

NOVA SCOTIA UTILITY AND REVIEW BOARD

IN THE MATTER OF: The *Public Utilities Act*

-and -

IN THE MATTER OF: an application by NOVA SCOTIA POWER INCORPORATED
for approval of its 2023 Load Forecast Report

INFORMATION REQUESTS

To: **Mark Peachey**
Manager, Capital Filings
Nova Scotia Power Inc.
1223 Lower Water Street
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Email: mark.peachy@nspower.ca

From: Nova Scotia Consumer Advocate

Responses Due: **June 20, 2023**

Copies: 1 electronic copy (PDF searchable)

Contact Person: **David J. Roberts**
Consumer Advocate
Pink Larkin
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1 **Request IR-1:**

2
3 Reference: Exhibit N-1, p. 22, lines 13-15.

4
5 Has NS Power revised its operational dispatch planning models to consider lagged average
6 temperature and wind speed? Please explain.

7
8 **Request IR-2:**

9
10 Reference: Exhibit N-1, pp. 33-37.

11
12 (a) Please confirm that NS Power's forecast for residential heat pump installations assumes
13 that customers installing residential heat pumps will remove (or retire) existing heating
14 sources. If not confirmed, please provide an example that demonstrates how the
15 forecast accounts for continued operation of existing heating sources.

16
17 (b) Please provide the analysis that demonstrates that the 2023 residential and commercial
18 load forecasts consider the following impacts.

- 19 i. Continued use of electric resistance heating equipment on cold days.
20 ii. Continued use of fossil or wood heating equipment until failure, then
21 replacement with heat pumps.
22 iii. For customers who install heat pumps, loads tend to increase because customers
23 are keeping their homes warmer in the winter, cooler in the summer, and
24 increasing the floorspace coverage in both seasons. Electric resistance appear
25 to be taking advantage of the heat pumps to improve comfort, resulting in
26 annual load that is "consistent with or slightly greater than" customers who have
27 not yet installed heat pumps.¹

28
29 (c) Does NS Power believe that additional market interventions are necessary to achieve
30 the level of electrification indicated in its load forecast?

- 31 i. If so, please provide the supporting analysis.
32 ii. If not, please identify how NS Power will support additional market
33 interventions.
34 iii. Also if not, please provide NS Power's estimate of gap between existing
35 electrification measures and trends and those included in its load forecast as
36 necessary to achieve federal and provincial policy goals for electrification.

37
38 **Request IR-3:**

39
40 Reference: Exhibit N-1, p. 42, lines 6-9, Figure 30, p. 43, and p. 77, lines 18-19.
41

¹ Itron, *Cold Climate Heat Pump Load Study* (July 2022), pp. 17-18. Submitted as Appendix A to NS Power, On-Bill Financing Final Report, M09321 (July 21, 2022).

1 (a) Please provide the system-coincident unmanaged peak impact per vehicle for 2022. In
2 other words, perform the same calculation for the system peak hour or, ideally, for the
3 top ten system peak hours using equivalent EV charging and available vehicle counts.
4

5 (b) Please confirm that NS Power has used the peak values included in Figure 30 to inform
6 its understanding of potential EV charging impacts on its system peak. If not confirmed,
7 please explain how NS Power is estimating future EV charging impacts on system
8 peak.
9

10 **Request IR-4:**
11

12 Reference: Exhibit N-1, Figure 44 and p. 62, lines 23-25, p. 64, lines 7-12, and p. 65, lines 10-
13 17.
14

15 Is the forecast increase in EV charging, commercial electrification of heating, and solar
16 generation being considered in distribution facilities planning? If so, how?
17

18 **Request IR-5:**
19

20 Reference: Exhibit N-1, Sections 4.6 and 10.0.
21

22 Please confirm that the 2023 Load Forecast Report does not include any projected reduction
23 in system peak from time-varying pricing (TVP) rate offerings.
24

25 (a) If confirmed, please provide NS Power's forecast for when it will fulfill the
26 commitment that its investment in AMI technology would result in a reduction in
27 system peak demand, and thus reduce the amount of necessary system peaking
28 capacity.
29

30 (b) If not confirmed, please confirm that of the top ten peak event periods during the 2021-
31 2022 winter, the peak hour occurred outside the peak TOU period on four days (Feb 6
32 PM, Jan 22 PM, Feb 25 mid-day, Jan 22 AM) and that three of those days were on
33 weekends, and one was mid-day.
34

35 (c) Also if not confirmed, please provide the projected reduction in system peak and the
36 analysis supporting that projection, including the basis for the peak impact per customer
37 (on a TVP tariff) and the number of customers enrolled.
38

39 **Request IR-6:**
40

41 Reference: Exhibit N-1, Figure 73, p. 94.
42

1 Please confirm that the AMI Weather Normalized values use the 2023 Load Forecast method
2 (12-hr temperature lag and wind speed). If not confirmed, please describe the method and
3 explain why not.

4
5 **Request IR-7:**

6
7 Reference: Exhibit N-1, Figures 15-17; Exhibit N-1, M10569, Figures 15-17.

