Nova Scotia Utility and Review Board

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Efficiency One
c/o James R. Gogan
McInnes Cooper
Suite 300, 292 Charlotte Street
Sydney, NS B1P 1C7

Dear Mr. Gogan:

M10830 – Efficiency One – 2022 Rate and Bill Impact Analysis Report (E-ENS-R-22)

On October 31, 2022, EfficiencyOne (EOne) filed its 2022 Rate and Bill Impact Analysis (RBIA) report. This filing is in accordance with Article 6 of the Terms of Consensus contained in the Consensus Agreement approved by the Board in its Order of October 7, 2015, in Matter M06733, which states:

> 6) RATE AND BILL IMPACT ANALYSIS
>
> As with prior filings of its rate and bill impact analysis, EfficiencyOne agrees to develop, in consultation with the DSM Advisory Group, assumptions to its rate and bill impact analysis. This will include, but is not limited to, the inclusion of contribution to fixed costs. Once complete, the inclusions will be included in future filings of the analysis.
>
> b) EfficiencyOne agrees to file historical-looking rate and bill impact analyses by October 31st of each year.

On November 15, 2022, the Board invited comments from interested parties. Submissions were filed by the Consumer Advocate (CA), and Board Counsel Consultants Synapse Energy Economics (Synapse) on December 15, 2022. As part of its reply to stakeholder comments, filed on January 19, 2023, EOne submitted a revised 2022 Appendix A.

The panel considering this matter is Stephen T. McGrath, K.C., Chair, Steven M. Murphy, MBA, P.Eng., Member and Bruce H. Fisher, MPA., CPA., CMA., Member.

2022 RBIA Report

The RBIA assesses how Demand Side management (DSM) affects NS Power's rates and its customers' bills. The model was designed by EOne and its consultant, Elenchus Research Associates, on a framework provided by Board Counsel consultant, Synapse Energy Economics. The results of the RBIA can be used as a frame of reference to assess trade-offs between investment in DSM and rate changes. The model has been revised several times based on the feedback provided by the Demand Side Management Advisory Group (DSMAG). The most notable changes made to the 2022 RBIA are the inclusion of the avoided costs of carbon, previously a sensitivity analysis, and demand response activities.

The RBIA indicates that customers participating in DSM programs will reduce their energy consumption and their energy bills. EOne notes that DSM investments cause rate changes that affect all customers. The RBIA provides a trend-based picture of the rate and bill changes caused by DSM activities conducted between 2011 and 2021 and includes planned DSM activities in 2022-2025. The impacts of these activities are considered through a study period that considers ongoing effects until 2039. The analysis examines changes in rates, comparing a no-DSM scenario to a DSM scenario. These changes are considered in isolation of utility effects like infrastructure upgrades and changes in tariffs.

The 2022 RBIA DSM scenario includes the utility costs and the energy and system-peak demand reductions of DSM programs that EOne operated from 2011 till 2021. This scenario includes estimates for costs and savings for 2022 to 2025. The no-DSM scenario excludes DSM costs and benefits for all years. The model estimates long-term benefits through a cost-effectiveness evaluation that uses a total resource cost test and a program administrator cost test. The model does not include indirect cost reductions. After accounting for DSM program costs, avoided utility costs and the reallocation of fixed revenues, EOne estimates the net present value of savings to NS Power customers will be more than \$2.5 billion. This is a significant increase from the 2021 RBIA estimate of \$1.5 billion in savings.

Bill changes are estimated in two ways: no-DSM consumption and DSM consumption. In the no-DSM method, the estimate of total class energy consumption is divided by the number of customers to produce an estimate of the average customer's consumption. In the DSM method, non-participants in DSM programs are assumed to use the same amount of energy as they do in the no-DSM method. The average energy savings, and the DSM scenario rates, are used to calculate average bill changes for participants.

The demand response programs are related to the demand savings and are assumed to not have energy savings. Demand response programs encourage customers to shift energy consumption to off-peak hours, but the energy and energy related costs are not avoided, rather they reduce class coincident peak and non-coincident peak demand.

