NOVA SCOTIA UTILITY AND REVIEW BOARD

IN THE MATTER OF: **THE PUBLIC UTILITIES ACT**

- and -

IN THE MATTER OF: **AN APPLICATION** by **EfficiencyOne** for Approval of the 2020-2022 Supply Agreement for Electricity Efficiency and Conservation Activities between EfficiencyOne and Nova Scotia Power Inc., the establishment of a final agreement between the parties, and approval of a 2020-2022 Demand Side Management (DSM) Resource Plan.

NON-CONFIDENTIAL INFORMATION REQUESTS

1 **To:** **Nova Scotia Power Inc.**
Mr. Brian Curry, LL.B.
Senior Regulatory Counsel
By email: brian.curry@nspower.ca

From: **Synapse Energy Economics, Inc.**
Board Counsel Consultant

Responses Due: **Monday, May 13, 2019**

Copies: 1 electronic copy – pdf searchable
4 hard copies

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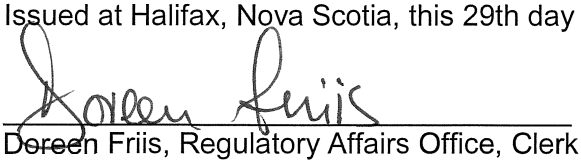

Doreen Friis, Regulatory Affairs Office, Clerk

Request IR-1: Refer to NS Power's Evidence, p. 6, lines 6 to 8. Please provide any relevant documents, reports, analysis, memoranda, and information supporting NS Power's expectation that it will have access to "market-based clean energy to be priced in the $50/MWh range."

Request IR-2: Refer to NS Power's Evidence, p. 6, lines 12 to 13. Please provide any relevant documents, reports, analysis, memoranda, and information supporting NS Power's statement that "Distributed energy resources (DER) and non-regulated DSM are curbing load growth organically, without the need for electricity incentives."

a. Please provide NS Power's forecasts of DER capacity, by resource type, sector, and year, with and without incentives. When answering this question, please provide workbooks with formulas intact and functioning and with clearly identified key assumptions, sources, and inputs.

b. Please define "non-regulated DSM" and provide NS Power's forecasts of non-regulated DSM, by sector and year. When answering this question, please provide workbooks with formulas intact and functioning and with clearly identified key assumptions, sources, and inputs.

Request IR-3: Please refer to NS Power's Evidence, p. 11, lines 1 to 2.

a. Please provide any relevant documents, reports, analysis, memoranda, and other resources supporting NS Power's statement that "the 2014 IRP is not highly correlated with the changes to the NS Power system over the last five years."

b. How have actual avoided energy costs compared with values from the 2014 IRP?

c. How have actual avoided capacity costs compared with values from the 2014 IRP?

d. Does NS Power have forecasts of avoided energy and capacity costs? When answering this question, please provide workbooks with formulas intact and functioning and with clearly identified key assumptions, sources, and inputs.

e. Has NS Power attempted to provide EfficiencyOne with an update of avoided costs? If so, please provide details of that communication, including date, mode of communication, who delivered the information, who received the information, and what documentation was provided.

Request IR-4: Refer to NS Power's Evidence, p. 11, lines 7 to 8, regarding government subsidy programs. Please provide a list of all available government subsidies, along with the incentive type (tax deduction, rebate, financing, etc.), incentive amounts, eligible DER types, and eligibility requirements (e.g., system size, projected output, building type, etc.).

Request IR-5: Refer to NS Power's Evidence, p. 13, lines 3 to 5.

a. Please describe each of the non-customer funded efficiency initiatives operated by NS Power, other than the HomeWarming and heat pump programs. For each program, please provide a description of the following:

i. eligible measures

ii. available incentives

iii. customer eligibility

iv. marketing approach

v. program delivery (including whether services are provided by third parties, and how such services are procured)

vi. coordination with EfficiencyOne

b. Please provide historical and projected program performance data, by rate class and by year, from the start of the program to 2018 and projections for 2019 to 2023, for each of the non-customer funded efficiency initiatives operated by NS Power, other than the HomeWarming and heat pump programs:

i. participation

ii. first-year savings

iii. lifetime savings

iv. incentives paid

v. administrative costs

vi. customer costs

vii. benefits

viii. cost effectiveness

c. For each of the non-customer funded efficiency initiatives operated by other entities, please describe who operates the initiative, eligible measures, available incentives, customer eligibility, and when the initiative was started.

