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Dear Ms. Ross:

M12349 – Nova Scotia Power Inc. 2025 Load Forecast Report

In accordance with the Nova Scotia Wholesale and Renewable to Retail Electricity Market Rules, Nova Scotia Power Inc. (NS Power) files its 10-year energy and demand forecast with the Nova Scotia Energy Board by the end of April in each year. On May 2, 2025, NS Power requested an extension to file its 2025 Load Forecast Report. The Board granted the request and amended the deadline to May 30, 2025. On May 27, 2025, the Board granted a second extension request by NS Power to file the Load Forecast Report on or before June 30, 2025.

On June 27, 2025, NS Power filed its 10-Year 2025 Load Forecast Report. The Report provides NS Power's estimated energy and peak demand requirements for 2025 to 2035 based on sales, weather, demand side management (DSM) and economic indicators, among other measures.

On July 3, 2025, the Board issued an Order establishing the timeline for a paper hearing process and approved a requested Confidentiality Undertaking for this proceeding. Notices of Intervention were received from the Industrial Group (IG), EfficiencyOne (EOne), the Small Business Advocate (SBA), Energy Storage Canada (ESC), the Consumer Advocate (CA), Eastward Energy (EE) and Solar Nova Scotia (SNS). Synapse Energy Economics Inc. (Synapse) was engaged to review the NS Power filing on behalf of Board Counsel.

On August 19, 2025, NS Power filed responses to Information Requests (IRs) received from the CA, ESC, SBA, SNS, Synapse and Board staff. Evidence was filed by Synapse and submissions were made by the CA, SBA, and SNS & ESC on September 10, 2025. NS Power filed its Rebuttal Evidence on November 6, 2025.

2025 Load Forecast

NS Power continued using two discrete methods to forecast load. The first method uses the Statistically Adjusted End-Use (SAE) models to forecast the energy requirements of the residential and commercial rate classes. This SAE model incorporates end-use energy

intensity projections into the forecast, which is then combined with an econometric-based industrial forecast as well as customer specific forecasts for large customers. The process produces the Net System Requirement (NSR) forecast, which is the energy forecast for the province. The second method adjusts for Demand Side Management (DSM). These adjustments use DSM Program projections and subtract the projections from the SAE forecast values to produce the final forecast.

The 2025 forecast predicts an overall decrease of 242 gigawatt-hour (GWh) (-2.1%) in the net system requirement (NSR) from the 2025 forecast to the 2035 forecast. The forecasted 2035 NSR is only 0.03% (39 GWh) more than the 2024 actual NSR. The 2025 Report forecasts an increased net system requirement in the near-term resulting from a change in forecasted Renewable to Retail (RtR) sales. However, longer term growth is lower than previous Reports because of changes in the model's assumptions. NS Power reduced its projections for electric vehicle sales in addition to the modifications made in the 2024 Load Forecast Report. Conversely projections were increased for RtR market sales and customer investments in behind the meter solar. Combined, these changes to the assumptions contribute to offsetting the expected customer growth and electrification of space and water heating. Overall, the Report forecasts an annual *decrease* of 0.2% between 2025 and 2035.

The forecast predicts the system peak to increase annually, on average, by 1.1% for the 2025 - 2035 period. However, the projected 2035 system peak is forecasted at 28% (584 MW) higher than the actual system peak realised in 2024. The near-term growth of system peak is attributed to increased electrification of heating, whereas the long-term growth is lower due to the change in the model's assumptions.

Table 1- Annual Forecast versus Actual compares NS Power's previous forecasted growth in NSR and System peak demand to the actual amounts realised. It is clear from the results in Table 1 that NS Power's NSR forecast are quite accurate. System peak, however, is more difficult to predict.

Table 1 - Annual Forecast versus Actual

Report Year	One-year NSR Change ¹		One-year System Peak Demand Change ²	
	Forecast	Actual	Forecast	Actual
2025	2.5%		15.1%	
2024	3.2%	1.8%	-3.7%	-14.9%
2023	1.4%	0.0%	1.8%	10.8%
2022	2.2%	2.1%	10.0%	12.6%
2021	2.9%	1.7%	8.6%	-4.0%
2020	-0.3%	-3.1%	8.9%	-0.5%
2019	0.7%	-1.5%	7.2%	-0.6%

The Load Forecast Report is a critical input to NS Power's planning, budgeting and operational processes, including generation planning, capital program delivery, fuel supply forecasting and the setting of customers' rates. Accordingly, the reliability of the Load Forecast is fundamental to ensuring that future energy requirements are accurately

¹ Based on Table A1 in each annual report starting with prior year actual

² Based on Table A2 in 2021, 2022 and 2024 Load Forecast reports and in Table A3 in each annual report from 2015 to 2020 and 2023



assessed. Given its significance, the Board has previously expressed concerns regarding the accuracy and consistency of NS Power's forecasting practices.

