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Request IR-1:

Figures 1, 2 & 3 in the application present graphs and a table with historic and forecasted Net System Requirement (NSR) and System Peak.

(a) In the 2024 Load Forecast, M11689, the forecast for NSR growth in 2024 was 3.2%, but actual growth was only 1.8%. Why is it appropriate to forecast the 2025 and 2026 NSR higher than the 2024 forecast which overestimated the actual growth?

(b) The graph shows a significant drop in System Peak in 2024, well below the 2023 peak (-14.9%) and the forecasted 2024 forecast peak. Please describe the factors that contributed to this significant decline and why Nova Scotia Power (NS Power) is confident that 2025 will resume the previous forecast track.

Response IR-1:

(a) Weather normalized NSR for 2024 was 11,460 GWh, corresponding to 3 percent growth – closely aligned with the 11,490 GWh forecast in the 2024 Load Forecast Report. 2024 was one of the warmest years on record for the Maritimes. Thus, warmer-than-normal winter weather (actual HDD18 of 3561 vs. 10-year normal of 3743) reduced heating load, explaining the deviation with actual growth. Normal weather is used in forecasts which explains why the 2025 forecast is higher than 2024. The forecast for 2026 (11,403 GWh, per Figure 3 in the report) is below the 11,490 GWh that was forecast for 2024.

(b) The 14.9 percent drop in system peak from 2023 to 2024 reflects the extreme nature of the 2023 peak, which was discussed in Section 10 of the 2024 Load Forecast Report. The 2024 forecast peak of 2,365 MW was already 5 percent lower, and the actual came in even lower due to factors detailed in Section 10.1 of the report. Since peak demand is driven largely by weather – predominantly temperature and wind – NS Power remains confident in its

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1 weather-based peak forecasting approach, underpinned by weather conditions observed
2 during previous system peaks.

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Request IR-2:

Page 16 of the application, Historical Class Sales and Energy Data, states that data from NS Power's Advanced Metering Infrastructure (AMI) will be used to improve sales estimates and that this forecast will transition to using the AMI sales data once a sufficient dataset is available.

(a) How large of a dataset does the Load Forecast need from the AMI?

(b) Can the recent AMI data be added to the billed dataset?

(i) If not, please explain why not and how doing so reduces the forecasts accuracy.

Response IR-2:

(a) Work is ongoing to incorporate AMI data into the estimation of accrued sales. Building a robust and reliable methodology requires a multi-year time series for testing, and comprehensive customer coverage to maximize estimate precision.

(b) Recent AMI data are not yet included in the billed dataset because the necessary integration processes are still under development and have not been fully validated. Since the sales dataset directly informs the forecast model, untested changes – such as adjustments to monthly energy allocation – could impact the regression coefficients and potentially reduce forecast accuracy at both monthly and annual levels. Ensuring data integrity through thorough testing is essential before incorporating these updates.

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Request IR-3:

Page 20 of the application, Weather Data, explains that the heating degree days (HDD) trend is reduced over time to keep the average annual HDD above zero and to limit the projected number of Cooling Degree Days (CDD) over a 40-year period.

(a) When in the model does NS Power begin to adjust the forecast to avoid zero HDD?

(b) When is the unadjusted model projecting to reach zero HDD?

Response IR-3:

(a) The HDD trend is adjusted by a small amount from the beginning of the forecast period.

(b) With a trend of -16 HDD/year and a normal HDD18 value of 3715, zero HDD18 would be reached around the year 2257, without adjustment.

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Request IR-4:

Page 24 of the application explains that housing completions are used to forecast residential customers and that new customer growth “is expected to remain positive but decrease over time, as population growth slows from the expected peak in 2024.”

(a) Why does NS Power consider that population growth peaked in 2024?

(b) Please provide the source for Change in Population presented in Figure 13.

(i) If Statistics Canada’s population forecast table 17-10-0009-01 was not used, please explain why.

Response IR-4:

(a) NS Power uses the forecast of population provided by the Conference Board of Canada (CBoC), which shows the population growing at a slower rate starting in 2025.