Request IR-6: Refer to NS Power's Evidence, p. 13, line 8. Please provide the referenced data on Market Basket Measure poverty rate by province.

Request IR-7: Please refer to NS Power's Evidence, p. 15, lines 12 to 14.

a. Does NS Power currently conduct income testing? If so, please describe how.

b. Does NS Power have recommendations regarding implementing income testing? If so, what are they?

c. Has NS Power studied or caused to be studied the feasibility of income testing? Please provide any related documents, reports, analysis, memoranda, and other resources.

Request IR-8: Refer to NS Power's Evidence, p. 18, lines 17 to 19.

a. Please describe the HomeWarming program, including a description of:

i. measures

ii. available incentives

iii. customer eligibility

iv. marketing approach

v. program delivery (including whether services are provided by third parties, and how such services are procured)

vi. coordination with EfficiencyOne

b. Please provide performance data for the HomeWarming program by housing type (single family, multi-family) and by year, from 2015 to 2018 and projections for 2019 to 2023:

i. Participation

ii. first-year savings

iii. lifetime savings

iv. incentives paid

v. administrative costs

vi. customer costs

vii. benefits

viii. cost effectiveness

Request IR-9: Refer to NS Power's Evidence, p. 20, line 10.

a. Please provide NS Power's January 31, 2019 Enhanced Net Metering Report.

b. Regarding residential solar, please provide the following by year from 2012 to 2018 and projections for 2019 to 2023:

i. the share of residential accounts with solar;

ii. the total generation (MWh) for the accounts with solar;

iii. the total consumption (MWh) for all residential accounts;

iv. the total generation for the accounts with solar as a percent of total consumption for all residential accounts;

v. the total capacity (MW) for the accounts with solar;

vi. the peak demand (MW) for all residential accounts; and,

vii. the total capacity for the accounts with solar as a percent of peak demand for all residential accounts.

c. Regarding commercial solar, please provide the following by year from 2012 to 2018 and projections for 2019 to 2023:

i. the number of commercial accounts with solar;

ii. the share of commercial accounts with solar;

iii. the total generation (MWh) for the accounts with solar;

iv. the total consumption (MWh) for all commercial accounts;

v. the total generation for the accounts with solar as a percent of total consumption for all commercial accounts;

vi. the total capacity (MW) for the accounts with solar;

vii. the peak demand (MW) for all commercial accounts; and,

viii. the total capacity for the accounts with solar as a percent of peak demand for all commercial accounts

Request IR-10: Refer to NS Power's Evidence, p. 22, line 7. Does NS Power maintain that this represents an increase in self-generation proposals? If so, please provide supporting evidence.

Request IR-11: Refer to NS Power's Evidence, p. 23, lines 1 to 11.

a. Please describe the NS Power heat pump program, including a description of:

i. eligible models/types

ii. available incentives

iii. customer eligibility

iv. marketing approach

v. program delivery (including whether services are provided by third parties, and how such services are procured)

vi. coordination with EfficiencyOne

b. Are customers with buildings heated with fuels such as oil, natural gas, and propane eligible to participate in NS Power's program?

c. Please provide program performance data by rate class and by year, from 2012 to 2018 and projections for 2019 to 2023:

i. participation

ii. the number of heat pump installations

iii. replaced heating system and fuel type

iv. supplemented heating systems and fuel type

v. first-year savings

vi. lifetime savings

vii. incentives paid

viii. administrative costs

ix. customer costs

x. benefits

xi. cost effectiveness

Request IR-12: Please refer to NS Power's Evidence, p. 23, lines 13 to 20. Does NS Power have estimates of capacity requirements beyond 10 years? If not, why not?

Request IR-13: Please refer to NS Power's Evidence, p. 30, lines 1 to 11.

a. Please describe the current process for recovering DSM expenses.

b. How will NS Power's proposal provide greater transparency?

Request IR-14: In its October 7, 2015 Order in M06733, the Board directed "E1, in future applications, to provide one or more alternate scenarios of DSM budgets for the Board to consider, and NSPI is to provide rate impact analysis on those scenarios." Why didn't NS Power file its rate impact model with its evidence in this proceeding?