In the Board's Decision on the 2024 Load Forecast Report in Matter M11689, NS Power agreed with many of the intervenors' recommendations. The Board directed NS Power to proceed with implementing recommendations it had agreed to in the 2025 Report including:

- to reassess the validity of the work from home variable;
- investigate trends in increasing maximum average temperature and cloud cover;
- update the Capacity Value Study for demand response before the next IRP analysis;
- continue to investigate the unexplained variance between forecast and actual NSR for the residential sector; and,
- report on the findings of the continued investigation into the 2023 unexplained variance.

In addition to the Board's directives to adjust inputs and assumptions, NS Power made additional revisions to data it found to be inaccurate, specifically employment data. Some of the model's assumptions are no longer applicable due to changes in government policies, such as electric vehicle uptake as previously mentioned and the RtR market.

NS Power considered that revisions to the residential customer forecast were required after reviewing the Conference Board of Canada's forecast. The housing completions were underestimated by 20% over the past five years and the model was adjusted to reflect historic actuals. Additionally, the manufacturing employment forecast continues to use the 2024 Conference Board of Canada forecast because NS Power considers the 2025 forecast inaccurate. In response to Board IR-5, NS Power clarified that it considered both the Conference Board and Statistics Canada data (where the Conference Board sources its data for forecasting) of manufacturing employment to be inaccurate because it was unaware of significant downsizing that would reflect the decline in manufacturing jobs. The Board notes that the Conference Board of Canada is using data from the Statistics Canada's Labour Force Survey, which is dependent on survey responses from a sample of the population.

The impact of cloud cover on energy and peak demand models was examined using the Modern-Era Retrospective Analysis for Research and Applications dataset which uses Halifax area data from satellite observations. Through testing, NS Power found adding this data improves the forecast, but since the improvement was insignificant the dataset was not added to the final Report.

NS Power's Heat Pump forecast was revised slightly based on feedback from a network of heat pump installers. This information was used to recalibrate the differences in residential installations of non-electrically heated homes and electrically heated homes. Consequently, the water heater forecast was modified as it is partially a function of heat pump saturation.

Further revisions were made to the EV forecast based on changes to federal and provincial incentives. A reduction in EV sales lowers the forecast number of EVs below that of the 2024 Report and the low scenario published in Dunskey's Ensuring ZEV Adoption in the Nova Scotia report. The revised EV estimates predict over 160,000 EVs by 2035, about 40,000 fewer than used in the 2024 Load Forecast Report. The effect of the revised EV adoption on residential sales was analysed using AMI data. The forecast now estimates 2025 load of 10 GWh from the addition of 1,832 EVs which is actually a 54% increase in load per EV. A similar pattern emerges when examining total load by total EVs. The analysis has been improved by using AMI data, because Figure 29 shows the New Load (GWh)



increasing on a per EV basis more so than the previous Reports. This forecast is worth revisiting for the 2026 Load Forecast Report to confirm accuracy.

In the 2023 decision, the Board did not agree with NS Power's attribution of the COVID-19 Pandemic and heat pump installations as the reason for the large variance between the forecast and actual NSR in 2022. The Board directed NS Power to re-evaluate the cause of the variance and report on this topic in the 2024 Load Forecast Report. In the Board's decision on the 2024 Load Forecast Report, the Board accepted that increased heating load served by heat pumps was a contributing factor in the forecast to actual variance however, the Board continued to direct NS Power to revisit the unexplained variance and report on its findings in the 2025 Report. The Report indicates that the COVID-19 variable from 2020 is still used for 2020-2024 but was removed from the forecasted years. The table comparing the 2024 forecast sales to actuals in Figure 57 shows a significant decrease in the unexplained variance category which is a marked improvement from the 2023 and 2024 Reports.

The General Demand forecasted sales were affected by revisions in the EV load and from commercial energy hybrid heating. For the years 2026 and 2027, sales are expected to decline as some customers move to the Renewable to Retail market and as customer solar generation increases. A similar outcome was forecast for Medium Industrial customers. Overall, between 2025 and 2035, General demand sales will decrease 7.3% and Medium Industrial demand sales? will have an average decline of 1.4%.