EOne's analysis noted that the impacts presented should not be considered the actual change in rates in a given year, but rather focus should be directed at the variation between DSM and no-DSM scenarios over the long run, as shown in the Table 1 below. EOne holds that one of the main benefits of a DSM program is the reduction of energy and demand for participants. This reduction in consumption leads to lower bills that outweigh the increases in higher rates caused by reduced sales and the costs associated with DSM program expenses. Average annual bill reductions range from 1.9% to 10.2% for DSM participants. However, for non-participants the bills increased by up to 2.4%. The analysis finds that the average increase in rates from DSM ranges from 0.88% to 2.98% for all rate classes. The Municipal class experiences the smallest changes in their bills whereas the Small General had the biggest change in their bills, whether they participated in DSM or not.

Table 1 Results for 2011-2039[1]

Customer Class	DSM Participant Bill Impact	DSM Non-participant Bill Impact	Energy Rate Impact Difference between DSM and no-DSM	
			₵/kWh	Proportion
Residential	- 5.0%	1.6%	0.318	2.08%
Small General	- 10.2%	2.4%	0.409	2.98%
General	- 9.0%	1.3%	0.185	1.54%
Large General	- 7.9%	1.0%	0.139	1.31%
Small Industrial	- 9.2%	1.7%	0.274	2.08%
Medium Industrial	- 4.0%	0.7%	0.098	0.91%
Large Industrial	- 4.3%	-0.03%	-0.002	0.21%
Municipal	- 1.9%	0.9%	0.079	0.88%

EOne included a sensitivity to determine the main output to changes in avoided cost input values. Avoided costs were adjusted within NS Power's Rate Model using the built-in sensitivity analysis tool. The value of avoided costs was increased by 25 percent, from the base case, for a high avoided costs scenario and for a low avoided costs scenario they were decreased from the base case by 25 percent. The sensitivity analysis appeared to have a larger impact on the commercial customers' bills than the residential customers, however no analysis was provided in the report.

Participant Comments

Synapse noted three primary changes to the 2022 RBIA: the incorporation of the avoided costs of carbon; the inclusion of demand response activities; and the use of enhanced measure of life assumptions. Synapse considers that the size of the rate increases are lower than in the 2021 historical RBIA due to the inclusion of the avoided cost of carbon. They regard the levels of the rate increases as reasonable and result in higher bill savings.

As with comments made about previous RBIA reports, Synapse claims that the rate classes with higher rate increases are also the rate classes with the higher bill reductions for participants. They recommend that EOne make more efforts to increase participation by customers in those rate classes.

Synapse finds that a no-DSM scenario is still necessary for accurate modeling. They identify that NS Power is updating the 2020 IRP, and asked for the addition of a no-DSM scenario that does not include energy efficiency and demand response. They also consider that the DSMAG should be included in the updates and IRP development.

Synapse noted the impact of the adoption of the *Environmental Goals and Climate Change Reduction Act*, S.N.S. 2021, c.20 and other green investment plans on DSM should be discussed by stakeholders. Synapse considers that the DSM planning should be integrated with other clean energy resources. They ask that NS Power be direct to provide the DSMAG with this data.

Synapse did not come across any issues with the analysis of impacts of demand response. However, they recommend EOne monitor the methodology that may be used in other jurisdictions when adding demand response to rate and bill impact assessments.

[1] Exhibit E-1(i) Attachment 1

Synapse recommended EOne continue to improve the model's transparency, such as making it easier to understand the savings from energy efficiency and how rates are affected. Synapse also recommends that EOne document any formula changes made to the model to alert stakeholders of changes to calculations.

The Consumer Advocate (CA) and his consultant, Green Energy Economics, found the report helpful for evaluating the impact of DSM spending. The CA supports EOne's proposal to reduce the frequency of the historical RBIA from annually to providing it only when filing a new DSM plan. The CA indicates that the annual RBIA is of limited value because it has little impact on program design or budgets.