Request IR-15: Refer to Page 31 of NS Power's evidence, which states that the levelized costs used by EfficiencyOne "are significantly above the actual marginal costs reported in 2011-2016, as well as those currently projected for the next several years."

a. Please provide the actual annual or monthly marginal costs reported in 2011-2016.

b. Please provide all available projected marginal costs. Please provide the workbooks used to derive these projections in machine-readable condition with all formulas intact and functioning and with clearly identified key assumptions, sources, and inputs.

Request IR-16: Refer to Pages 31 and 32 of NS Power's evidence, which states: "[t]he ten-year average of annual actual marginal fuel cost from 2011-2016 and the forecast for 2017-2020, as used for the purposes of the 2017-2019 Rate Stability Proceeding, is only $47/MWh." It continues: "[t]he average marginal fuel cost for the 23-year period from 2011-2033, comprised of a hybrid of actual and recently projected marginal costs for the period 2011-2020, and the 2021-2033 annual marginal cost forecast from the 2014 IRP, is $74/MWh and is higher than what has been experienced." Please provide the workbooks used to derive the ten-year average and the average for the 23-year period in machine-readable condition with all formulas intact and functioning and with clearly identified key assumptions, sources, and inputs.

Request IR-17: Refer to Page 32 of NS Power's evidence, which states: "When the actual annual incremental cost from the 2014 IRP is used in the RBIA, the average rate change increases from +0.5 percent to +2.2 percent. The use of actual annual fuel costs from 2011 to 2016 in combination with the 2017-2020 forecast, discussed above, and the 2014 IRP figures from years 2021-2033, brings the overall rate effect to +3 percent." Please provide the workbooks used to derive these rate effects in machine-readable condition with all formulas intact and functioning and with clearly identified key assumptions, sources, and inputs.

Request IR-18: Refer to Page 33 of NS Power's evidence, which states: "As proposed by NS Power in its comments on the 2016 RBIA report, the effect of fuel cost savings should be determined and shown separately from fixed cost savings or losses. This means that the difference between the lost revenues and avoided costs should be further broken down by the fuel and fixed components for each class. This would improve the accuracy of the RBIA results, reflecting the fact that cost causation varies between rate classes for fuel consumption and their use of fixed infrastructure."

a. To what extent – in both percentage and absolute values – does further breakdown of the lost revenues and avoided costs by the fuel and fixed components for each class impact the results?

b. Please explain how NS Power further breaks down the lost revenues and avoided costs by the fuel and fixed components for each class in its analysis.

c. Please provide the workbooks in which these values are calculated in machine-readable condition with all formulas intact and functioning and with clearly identified key assumptions, sources, and inputs.

Request IR-19: Refer to Page 34 of NS Power's evidence, which states that the "above modifications, as tested by NS Power on the 2016 RBIA, were presented to the DSMAG on October 24, 2018." Please provide the workbooks in which these modifications were implemented in machine-readable condition with all formulas intact and functioning and with clearly identified key assumptions, sources, and inputs.

Request IR-20: Refer to Page 34 of NS Power's evidence, in which NS Power proposes four modifications to the RBIA model for consideration.

a. For each proposed modification, please provide the following:

i. The inputs that would be required to make these modifications, in Excel workbooks in machine-readable condition.

ii. The data sources that are needed to enable these updates on an annual basis.

b. Where NS Power is the source, does NS Power have a plan for providing these data to EfficiencyOne? If so, please describe any such plans. If not, why not?

c. How frequently are these inputs updated, and when will updates be available?

Request IR-21: Refer to Pages 34 and 35 of NS Power's evidence, which states: "It [E1's RBIA model] incorporates customer-related costs (billing) which distorts the allocation of benefits and costs associated with DSM load reductions, especially for the residential and general customers."

a. To what extent – in both percentage and absolute values – does the incorporation of customer-related costs distort the allocation of benefits and costs?

b. Please explain how NS Power excluded customer-related costs in its analysis.

c. Please provide the workbooks in which these values are calculated in machine-readable condition with all formulas intact and functioning and with clearly identified key assumptions, sources, and inputs.

Request IR-22: Refer to Pages 34 of NS Power's evidence regarding avoided marginal costs.

a. Please provide avoided marginal costs for generation, transmission and distribution used in NS Power's RBIA in dollars per kW-year, in machine-readable workbooks with all formulas intact to be used to derive the final avoided cost estimates.

b. Please provide data sources for each avoided cost assumption.

c. Please explain how each avoided cost was developed.