8
9 Relative to the 2022 Load Forecast Report,

- 10
11 (a) Please explain the substantial decrease in forecast household compensation/income.
12
13 (b) Please compare the post-2021 forecasts in residential customers and population, and
14 explain any substantial changes.
15
16 (c) Please explain why Figure 17 historical data has been revised (all years for new
17 construction, since 2020 for household compensation).
18
19 (d) Please identify any other historical data that has been revised and provide an
20 explanation. (It is not necessary to identify or explain minor adjustments for recent
21 years due to, for example, QA/QC.)
22
23 (e) Please explain the substantial increase in new construction and household
24 compensation forecasts in Figure 17.
25

26 **Request IR-8:**

27
28 Reference: Exhibit N-1, Figure 42; Exhibit N-1, M10569, Figure 40.

29
30 Relative to the 2022 Load Forecast Report,

- 31
32 (a) Please explain the substantial increase in the new customer residential sales forecast.
33
34 (b) Please explain the substantial increase in the solar impact forecast.
35
36 (c) Please explain the shift in forecast DSM attribution from the DSM adjustment to DSM
37 captured by end uses.
38

39 **Request IR-9:**

40
41 Reference: Exhibit N-8, M10569, pp. 4-5; Exhibit N-12, M10569; Exhibit N-1, Attachment 5
42 Residential Model.
43

1 In his 2022 evidence, Mr. Wilson pointed out potential modeling errors in the residential
2 energy model. Mr. Wilson noted that the residential WtXHeat output did not exhibit the trend
3 of decreasing Heating Degree Days (HDD).
4

5 (a) Please confirm the accuracy of Mr. Wilson's observation that the 2022 residential
6 WtXHeat output did not exhibit the trend of decreasing Heating Degree Days (HDD).
7 If not confirmed, please provide the analysis that shows otherwise.
8

9 (b) Please confirm that NS Power did not respond to this critique in its 2022 rebuttal
10 evidence. If not confirmed, please identify the response.
11

12 (c) Please confirm that NS Power did not discuss this critique in its 2023 Load Forecast
13 Report. If not confirmed, please identify the response.
14

15 (d) Please confirm that the 2023 residential WtXHeat output does exhibit a trend of
16 decreasing HDD. If not confirmed, please provide the analysis that shows otherwise.
17

18 (e) Please describe any changes made by NS Power in its residential load model that
19 resulted in the change between the 2022 trend, as referenced in part (a), and the 2023
20 trend, as referenced in part (d).
21

22 (f) Please state describe any changes made by NS Power to its small general load model
23 related to any changes described in part (e).
24

25 **Request IR-10:**
26

27 Reference: Exhibit N-1, Appendix B, pp. 7.
28

29 (a) Please confirm that the example calculation of the XHeat value (p. 7) represents the
30 model formula (p. 2). For each of the calculation components below, if not confirmed,
31 please explain how the component is calculated and provide any data that are not
32 included in the filing.

- 33 i. HeatIndex defined by function "g" (p. 2) as the sum of Eburn, HP Heat,
34 Secondary Heat, and Furnace Fans as found in Attachment 1 Residential
35 Intensities, tab "Intensities."
36 ii. HeatUse defined by function "f" (p. 2) as a single variable whose calculation is
37 not supplied in the filing.
38 iii. Coefficient defined as "b₁" (p. 2) as an output of the regression calculation (p.
39 3).
40

41 (b) Please confirm that the example calculation of the XCool value (p. 7) represents the
42 model formula (p. 2). For each of the calculation components below, if not confirmed,
43 please explain how the component is calculated and provide any data that are not
44 included in the filing.

- 1 i. CoolIndex defined by function “g” (p. 2) as the sum of Central AC, HP Cool,
2 Room AC as found in Attachment 1 Residential Intensities, tab “Intensities.”
3 ii. CoolUse defined by function “f” (p. 2) as a single variable whose calculation is
4 not supplied in the filing.
5 iii. Coefficient defined as “b₂” (p. 2) as an output of the regression calculation (p.
6 3).
7
- 8 (c) Please confirm that the example calculation of the XOther value (p. 7) represents the
9 model formula (p. 2). For each of the calculation components below, if not confirmed,
10 please explain how the component is calculated and provide any data that are not
11 included in the filing.
12 i. OtherIndex defined by function “g” as the sum of Water Heat, Cook, Ref/Frz,
13 Wash/Dry, TV, Light, Misc as found in Attachment 1 Residential Intensities,
14 tab “Intensities.”
15 ii. OtherUse defined by function “f” as a single variable whose calculation is not
16 supplied in the filing.
17 iii. Coefficient defined as “b₃” as an output of the regression calculation (p. 3).
18
- 19 (d) If (a-c)(ii) are confirmed, please
20 i. Explain how HeatUse, CoolUse, and OtherUse are calculated, including an
21 example.
22 ii. Please provide the models referenced in part (d)(i) and any data that are not
23 included in the filing.
24
- 25 (e) Please explain why “Dish,” found in Attachment 1 Residential Intensities, tab
26 “Intensities.” is not included in the XOther variable.
27