

NOVA SCOTIA UTILITY AND REVIEW BOARD

IN THE MATTER OF: The Public Utilities Act, R.S.N.S. 1989, c.380, as amended
- and -

IN THE MATTER OF: 2022 Load Forecast Report

NON-CONFIDENTIAL INFORMATION REQUESTS

To: Nova Scotia Power Inc.
From: NS SBA
Responses Due: July 8, 2022
Copies: 1 electronic copy (PDF searchable)
Contact Person: E.A. Nelson Blackburn, Q.C.
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Issued at Bedford, Nova Scotia on this 16th day of June, 2022

1 **Request IR-1:** Please provide all inputs and outputs to the customer count models for all classes
2 relying upon such a model in excel format like those provided in Attachments 5-9.

3
4 **Request IR-2:** Please refer to page 52 of the 2022 Load Forecast Report (the “Filing”), Lines 14-
5 18:

- 6 a) Please provide federal and provincial targets for electrification assumed for this forecast
7 and their sources.
- 8 b) Please provide a list of electrification programs and any associated incentives for
9 customers.
- 10 c) Is NSPI planning or currently providing any electrification programs for commercial and
11 industrial customers?
- 12 d) Please provide details of any funding offered by the federal and provincial governments to
13 NSPI or directly to customers for implementing electrification.

14
15 **Request IR-3:** Please refer to Figure 34 of the Filing:

- 16 a) Are there any technologies other than heat pumps assumed for space heating
17 electrification?
- 18 b) Please provide Figure 34 separated into three figures – one representing load incurred by
19 electrification of heating needs, one representing load incurred by electrification of
20 cooling needs, and one representing load incurred by electrification of transportation.

21
22 **Request IR-4:** Please refer to page 10 of the Filing: What are the underlying assumptions for the
23 system peak to grow by 10% as compared to 2021? Please provide supporting
24 documentation, including any qualitative factors relating to the recovery from the COVID-19
25 pandemic.

26
27 **Request IR-5:** Please refer to page 42, Lines 8-11, of the Filing.

- 28 a) What led to an increase in the forecasted estimate of EVs in Nova Scotia by 2031
29 (75,000+) compared to the 2021 report that only forecasted 58,000?
- 30 b) Are current supply chain issues related to EV battery production taken into consideration
31 in the forecasts, or is it assumed that the issues will be largely resolved by 2031?

32
33 **Request IR-6:** Please refer to Figure 54: Demand Response on page 81 of the Filing.

- 34 a) Why is the ELCC for demand response less than 50%? Is demand response not occurring
35 during load peaks?
- 36 b) Please provide ELCC values for demand response for “Direct Load Control”, “Critical
37 Peak Pricing” and “Business, Non-Profit & Industrial Curtailment” separately for Figure
38 54.
- 39 c) Is response time a factor considered while computing these ELCC values?

1 **Request IR-7:** Please refer to Figure 54: Demand Response on page 81 of the Filing.

- 2 a) Do the values represented in the Business, Non-Profit & Industrial (BNI) Curtailment
3 column correspond to the Guidehouse analysis of BNI Curtailment in Figure 4 of the
4 Efficiency One (E1) 2023-2025 DSM Resource Plan, Appendix A – Attachment 5 page
5 10?
6 b) If not, please provide the analysis and workpapers with formulae intact that informed
7 Figure 54.
8

9 **Request IR-8:** Please refer to the Filing, page 7 of Appendix E. It states that "Managed charging
10 shown assumes NSP or a third-party aggregator performs additional coordinated charge
11 management across EVs to flatten peak loads during off-peak periods."

- 12 a) Has a third-party aggregator been identified to perform these managed charging
13 responsibilities?
14 b) If yes, please identify the third-party. If no, what steps are being taken to either find a
15 third-party or ensure NSPI can coordinate charge management?
16

17 **Request IR-9:** Please refer to Page 43, Lines 12-22. This section states that it is assumed 70% of
18 EV charging is managed by NSPI, resulting in a peak contribution of 0.9kW/vehicle instead
19 of an unmanaged level of 1.3kW/vehicle.

- 20 a) Is this management purely based on the Time-of-Use rates, as implied on Page 43, or is it
21 in conjunction with Page 7 of Appendix E referenced in SBA IR-8?
22 b) Does this management have any impact on total kWh load from EV in the 2022-2032
23 period?
24 c) Please provide total EV load and peak figures for the 2022-2032 period resulting from
25 both the managed and unmanaged scenarios, and please describe any impact that the
26 unmanaged scenario may have on other types of load.
27

28 **Request IR-10:** Please refer to the Filing, page 8 of Appendix E. It states that "to achieve policy
29 targets, E3 scenarios assume most sales are heat pumps sales by 2030s."