Request IR-23: Refer to Page 35 of NS Power's evidence, which states: "The use of levelized fuel costs from 2011-2040 rather than the approved 2011-2033 RBIA time horizon overstates the rate reduction and bill savings in the early years and understates them in the outer years."

a. To what extent – in both percentage and absolute values – does the use of levelized fuel costs overstate the rate reduction and bill savings in the early years and understate them in the outer years?

b. Please provide the workbooks in which these values are calculated in machine-readable condition with all formulas intact and functioning and with clearly identified key assumptions, sources, and inputs.

Request IR-24: Refer to Appendix A, Evidence of Richard Levitan, p. 9, lines 4 to 11. Mr. Levitan states that, "In my opinion, additional investment in DSM is likely to reduce the capacity factors of NS Power's thermal fleet going forward. From a carbon reduction and overall emissions standpoint, the reduction in thermal capacity factors is laudable. However, additional investment in DSM may not be effective in reducing the need for thermal generation capacity and grid services to ensure system reliability during the critical peak heating season. NS Power's coincident demand during the peak heating season requires NS Power to rely on the availability and dispatch of most of the thermal facilities identified in Figure 2."

a. The 2018 Thermal Generation Utilization and Optimization Final Report finds that, "The effect of increase energy efficiency on the peak load and the resulting planning reserve requirement is significant. Energy efficiency alone decreases the planning reserve requirement 157 MW by 2029, without accounting for any other parameters." (p. 2) Please reconcile this finding of the Final Report with

Mr. Levitan's statement that DSM may not be effective in reducing the need for thermal generation capacity.

b. The Thermal Generation Utilization and Optimization Final Report states, "This result illustrates the value of wind and energy efficiency resources in comparison to gas, oil, and import energy, which in general are otherwise the marginal energy sources." (p. 2) and, "The presence of fossil-fleet emission constraints drives down the energy utilization (as registered by annual capacity factor) of the coal fleet in all scenarios, a reasonably expected outcome." (p. 3) Does Mr. Levitan maintain that coal units will be similarly impacted by DSM as gas and oil units, and import energy? Please explain.

c. The Thermal Generation Utilization and Optimization Final Report states, "There is no CC unit built in any of the medium DSM scenarios without forced coal retirements..." (p. 3) What does this suggest for the role of DSM in avoiding future capacity investments? To what extent has Mr. Levitan considered the value of avoided capacity in his findings regarding the affordability of EfficiencyOne's Preferred Plan?

d. The Thermal Generation Utilization and Optimization Final Report states, "The net present value of wholesale system revenue requirements (NPVRR, 2018-2042 period) across the modeled scenarios is clearly seen to be lowest for scenarios incorporating moderate ("medium") levels of demand-side management (DSM), reflecting an increase to existing efforts up to a level eventually (within 4 years, as modeled) reaching incremental annual energy efficiency achievements equal to 2 percent of NSPI's retail sales. This occurs even when using first-year costs of incremental saved energy that is on the order of twice as expensive (per unit) as the efficiency savings Efficiency One currently procures." (p. 2) Please reconcile this finding of the Final Report with Mr. Levitan's finding that EfficiencyOne's Preferred Plan is not affordable (p. 71).

Request IR-25: Refer to Appendix A, Evidence of Richard Levitan, p. 12 line 25. What is the basis for concluding that additional investment beyond what was approved through the 2016-2018 DSM Resource Plan would have "barely passed the cost-effectiveness test"? Does Mr. Levitan maintain that the 2016-2018 DSM Resource Plan as initially proposed by ENS was not cost effective? If no, why not? Please provide the workbooks for making this conclusion in machine-readable condition with all formulas intact and functioning and with clearly identified key assumptions, sources, and inputs.

Request IR-26: Refer to Appendix A, Evidence of Richard Levitan, p. 21.

a. Please provide the workbooks underlying the calculation of the cost of saved energy ($0.46/kWh) with formulas intact and functioning and with clearly identified key assumptions, sources, and inputs.

b. What is the basis for Mr. Levitan's assumption that the first 127.2 GWh of EfficiencyOne's 2020-2022 DSM Plan has the same cost of saved energy of the entire 2019 portfolio?