(b) The data in Figure 13 is the forecast for Nova Scotia provided by the CBoC. The table from Statistics Canada does not provide forecast data and may be updated at different intervals to the CBoC data. For consistency with the forecast period the historic data from CBoC is used in the models.

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Request IR-5:

Page 27 of the application explains that the manufacturing employment forecast is based on the 2024 Conference Board forecast because the 2025 forecast shows a significant decrease in employment in 2024 and 2025. NS Power has attributed this result to Statistics Canada reporting and modeling and not an actual drop in employment.

(a) Does NS Power consider the data reported by Statistics Canada or the model provided by the Conference Board to be inaccurate?

(i) Please confirm, or explain otherwise, that Statistics Canada is not reporting manufacturing job losses of 28,000 or more for 2024 and 2025.

(b) Why does NS Power consider it appropriate to use an old forecast that does not align with more current data on employment?

(i) Could the forecast be modified to use the data reported from Statistics Canada for 2024?

Response IR-5:

(a) NS Power considers both to be inaccurate, since the forecast from the Conference Board of Canada (CBoC) is derived from the historic data that shows a drop in manufacturing jobs.

(i) Confirmed. Statistics Canada table 14-10-0466-02 shows manufacturing employment numbers of 37,600 for 2023 and 35,500 for 2024, a drop of 2,100 (-5.6 percent).

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1 (b) NS Power is not aware of a reduction in manufacturing employment in the province of the
2 scale that the Statistics Canada data implies between 2023 and 2024, which would
3 represent the closure of several large facilities. The average change in manufacturing
4 employment for the 5 years preceding the COVID pandemic was 2.2 percent growth per
5 year, while the average change between 2021 and 2023 was 4.2 percent growth per year,
6 so the 2024 forecast was determined to be more representative of historic trends, with an
7 average of +0.7 percent growth per year over the forecast period as shown in Figure 18 of
8 the report. The 2025 forecast provided by the CBoC had an average annual change of -0.3
9 percent over the forecast period, likely due to the large drop in 2024.

10
11 (i) No. The forecast for manufacturing employment is provided by the CBoC and NS
12 Power is not able to adjust the input data.

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1 **Request IR-6:**

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3 **Page 31 discusses that the end-use energy estimates are adjusted so that the intensities are**
4 **consistent with NRCan consumption and actuals from billing data. Please describe the**
5 **adjustments made and to which intensities**
6

7 Response IR-6:

8
9 The adjustments can be found on the Calibration tab of 2025 Load Forecast Report Attachment 1.
10 The sum of the end use intensities is scaled to match the average billed total for the reference year
11 (2015).

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1 **Request IR-7:**

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3 **Page 32 of the application explains that E3's forecast for space heating and EV load shapes**
4 **are used, in keeping with previous forecasts. Has NS Power tested/compared E3's forecast**
5 **estimates against actuals to ensure that the near-term projections are accurate?**
6

7 **Response IR-7:**

8
9 EV data for residential charging was reevaluated for 2025 using AMI data, as outlined in Section
10 4.4.3 of the report. Heat pumps intensity data is not available for comparisons with the E3 data set.

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Request IR-8:

Figure 23 shows the estimated energy and peak impacts comparing NS Power's model to E3 and the adjustments to those estimates.

(a) Please describe the adjustments under the Change in Energy Forecast (GWh) and the adjustments made under the Change in Peak Forecast (MW) for 2030.

(b) Please explain the changes from the 2024 Load Forecast Report Figure 20 for NS Power HP Peak (MW) for both 2030 and 2035.

(c) Please explain how these changes will improve the accuracy of the near term and long-term forecast.

Response IR-8:

(a) The values in Figure 23 represent the incremental addition to energy and peak from new heat pump installations and compares this value for both the NS Power model and the E3 model (i.e. the change in the both the energy and peak models between a static value for heat pump penetration compared to the actual forecast increase in heat pump penetration). The adjustments represent the difference between the E3 model, which includes the impact of hybrid heating, and the NS Power model, which does not include the impact of hybrid heating. By including the adjustment in the NS Power model, the impact of hybrid heating is incorporated into both the energy and peak forecasts.