- 30 a) What incentives are in place that support this assumption?
31 b) Excluding policy targets, are actual heat pump adoption rates following the trend shown
32 in the figures on this page? In other words, do current initiatives in the province support
33 high levels of heat pump installation by 2031 without assuming that policy targets alone
34 will be enough to achieve them?
35 c) What steps are being taken to ensure that incentives are and will continue to support
36 achieving policy targets?
37

38 **Request IR-11:** Please refer to page 36, Lines 4-7 of the Filing. NSPI states that E3 has provided
39 a "forecast for heat pump adoption that would be required to achieve carbon reduction targets
40 of net zero by 2050," resulting in a saturation of heat pump shifting 66% of residential homes
41 by 2032.

- 1 a) Is it truly accurate to describe this as a forecast, or would it best be termed as an
2 “adoption scenario”?
- 3 b) Given that this is one scenario, has NSPI or E3 forecasted adoption rates under currently
4 available incentives? If so, please provide the results per class, overall Net System
5 Requirements results, and resulting changes to the Peak Load based upon currently
6 available incentives.
7

8 **Request IR-12:** Please refer to Figure 53 on Page 79 and Figure 34 on Page 53. Please explain
9 the discrepancy between the additional 83 GWh of C&I Electrification attributable to the
10 Commercial classes and the 36 GWh attributable to the Industrial classes over the 2022-2032
11 period shown in Figure 53, when Figure 34 implies 93 GWh in the Commercial classes and
12 41 GWh in the Industrial classes.
13

14 **Request IR-13:** Please refer to Figure 53, Page 79. Please confirm that the category in this
15 Figure labeled “C&I Electrification” incorporates both electrification of heating/cooling and
16 electrification of transportation.
17

18 **Request IR-14:** Please refer to Figure 32 on Page 51.

- 19 a) Please confirm that commercial heat pump adoption is incorporated into the “Heat” and
20 “Cool” categories. If not, please describe where this is represented in this figure.
- 21 b) Please confirm that commercial electric vehicle adoption is incorporated into the “Misc”
22 category. If not, please describe where this adoption is represented in this figure.
- 23 c) If neither are represented in Figure 32, please describe how electrification is accounted
24 for in the Commercial classes.
25

26 **Request IR-15:** Please describe in detail how electrification is accounted for in the forecasts for
27 Industrial classes.
28

29 **Request IR-16:** Please refer to Page 18, Lines 13-16. Why does residential and commercial use
30 historical billed sales data since January 2012, while the Small industrial class utilizes
31 January 2010, and the Medium Industrial class uses 2006?
32

33 **Request IR-17:** Please refer to Page 19, Lines 9-20.

- 34 a) Why does the weather data start year (Jan 2012) not align with the periods described
35 above per rate class? Please provide a detailed response as to why the method used still
36 provides for a consistent forecast across all classes.
- 37 b) Why does the peak demand forecast not use the same time frames as the load forecast?
38 Does having different time frames impact the accuracy of the peak forecast relative to the
39 load forecast?
40

1 **Request IR-18:** Understanding these are proprietary models, please provide a detailed
2 description of the methodology used in E3's RESHAPE and EV Load Shaping Tool models
3 to determine load shapes of electric heat and EV needs.

4 a) Please confirm Figure 27 is an output of the EV Load Shaping Tool model.
5

6 **Request IR-19:** Please refer to Electric Vehicles (EVs), page 42 of 98, Lines 2-11, which states:

7 *"The EV forecast has been updated for 2022 based on a stock rollover model prepared by E3*
8 *that estimates adoption to meet 2050 net-zero emissions goals combined with the provincial*
9 *mandate of 30 percent of vehicles sales being EVs by 2030 and the federal target of 100*
10 *percent of vehicle sales being EVs by 2035. The 2022 Load Forecast for EVs includes both*
11 *light duty vehicles (LDV) as well as medium duty vehicles (MDV) such as delivery trucks and*
12 *other medium duty fleet vehicles, and heavy-duty vehicles (HDV) focusing on buses. The EV*
13 *forecast estimates that Nova Scotia will have over 75,000 EVs on the road by 2031, mostly*
14 *made up of LDVs (see Figure 26), compared to a forecast of 58,000 vehicles by 2031 in the*
15 *2021 Load Forecast, which had an estimate of 20 percent of vehicle sales by 2030."*

16 a) Does Figure 27 represent NS Power's forecast of Light Duty Vehicle stock through
17 2050? Or is this figure meant to be illustrative of the growth curve that would be
18 required to meet the referenced target?

19 b) Did NS Power validate this growth curve against that experienced in Nova Scotia for a
20 similar customer investment technology that has reached broader market
21 penetration/saturation at this time?

22 c) Please describe in detail any adjustments NS Power made to the forecast in Figure 27
23 before using it as a driver in its forecast model.