The CA did not find fault in the application but recommended that NS Power be directed to provide class-specific peak load forecasts. The CA stated that it agreed with NS Power that the current peak model provides a reasonable forecast of monthly peak demand. However, the CA considers that examining class-specific peak load may bring improvements in NS Power's forecast accuracy as well as other benefits such as the ability to forecast DSM that affects peak load and rate design.

The CA expressed concern about the projected sales moving to RtR in NS Power's Load Forecast Report. The CA acknowledged that NS Power based its RtR forecast on feedback from the Licensed Retail Supplier. However, the CA questioned the reliability of this forecast and considers that NS Power should verify the information. The CA asked that future Forecast Reports provide more detail on the information used to forecast the shift in sales to RtR. Additionally, the CA recommended that NS Power be directed to conduct its own analysis of a shift in sales and file it as a compliance filing or in the next Load Forecast Report.

The SBA questioned the validity of the forecasts of electricity price increases in the long term and sees NS Power's use of a 2% annual increase from 2030 onwards as arbitrary. The SBA recommended NS Power incorporate measured factors to project long term sales, including load growth, generator mix, transmission upgrades.

The SBA had concerns with NS Power's approach to adjusting the inputs and its lack of explanation about changes from electrification forecasts. The SBA noted that the employment manufacturing data adjustments may lead to an overestimate of the industrial load forecast if the data from Statistics Canada/Conference Board of Canada is correct. The SBA emphasized that the choice of inputs should be made carefully and the adjustments should be more transparent.



Energy Storage Canada (ESC) and Solar Nova Scotia (SNS) filed joint submissions. They recommended that a DER potential assessment be done to identify the growth potential of DERs and where the grid can and cannot accommodate them in the next Load Forecast Report. They asked that such a study contain new assumptions about DERs capital costs and thus improve the accuracy of the Load Forecast Report. They also recommended that the trend in load growth from electrification, notably the reduction of energy demand from EVs, should not be reduced because it will misalign with the Province's policy goals.

ESC and SNS submitted that the assumed capital cost for non-residential battery storage is too high. They suggest that over the next 10 years the manufacturing and installation costs will go down, making individual investment in these assets more affordable.

Board Counsel Consultant Synapse considered NS Power's Report to be very well done and noted that the Report explained the underlying factors driving the forecast. Synapse made 12 recommendations to improve future Load Forecast Reports.

1. Trade Tariffs: Analyse how 2025 U.S. trade tariffs affect the economic forecast. If the Conference Board forecast does not capture these impacts, NS Power should create its own method to incorporate the effects of tariffs.
2. Residential Heat Pump Forecasting:
 - Use NS Power's own modelled heat-pump load impacts as the base and apply a scaling factor based on the difference between E3's hybrid and non-hybrid scenarios.
 - Develop the capability to explicitly model hybrid electric heating for both residential and commercial sectors.
 - Validate heat pump displacement and intensity assumptions with AMI or other empirical data.
3. Heat Pump Water Heaters: Begin modelling heat-pump water heaters as a separate technology to improve accuracy, given their distinct load characteristics and expected market growth.
4. Electric Vehicles: Monitor how removal of the carbon tax affects EV sales, refine managed-charging assumptions for the next Load Forecast, and develop strategies to encourage managed charging.
5. Solar Forecasting: Continue to update solar installation projections and solar coincidence factors.
6. Solar + Batteries: Incorporate the expected effects of rate design and other incentives that encourage solar and battery adoption.
7. Housing Completions: Track the accuracy of housing-completion projections and refine forecasting methods as needed.
8. Industrial RTR: Explore how increased participation in industrial RtR could affect load.
9. Municipal Load: Differentiate the forecast of annual energy to peak load for the Municipal sector, given that it will be serviced by a third-party.
10. ELCC and Demand Response:
 - Develop a portfolio ELCC analysis for demand response.
 - Evaluate additional demand response programs, with a greater level of peak loads.
11. Assess the probability of "other possible scenarios" in Figure D8 and consider additional analyses aimed at mitigating projected peaks.



12. For major resources and those end-uses with significant uncertainties about future adoption rates—heat pumps, EVs, DSM, and demand response—develop high- and low-case scenarios in addition to the reference case.