(b) The 2025 forecast has different assumptions for saturation and intensity, resulting in different values for the NS Power energy and peak values in the tables when compared to 2024. These values can be found in Figure 21 of the 2024 Load Forecast Report and Figure 24 of the 2025 Load Forecast Report.

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- 1 (c) The changes in the 2025 forecast represent the most up to date assumptions for heat pump
2 contribution to load.

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Request IR-9:

Figure 24 provides a table with the Heat Pump Forecast from 2025 to 2035.

(a) Please explain why the % Install Non-Elec. Heat has been reduced to 66% from 68% used in the previous Load Forecast.

(b) Please explain why the % Install Elec. Heat has been increased to 34% from 32% used in the previous Load Forecast.

Response IR-9:

(a) NS Power receives feedback from a network of heat pump installers and uses this information to recalibrate the split between installs in non-electrically heated homes and electrically heated homes. The update is a result of the estimated saturation achieved through 2024 installations and is expected to continue through the forecast period.

(b) The two values total 100 percent. As the percentage of installations in previously non-electrically heated properties decreases, the balance is attributed to previously electrically heated properties.

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Request IR-10:

Figure 25 presents a table with the Water Heater Forecast from 2025 to 2035. There are small differences between Figure 25 and the same table provided in Figure 23 in the 2024 Load Forecast Report. Please discuss the changes made to the forecast, for the estimates from 2031 onward and how these changes are anticipated to improve the accuracy of the forecast.

Response IR-10:

The electric water heater saturations in Figure 25 are partly a function of the heat pump saturation numbers. All else being equal, as heat pump saturation increases, so too will electric water heater saturation, as it is assumed that heat pump conversions from non-electrically heated properties often involve installation of an electric water heater. As shown in Figure 24 of the 2025 forecast compared to Figure 21 in the 2024 forecast, the heat pump saturation forecast has increased. These changes represent the most up to date estimate of saturation of electric water heaters.

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Request IR-11:

Please discuss the revisions made to Avg. kWh/year and Avg. kW/vehicle on Peak in Figure 28: EV Mileage Assumptions and Load/Peak Modeling Results relative to the 2024 Load Forecast Figure 25.

(a) Are the changes reflective of data from the AMI?

Response IR-11:

(a) Yes, the revisions stem from AMI data analysis detailed in Section 4.4.3. This analysis refined the at-home charging values for LDVs, which, after consultation with EV industry participants, were preferred over previous model-based estimates, as they reflect actual EV usage in Nova Scotia.

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1 **Request IR-12:**

2
3 **Please explain why New Load per New EV is significantly higher than the 2024 Load**
4 **Forecast Report in Figure 26.**

5
6 Response IR-12:

7
8 New load per EV outlined in Figure 29 of the report is higher than the values shown in Figure 26
9 of the 2024 Load Forecast Report due to the revisions made to Avg kW/year, which were based
10 on analysis of customer AMI data. This is explained in detail in Section 4.4.3 and discussed in
11 response to NSEB IR-11.

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1 **Request IR-13:**

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3 **Figure 37 presents the Commercial and Industrial Electrification Forecasts. Please discuss**
4 **the revisions made to this table from the 2024 Load Forecast in Figure 32.**

5
6 **Response IR-13:**

7
8 Most of the change between 2024 and 2025 is related to the removal of 2024 forecast numbers
9 from the cumulative series.

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Request IR-14:

Please provide an updated version of Figure 38: Comparison of Forecast to Actuals One Year Ahead from the 2024 Load Forecast Report.

Response IR-14:

The updated Figure 38 from the 2024 Load Forecast report for 2025 is provided in the following table.