EOne Response

In response to Synapse's comments about the rate classes with higher rate increases, EOne stated that it seeks to maximize participation to provide bill savings from DSM to offset rate impacts and that it will work towards this through marketing and customer engagement initiatives, incentives and program design.

EOne stated that it "supports Synapse's request that a "no-DSM" case that does not include energy efficiency and demand response be included as part of the updates of the 2020 Integrated Resource Plan (IRP) Update." As well, it supports Synapse's request that the DSMAG be engaged on IRP updates and development.

In response to Synapse's request that NS Power should provide the DSMAG with information on its DSM planning with planning for other clean energy resources, EOne cited a response from NS Power. NS Power indicated the updating of the IRP includes scenarios of multiple DSM options developed by EOne. DSM is compared directly to other clean energy resource costs to identify the lowest cost long term resource plan. Further, NS Power indicated that comparisons of DSM with other clean energy resources take place in the modeling of the IRP.

EOne agreed with Synapse and committed to continue incorporating demand response into the RBIA model as well as pursuing further refinements in future reports.

With respect to Synapse's comments to change the base case in the model to no-DSM or to make the energy savings show up as negative when the demand response scenario is selected in the model, EOne claims that the model always compares a with-DSM scenario to an alternative scenario. EOne stated that it will work with NS Power to add more information into the rate model to "explain the meaning of various scenarios in advance of the next RBIA." EOne claims it is committed to considering changes to the model and that any resulting updates will be captured.

EOne cited that both Synapse and the CA supported EOne's intention to reduce the historical RBIA filings to only be in conjunction with future DSM plans.

Conclusion

The Board accepts the 2022 RBIA report as filed and acknowledges improvements in the model that were achieved through collaborative work by stakeholders who participated in the DSMAG.

The avoided cost of carbon is a new stream of benefits in DSM planning. EOne's incorporation of this cost into the model, demonstrating the impact on rates and bills, which can be mitigated through DSM, is a significant improvement. The 2022 model presents lower rate increases due to the incorporation of the avoided costs of carbon and presents higher bill savings.

Synapse requested the addition of a no-DSM scenario that does not include energy efficiency and demand response and that NS Power include the DSMAG on the updates and IRP development. EOne supported the request for a no-DSM scenario to be included in the updates of the 2020 IRP. The Board directs NS Power to ensure that its IRP scenarios incorporate factors required to accurately estimate the avoided costs as needed for EOne's DSM analysis and to continue engaging with EOne and stakeholders in the IRP Evergreen development.

Synapse requested that DSM planning be integrated with planning of clean energy resources. EOne's reply comments quoted a response from NS Power which indicated that DSM planning is integrated as part of the IRP Evergreen process and specified that the scenarios include evaluation of multiple DSM goals as developed by EOne and evaluated with other resource options.

Synapse recommended EOne monitor for models used by other jurisdictions that they may adopt to enhance the demand response assessment in the RBIA. EOne committed to incorporating different demand response measures into the RBIA model as they develop, as well as, where appropriate, pursuing further refinements in future reports. The Board acknowledges EOne's commitment to continuous improvement and directs it to report on those developments made to its model in its next report.

Concerns about the model's transparency were expressed by Synapse, which requested that EOne document any formula changes to the R&BIA model. EOne committed to working with NS Power to add additional information into NS Power's rate model to explain the various scenarios before the next RBIA report. EOne affirmed it would consider a change log. The Board directs EOne to incorporate such a log for the RBIA model and NS Power rate model to capture updates or corrections made over time.

The Board acknowledges that in matter M10473 2023-2025 DSM Resource Plan, EOne proposed to eliminate the filing of the historical RBIA in any year other than a DSM Plan Application year. The Board accepts the proposal to file historical RBIA reports with future DSM Plan applications. The next historical RBIA will be filed as part of the next DSM Resource Plan application.

Yours very truly,

Jocelyn Isnor

for Crystal Henwood
Regulatory Affairs Officer/Clerk

c. Bruce Outhouse K.C., Board Counsel
Interested Parties