public policy priority. According to a binding Directive from the Minister of Energy, the Board is required to establish a DSM Framework that "shall enable the achievement of all cost-effective DSM."[22] The current provincial government reaffirmed this requirement recently in its March 20, 2019 Minister's Directive. It clearly stated that this requirement "shall remain in full force and effect."[23] Furthermore, the Made-in-Ontario Environment Plan requires

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[18] ERBO 462, Decision and Order, April 9, 1990 (Union Gas Rates); EBO 169-III, *Report of the Board on the Demand-Side Management Aspects of Gas Integrated Resource Planning*, July 23, 1993, pp. 1-4.
[19] OEB, *Decision in EB-2012-0451/0433, January 30, 2014*, p. 46-47 (GTA Pipeline); OEB, *DSM Framework*, December 22, 2014, p. 35-36; OEB, *Mid-Term Review of the Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020)*, November 29, 2018, pp. 20-21.
[20] OEB, *Framework for the Assessment of Distributor Gas Supply Plans*, EB-2017-0129, October 25, 2018, p. 15.
[21] *Ibid*. p. 1.
[22] Minister's Directive, March 26, 2014, para. 4(i).
[23] Minister's Directive, March 06, 2019, para. 5.

a significant increase in current DSM levels.[24] Its targets require an incremental reduction of at least 3.24 Mt CO2e by 2030.[25] This priority should be *supported* by the supply plans, not merely passively acknowledged as is the case in the current draft.

Examples of Useful DSM Analysis for Supply Plans

To provide information relevant to other processes relating to DSM, the supply plan could, for example:

- Estimate the monetary value of the commodity price risk reduction from DSM (arising because the cost per m3 associated with DSM is fixed);[26]
- Estimate the monetary value of the portfolio risk reduction from DSM (arising because DSM provides increased portfolio diversity);[27]
- Estimate the monetary value of the carbon price risk reduction from DSM (arising because the cost per avoided tonne of CO2e associated with DSM is fixed);[28]
- Compare the net cost of DSM ($/m3) to the landed cost of long-term gas supply contracts ($/m3).[29]
- Estimate the total value of the commodity price reductions arising from DSM;[30]
- Indicate the avoided commodity costs arising from DSM; and
- Indicate regions or times where DSM efforts could be focused due to higher-than-average gas costs (if possible).

Including this information would support a more robust IRP process and assist with other applications.

[24] Government of Ontario, Made-in-Ontario Environment Plan, November 29, 2018, p. 24 (LINK)
[25] *Ibid.*
[26] For details on how to value these benefits, see: Tim Woolf, Synapse Energy, *Benefit-Cost Analysis for Distributed Energy Resources, Prepared for the Advanced Energy Economy Institute*, September 22, 2014, p. 45 & 47-53 (LINK).
[27] *Ibid.*
[28] *Ibid.*
[29] This should be done with the two cost-effectiveness tests mandated by the DSM Framework – the TRC and UCT.
[30] The price reductions benefiting all customers arise from price suppression and avoiding the purchase of more expensive gas at the margin. See EB-2015-0029/49, Evidence of Chris Neme, Energy Futures Group, p. 18, table 3 (LINK).

Assess Benefits of Past Infrastructure Projects

The supply plans should report on previous infrastructure projects to determine if the utility's assessment of benefits was accurate. This is contemplated by the Board's framework, but does not appear to have occurred. In particular, the framework states that:

> In some cases, leave to construct applications are centred on improving cost effectiveness/reliability for customers. **The gas supply plan** provides distributors with a consistent mechanism to demonstrate how some specific types of projects will deliver value to customers and **can be used to measure the impact over time to determine if the distributor's assessment of benefit was accurate**.[31]

The benefits of this analysis are obvious – it would let consumers know whether purported benefits from infrastructure projects actually came to fruition. Where this has not occurred, this could spur Board Staff and stakeholders to determine the cause, and take steps to avoid similar problems occurring in the future. There is currently no process in place to do this. To limit the resources required for such a process, we suggest that it only occur for projects over a certain threshold.

Identify Infrastructure Needs Flowing from the Supply Plan

To support integrated resource planning, the supply plan should identify the need for any additional facilities flowing from the plan at the project level. As noted in the Board's gas supply plan framework, "the gas supply plan can highlight the need for additional facilities to support demand and provides a link to the distributor's Utility System Plan."[32] To the extent that the plan does highlight such needs, those should be clearly indicated, including a brief description of the work that is being done to consider DSM as an alternative.

The Board has directed Enbridge "to consider the role of DSM in reducing and/or deferring future infrastructure investments far enough in advance of the infrastructure replacement or upgrade so that DSM can reasonably be considered as a possible alternative."[33] The sooner that DSM is considered, the greater the chances of finding a more cost-effective, non-infrastructure alternative. If the supply plan highlights certain needs, those should be specified.

Base Public Policy Performance Measures on Actual Government Targets

The public policy performance measures proposed in the draft plan assume that DSM is a mere input into the demand forecast. As noted above, this does not fulfill the Board's directives to

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[31] OEB, *Framework for the Assessment of Distributor Gas Supply Plans*, EB-2017-0129, October 25, 2018, p. 15.
[32] *Ibid.*
[33] OEB, *DSM Framework*, December 22, 2014, p. 36.

implement integrated resource planning, prepare supply plans that "support" public policy objectives, and to ensure that energy bills are as low as possible.

Instead, the performance measures should focus on the actual government targets. For example, the DSM measures should focus on (a) the progress toward meeting (and ideally beating) the called-for reduction of 3.24 Mt CO2e by 2030[34] and (b) the requirement to implement all cost-effective DSM.[35] The former could be measured by setting annual interim milestones leading up to the 2030 target and measuring success in meeting those annual milestones. Similar interim annual measures were used in the electricity LDC scorecard with respect to government conservation targets. The requirement to achieve all cost-effective DSM could be measured with the metric of DSM savings as a percent of the cost-effective DSM potential.

Furthermore, a performance measure should be included with respect to fuel switching. As noted above, fuel switching has the potential to lower commodity prices due to reduced gas demand. It is also mandated in the Made-in-Ontario Environment Plan as one of the two components that are slated to achieve a reduction of 2.7 Mt CO2e by 2030.[36] The measure in question could simply be the gas and carbon reductions achieved from fuel switching implemented or facilitated by the utility. Although none may be occurring now, this should be forward looking.

We recognise that these performance measures go beyond the four corners of supply planning. However, that is inevitable in light of integrated resource planning. It is not possible to isolate the discrete contribution of the supply plan to public policy goals. However, it is nevertheless important to focus on the actual public policy objectives set by the Government of Ontario when measuring performance.

Conclusion

These comments are centered around the goal of lowering energy bills. Cost-effective DSM efforts can avoid expensive infrastructure and commodity costs while also reducing commodity price and portfolio risks. Integrated resource planning is meant to ensure that DSM is selected wherever it would be the most cost-effective option. Unfortunately, that is not happening. Ensuring that IRP is reflected in supply plans is one of the ways that we can move toward a process that lowers energy bills and selects the lowest cost solutions consistent with reliability, safety, and appropriate risk mitigation.

[34] Government of Ontario, Made-in-Ontario Environment Plan, November 29, 2018, p. 24 (LINK).
[35] Minister's Directive, March 26, 2014, para. 4(i); Minister's Directive, March 06, 2019, para. 5.
[36] Government of Ontario, Made-in-Ontario Environment Plan, November 29, 2018, p. 24 (LINK).