Load Forecast Report	Year forecasted	MAD ¹	MAPE ² (%)	Predicted Avg Sales (kWh/cust)	Customer Count	Sales Forecast (GWh)	Actual Sales (GWh)	Variance (GWh)	Percent Variance (%)
2022	2021	20.4	2.6	9,531	482,771	4,601	4,661	59.5	1.3
2023	2022	48.9	6.4	9,641	488,654	4,711	4,822	110.6	2.3
2024	2023	15.4	1.8	10,064	495,055	4,982	4,986	3.8	0.1
2025	2024	16.8	2.1	10,184	502,960	5,122	5,064	58.6	1.2

¹ Mean absolute deviation

² Mean absolute percentage error

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Request IR-15:

Page 58 of the application discusses how residential sales expectations have been estimated using downward revised population growth estimates of 21,000 and new housing of 58,000 units.

Understanding that some of the new housing units will replace existing housing and some new units may be used for tourism, there appears to be a divergence between the population growth expectations and new housing. Please discuss why NS Power considers using these inputs are appropriate in the forecast.

Response IR-15:

NS Power does not model new housing directly, the forecast for housing completions from the Conference Board of Canada is used in the forecast. Although population changes will drive changes in new housing, the relationship between total housing stock and population drives the variable for average household size, as shown in Figure 15 of the report. As described in Appendix B, household size is an input to the HeatUse variable used in the regression, so the relationship between the two variables is taken into account in the model. Whether a new unit is used for tourism or full-time occupancy will have little impact on the assumptions for new housing as they likely make up a small portion of the new housing stock, and because the model uses average annual use across the entire existing residential class, the impact from existing units used for tourism are included in the underlying estimates already. New unit completions and their annual consumption continue to be added to the model outside of the regression. This is the most appropriate treatment as the average use of new single-family homes and new multi-unit residences is different than the annual consumption of the underlying housing stock. While new housing would be built to modern standards, the average existing stock would include many older structures with varying efficiencies.

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Request IR-16:

Page 60 of the application discusses Building Shell Efficiency (BSE), using U.S. Energy Information Administration (EIA) forecasts from New England. The application states “Building efficiency is expected to improve, although based on calibration done in 2013, improvements are expected to be lower in Nova Scotia...”. NS Power has held this position for several years in the Load Forecast. Given that these calibrations were performed over 10 years ago, why does NS Power still believe that improvements in Nova Scotia still lag those of New England from 12 years ago?

Response IR-16:

Historically the adjustment was made to better align the output of the regression model to historic sales. As no updated EIA data was released for 2024 the adjustment was not changed for the 2025 forecast. NS Power will evaluate the adjustment to the BSE value for the 2026 forecast with the release of updated EIA data on end use consumption (2025 Annual Energy Outlook).

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1 **Request IR-17:**

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3 **Page 69 of the application states that Medium Industrial sales will “decline in 2026 and 2027**
4 **as load migrates to the RTR market (84 GWh), resulting in an average decline of 1.4 percent**
5 **over the forecast period.” This projected load for 2026 of 84 GWh is much higher than**
6 **39 GWh forecasted in 2024. Please explain the increase.**

7
8 **Response IR-17:**

9
10 The values were updated based on new information provided by the Licensed Retail Supplier,
11 Renewall, indicating higher sales to Medium Industrial customers under the RTR market.

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1 **Request IR-18:**

2
3 **Page 70 of the application states that “Load migration to the RTR market is expected to be**
4 **34 GWh by 2027”. Is this in addition to the 84 GWh identified on page 69? If not, please**
5 **explain.**

6
7 **Response IR-18:**

8
9 Confirmed that the 34 GWh is in addition to the 84 GWh identified on page 69.

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1 **Request IR-19:**

2
3 **Page 72 of the application explains that NS Power’s model assumes that the Municipal load**
4 **will be served by a third party after 2025. Has NS Power received confirmation from the**
5 **customers taking service under the Municipal rate?**

6
7 **Response IR-19:**

8
9 At the time the forecast was prepared, the Municipal Electric Utilities (MEU) had submitted their
10 application for Backup/Top-up Tariff service in conjunction with deliveries from their windfarm
11 and from imports to supply their energy requirements in 2026. On April 30, 2025, the MEUs
12 informed NS Power they would continue to take bundled service in 2026 with a proposed change
13 to the amount of energy supplied under the Backup/Top-up Tariff.

