1 **Q.** **(Application Volume 1, page 1-2) It is stated "*The forecast decline in energy sales*
2 *also reflects the penetration of heat pumps among the Company's customers***."**
3 **a)** **Specifically, what impact has this had on capacity and energy demand**
4 **forecast in the GRA?**
5 **b)** **Is Hydro in agreement?**
6 **c)** **It is understood that there is a variation of about 55 MW between Hydro and**
7 **NP forecasts of NP load. Please confirm or correct this information.**
8 **d)** **Provide a comparison of NP and Hydro forecasts of NP load in the 2022 and**
9 **2023 test years.**
10 **e)** **What is being done to resolve the difference between Hydro and NP forecasts**
11 **of NP load?**
12 **f)** **Who is ultimately responsible for forecasting load in the Province?**
13
14 A. a) The expected increased penetration of heat pumps in the market contributes to
15 reduced energy sales and reduced peak demand in the forecast. For further detail,
16 see response to Request for Information NLH-NP-057.
17
18 b) Newfoundland Power did not develop the assumptions on heat pumps used in the
19 forecast in conjunction with Hydro. However, from past informal discussions,
20 both utilities agree that heat pumps are influencing electricity consumption in the
21 province. Newfoundland Power is currently completing a heat pump load
22 research study. The Company has also had discussions with Hydro concerning
23 the possible extension of the load research study into future winter seasons to
24 better understand heat pump load behaviour during extended cold periods.[1]
25
26 c) Yes, that is correct. See part (d).
27
28 d) Table 1 provides the requested data.

Table 1:
System Peak Forecast (MW)
2022 to 2023

Year	Newfoundland Power[2]	Hydro[3]	Difference
2022	1,351	1,402	(51)
2023	1,344	1,404	(60)

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[1] See response to Request for Information NLH-NP-065 for further information regarding Newfoundland Power's heat pump load research study.

[2] See the *2022/2023 General Rate Application, Volume 2, Supporting Materials, Tab 3, Customer, Energy and Demand Forecast, Appendix C, Existing*.

[3] Forecast provided to Newfoundland Power by Hydro on November 20, 2020.

| 1 | e) | Newfoundland Power and Hydro have been working together to understand the difference in each utility's forecast of Newfoundland Power's peak demand since 2020.[4] Both utilities have shared forecasting methodologies and assumptions in order to better understand the approximate 55 MW difference in peak demand forecasts. |

1   e)   Newfoundland Power and Hydro have been working together to understand the
2   difference in each utility's forecast of Newfoundland Power's peak demand since
3   2020.[4] Both utilities have shared forecasting methodologies and assumptions in
4   order to better understand the approximate 55 MW difference in peak demand
5   forecasts.

7   Newfoundland Power's and Hydro's peak demand forecasts for Newfoundland
8   Power's load are based on different forecast methodologies. Newfoundland
9   Power uses a load factor approach to forecast its peak demand.[5] Hydro uses a
10   statistical regression approach to forecast Newfoundland Power's peak demand.[6]

12   The primary difference between the utilities' forecasts arises from the declining
13   sales experienced by Newfoundland Power in recent years. Newfoundland
14   Power's load factor methodology reflects a decline in demand corresponding to
15   the Company's declining energy sales. Hydro's statistical regression
16   methodology does not reflect a decline in demand corresponding to
17   Newfoundland Power's declining energy sales.[7] Both utilities have agreed to
18   continue efforts to better understand the effects of declining energy requirements
19   on Newfoundland Power's peak demand.[8]

21   f)   Forecasts of Newfoundland Power's energy and demand requirements are
22   required for multiple purposes. Both Newfoundland Power and Hydro are
23   responsible for developing forecasts that are appropriate for their intended
24   purposes.

26   Newfoundland Power forecasts its energy and peak demand requirements to
27   address the estimation of future revenue from electricity sales and the Company's
28   single largest expenditure, purchased power.[9]

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[4]   See Hydro's presentation *Reliability and Resource Adequacy Study Review – Technical Conference #2,* November 30, 2020, page 30, filed in advance of Hydro's 2nd technical conference in relation to *Hydro's Reliability and Resource Adequacy Study Review.*

[5]   Load factor is the ratio of the average demand on the electrical system to the peak demand on the system. Newfoundland Power's typical load factor is approximately 50%. Conceptually, this implies that peak demand expected by Newfoundland Power in a year will be approximately twice the average demand for the year.

[6]   Hydro's statistical regression forecasting approach develops a peak demand forecast using independent variables that include: (i) the number of electric heating customers; (ii) the number of non-electric heating customers; (iii) wind chill during annual peak periods; (iv) electricity price; (v) annual general service energy consumption; (vi) a technology variable; and (vii) a variable that considers if a peak occurred in the month of December.

[7]   See Hydro's presentation *Reliability and Resource Adequacy Study Review – Technical Conference #2*, November 30, 2020, page 30, filed in advance of Hydro's 2nd Technical Conference in relation to Hydro's *Reliability and Resource Adequacy Study Review*.

[8]   For example, Newfoundland Power is currently completing a heat pump load research study for heat pumps installed within its service territory to understand potential impacts of heat pumps on peak demand. In consultation with Hydro, Newfoundland Power is considering extending the study into future winter periods given the relatively mild winter seasons experienced in the last 2 years.

[9]   These forecasts also inform the Company's Substation Load and Feeder Peak Load forecasts.

1   Hydro is responsible for supply reliability and resource adequacy on the Island
2   Interconnected system. As a result, Hydro requires a forecast of Newfoundland
3   Power's energy and peak demand requirements for system reliability and
4   generation adequacy purposes.[10] Forecasts that are too high or too low may have
5   implications for system reliability. For this reason, Hydro has indicated it is
6   taking a conservative approach in forecasting Newfoundland Power's peak
7   demand.[11]

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[10]   Hydro also requires a forecast of Newfoundland Power's energy and peak demand requirements to determine
        cost allocation among customers on the Island Interconnected System.
[11]   See Hydro's presentation *Reliability and Resource Adequacy Study Review – Technical Conference #2*,
        November 30, 2020, page 30, filed in advance of Hydro's 2nd Technical Conference in relation to Hydro's
        Reliability and Resource Adequacy Study Review.