Request IR-27: Refer to Appendix A, Evidence of Richard Levitan, p. 33-35.

a. Did Mr. Levitan's analysis find that more states are increasing spending than are decreasing spending?

b. Please provide the workbooks used to create Figures 6, 7, and 8.

Request IR-28: Refer to Appendix A, Evidence of Richard Levitan, Figure 9, p. 36.

a. Is it true that the vast majority of program administrators are increasing spending?

b. Please provide the original data source and documentation accompanying Figure 9.

Request IR-29: Refer to Appendix A, Evidence of Richard Levitan, p. 36, lines 13 to 15. Mr. Levitan states, "Newfoundland and Labrador Hydro and Newfoundland Power are planning to decrease their DSM spending in every year from 2016-2020, from $8.3 million in 2016 to $4.4 million in 2020."

a. Please provide the source of this statement.

b. How are energy savings in Newfoundland forecasted to change over the period 2016-2020?

c. How are other conservation education and support costs in Newfoundland projected to change over the period 2016-2020?

Request IR-30: Refer to Appendix A, Evidence of Richard Levitan, p. 49. Mr. Levitan states, "Affordability only considers the upfront cost, and not any future benefits or cost savings." Please provide the basis for this statement.

Request IR-31: Refer to Appendix A, Evidence of Richard Levitan, p. 57. Is Mr. Levitan aware of other jurisdictions and program administrators that use lifetime energy savings as a metric? If so, please indicate which ones.

Request IR-32: Refer to Slide 4 of Appendix B to NS Power's evidence, where it states "[a]ppropriately reflects class line losses in determination of modified class usage for behind the customer meter."

a. Please provide the line loss factors used in NS Power's RBIA.

b. Are the line loss factors applied for avoided fuel different from the loss factors used for peak energy use for avoided generation, transmission and distribution? Please explain why or why not. If the line loss factors are different, please provide the values for each.

c. Please explain how the line loss factors were estimated for each avoided cost category.

Request IR-33: Refer to slides 6, 7 and 8 of Appendix B to NS Power's evidence regarding differences between NS Power's and EfficiencyOne's rate impact results. Please provide the following, for each rate class:

a. A summary of the key drivers of the differences in rate impacts;

b. The direction of the impact of each driver; and,

c. The magnitude of the impact of each driver.

Request IR-34: Refer to slide 9 of Appendix B to NS Power's evidence regarding differences between NS Power's and EfficiencyOne's bill impact results. Please provide the following, for each rate class:

a. A summary of the key drivers of the differences in bill impacts;

b. The direction of the impact of each driver; and,

c. The magnitude of the impact of each driver

Request IR-35: Refer to slide 10 of Appendix B to NS Power's evidence. Given these considerations, why didn't NS Power provide an update to avoided costs?

Request IR-36: Refer to slide 15 of Appendix B to NS Power's evidence.

a. Please clarify if the data on slide 15 includes both avoided energy and capacity costs or just reflects avoided capacity costs.

b. Please explain what causes the differences between EfficiencyOne's and NS Power's results by rate class.

Request IR-37: Refer to slide 16 of Appendix B to NS Power's evidence. What does "2017 Subsequent Submittals" mean? Why does removal of 2017 Subsequent Submittals "reduce the transmission and distribution values to $9,586.30 & $4,306.98"?

Request IR-38: Refer to slide 16 and 19 of Appendix B to NS Power's evidence. How do the values for avoided transmission and distribution costs and avoided fixed costs on slides 16 and 19, respectively compare with what is currently used in EfficiencyOne's model?

Request IR-39: Refer to Appendix B to NS Power's evidence. What discount rate does NS Power use? What is the basis for using that rate?

Request IR-40: Refer to the RBIA models provided to the DSMAG on November 21, 2018.

a. Please provide the sources for the hard-pasted data in the "R-Inputs" tab (that is, the cells in blue and which are color-coded as meaning "Data must be input"). Provide all workbooks used to derive these inputs in machine-readable condition with all formulas intact and functioning and with clearly identified key assumptions, sources, and inputs.

b. Please also provide a description of the sources for each of these data.

Request IR-41: Please describe the differences between the "2017 Rate and Bill Impact Analysis Model NSP.XLSX" Excel model and the "2017 RBIA Model NSP Scenario.xlsx," both provided to the DSMAG on November 21, 2018.

a. Please provide the cell (including the row and column numbers) for every change made in the models.

b. Please provide a description of every change made in the models.