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Request IR-20:

The Atlantic Economic Council (AEC) published an Investment Outlook report: Rising capital investment continues to drive the Atlantic economy forward, on June 24, 2025.

<https://atlanticeconomiccouncil.ca/page/InvestOutlook2025>

(a) The AEC report notes that investment in housing is up 17% and identifies growth nodes in the Halifax Regional Municipality that will be developed over the Load Forecast period. Does NS Power have the capacity to address a large increase in demand in a localised area?

(b) The report also mentions that there will be several road infrastructure projects in Halifax, including the Windsor Street Exchange. Have these major infrastructure projects in the same localised area as housing growth been considered in the Load Forecast?

(c) The AEC report notes increased construction on destroyers at Irving Shipbuilding and that defense spending and employment will grow steadily over the Load Forecast period. Of the surveyed industrial customers, has NS Power received a response or an update from the shipyard(s)?

Response IR-20:

(a-b) Localized congestion on the grid is not addressed in the load forecast, it is addressed through specific load impact studies. NS Power meets regularly with the various stakeholders involved in large upgrade projects to address issues with delivering the required load.

(c) The shipyard is not one of the industrial customers surveyed as they are not in the large customer class, but NS Power is in contact with them and their proposed expansion is

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1 included in Figure 37. NS Power is working with Irving Shipbuilding, and a load impact
2 study is underway for the shipyard expansion.

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Request IR-21:

Page 76 of the application states that peak demand has been estimated to include efficiency programs using their “achievable potential”. Please explain why NS Power consider their achievable potential appropriate to use in the forecast rather than the demonstrated program uptake and recorded energy savings.

(a) Please provide a table comparing the forecast and actual demand response MW for TVP Rate, Business, Non-Profit & Industrial Curtailment and their Total including Total with ELCC for 2024.

Response IR-21:

The “achievable potential” on page 76 is in reference to Demand Response (DR) impact; these values are aligned with the DR values used in the 2022 Evergreen IRP. DR programs are still being developed; as more information is gathered on their effectiveness, it will be used to update future projections.

(a) A table showing forecast and actual demand response is provided below.

2024 NSPI Forecast TVP (MW, including ELCC)	2024 NSPI Forecast BNI (MW, including ELCC)	2024 Actual Demand Reduction from TVP (MW)	2024 Available DR Capacity from BNI¹ (MW)²
1.0	0.0	1.3	8.0

¹ M12186 – EfficiencyOne 2024 DSM Annual Progress Report and 2024 DSM Evaluation Reports, Exhibit E-2, PDG page 1,022, Table 18. March 27, 2025.

² The 2024 available DR capacity corresponds to the DR capacity made available during the 2023/24 DR season (i.e. December 1, 2023 and February 29, 2024, inclusively). E1’s 2025 DSM Program Evaluation is not currently publicly available.

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Request IR-22:

Figure 76 provides a comparison of the 2022 Evergreen Integrated Resource Plan (IRP) Scenarios to the 2024 and 2025 load forecast.

(a) Has the Evergreen IRP E1 – Current Policy and Trends scenario been updated to reflect the current environmental policies and consumer incentives for electrification?

(b) The table shows that the IRP has underestimated the 2024 and 2025 energy demand between 165 and 364 GWh for NSR and between 217 and 209 GWh for Firm Peak. Given the difference between the 2035 Load Forecast NSR and the IRP NSR forecast for 2035, does NS Power consider that IRP and Load Forecast are aligned?

Response IR-22:

(a) The Evergreen IRP electrification scenario E1 – Current Policy and Trends was based on the 2022 Load Forecast and has not been updated. The 2025 Load Forecast incorporates current environmental policies and consumer incentives for electrification and represents NS Power’s updated view for in-province electricity demand.