Rebuttal Evidence - NS Power

NS Power's rebuttal evidence agreed with most of the recommendations made by intervenors. However, it noted that some recommendations cannot be met because of time and resource constraints or would be better suited to other projects and reports such as rate making. NS Power stated that incorporating the AMI data into the variance analysis and forecasting will be a long-term process. Time is needed to assess the data and build it into the model or possibly build a new or modified version of the model to use the data.

NS Power agreed with most of Synapse's recommendations and noted where work on some of those recommendations is already underway. However, NS Power did not agree to implement all recommendations.

Synapse's recommendation # 4 addressed how managed charging affects load. NS Power said it is outside of the scope of the forecast to develop strategies for managing charging. Rather, such analysis is better allocated to rate design.

In addressing the CA's recommendation and Synapse's recommendation #8, NS Power explained that the RtR forecast is based on the expectations developed by the Licensed Retail Supplier and is the best available information to be included in the Load Forecast.

In response to Synapse's recommendation # 9, NS Power said it is required to provide back-up electricity to the municipal electric utilities even when they are taking supply from a third party. Therefore, NS Power maintains the full load of these utilities should be included in the Report.

Responding to Synapse's recommendations # 11 and # 12, NS Power clarified that Figure D8 highlights some of the forecast variables and their potential effects and that scenario development is part of the Integrated Resource Plan.

NS Power responded to the SBA's recommendation to use factors other than inflation for projecting the growth in rates over the long term. NS Power elaborated that the rate assumptions used for 2026 to 2029 are based on internal forecasts which account for several factors, and the rates assumed for 2030 and beyond have a higher degree of uncertainty which makes inflation a reasonable proxy until rate expectations change.

NS Power did not agree with ESC and SNS recommendation #1. NS Power explained that the data and the assumptions used in the Report are fitting for the Load Forecast. Identifying where the deployment of DERs could bring most value is outside the scope of a Load Forecast, however, it may be suited for the next IRP study.

NS Power also did not agree with ESC and SNS recommendation #2. NS Power explained that changes to load from electrification are based on evidence and the underlying rationales and are evaluated annually. Therefore, according to NS Power, it was appropriate to revise the EV forecast in response to the end of government incentives.



Findings

NS Power's rebuttal stated, "Each annual Load Forecast report reflects continuous improvement in methodologies and better explanation of the inputs and models as confirmed by Synapse." The Board agrees and finds that the intervenor's input has provided value to the model.

NS Power agreed with many of the recommendations made by the intervenors. The Board directs NS Power to implement those it has agreed to. NS Power is directed to continue to monitor if adjustments are needed in the forecast to account for housing completions and to report further findings from the continued investigation into the unexplained variance between forecast sales and actual sales for the residential sector.

The Board finds that NS Power has taken steps to strengthen its forecasting model through targeted adjustments made in response to government policy changes that may either encourage or discourage electrification and the adoption of technologies affecting future load. The Board expects that these adjustments will be closely monitored in subsequent forecasts to ensure their continued accuracy and appropriateness.

NS Power is directed to continue comparing the Conference Board of Canada's economic forecast against those produced by Canada's five major banks. Additionally, NS Power is encouraged to compare the Conference Board of Canada's manufacturing employment projections against Statistics Canada Table 36-10-0480-01. While this dataset is subject to reporting lags, its figures are consistent with Nova Scotia's macroeconomic indicators and can assist in identifying firm-level productivity investments that may reduce employment without reducing—and potentially even increasing—energy demand. Incorporating this information will support more accurate comparisons between forecasted and actual values.

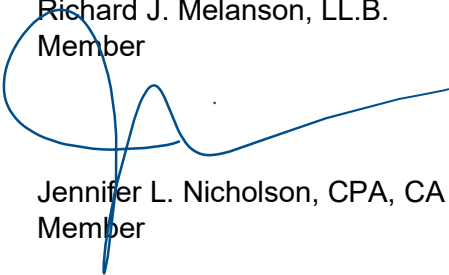
Furthermore, NS Power is encouraged to maintain ongoing monitoring of price trends for battery storage technologies, as declining costs may increase the likelihood of adoption by residential and commercial customers.

The Board agrees with NS Power that some of the intervenors' suggestions are more fitting for consideration in the next Integrated Resource Plan study. NS Power noted that the Independent Energy System Operator (IESO) has begun the process and a consultant will lead the stakeholder engagement process.

Yours very truly,



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Member



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