(b) Yes, NS Power considers the forecasts to be aligned. In Table 76, the forecast firm peak for 2035 in Evergreen IRP electrification scenario E1 - Current Policy and Trends is 2,531 MW and the forecast firm peak in the 2025 Load forecast for 2035 is 2,503 MW. Given the small difference (28 MW) between the two forecasts, NS Power considers the two forecasts aligned from a firm demand perspective. NS Power recognizes that changes in the load forecast have led to variances between the two forecasts in the near term, but small differences are expected between forecasts.

From an energy perspective, there is a greater variation between the two forecasts in both the near term and in 2035, but the direction of variation varies. In 2025, the energy

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1 requirements are higher in the 2025 Load Forecast but in 2035 they are higher in the
2 Evergreen IRP Scenario E1 - Current Policy and Trends forecast. This is the first year a
3 significant difference for 2035 is observed, as the 2024 Load Forecast was only 77 GWh
4 different than the Evergreen IRP Scenario E1 - Current Policy and Trends forecast in 2035.
5 Given the inherent uncertainty with forecasting the load requirements 10 years into the
6 future, the updated forecast, when compared to the 2023 Evergreen IRP, is still within the
7 range of variance experienced by NS Power when forecasting nine and ten years into the
8 future.¹

¹ 2025 Load Forecast Report, Figure C4: Energy Forecast Accuracy

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Request IR-23:

Appendix D, page 6 states that, for the sensitivity of energy sales, weather is the strongest variable but “in the long term, economics becomes equally as important as weather... due to the compounding effect of economics over time...”. Please discuss the compounding effects of economics on energy sales in the long term as experienced by NS Power.

Response IR-23:

Economic variables such as household count, income, and electricity prices can all influence residential energy use. For example, higher household income can lead to increased use of energy-intensive appliances or larger homes, raising overall consumption in the residential sector. Similarly, in the commercial and industrial sectors, variables like GDP, sector-based employment, and electricity prices play a key role. For instance, growth in manufacturing employment typically increases industrial energy demand due to greater production activity. In the Monte Carlo sensitivity analysis (Appendix D), changes to each of these variables compound over the 10-year forecast, making economic sensitivity comparable in magnitude to weather impacts, which affect only individual years.

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Request IR-24:

In reference to the attachments:

(a) Please confirm or explain otherwise that Attachment 8 column Q ManGDP is GDP estimates from the manufacturing industry in Nova Scotia for the years 2015 to 2024.

(i) If confirmed, why does the sum of the 12 months differ from Figure 18

(ii) Please explain why the value for 2024 in Figure 18 Manufacturing GDP is different from Statistics Canada's estimate in table 36-10-0402-01.

(1) Please explain why the value for 2024 in Figure 17 for Non-Manufacturing GDP is different from Statistics Canada's estimate in table 36-10-0402-01

(b) Please confirm or explain otherwise that Attachment 9 column Q ManEmp is the employment estimates for those working in the manufacturing industry in Nova Scotia for the years 2015 to 2024.

(i) If confirmed, please explain why the values do not match the values published by Statistics Canada Employment by industry, monthly, in table 14-10-0355-01.

Response IR-24:

(a) Confirmed.

(i) The series in Attachment 8 uses a centered moving average function to transform the annual ManGDP values to monthly values for the model.

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1 (ii) The difference in Figures 17 and 18 is likely due to fact that the Statistics Canada
2 table cited above has a release date of May 2025 while the economic data used in
3 the forecast was provided in February 2025. Statistics Canada often makes
4 revisions to prior years in their updates.

5
6 (b) Confirmed.

7
8 (i) The values in Attachment 9 are based on annual values (as shown in Figure 18 of
9 the report) that have used a centered moving average function to transform them to
10 monthly values. The data provided by the Conference Board of Canada is on an
11 annual basis; to be consistent with their forecast data these transformed annual
12 values are used in the model rather than the monthly Statistics Canada values.