

1 Q. **Newfoundland and Labrador Hydro – Near-Term Reliability Report, May 15, 2020**

2 ***Demand Forecast***

3 With respect to IIS customer coincident demand, please:

- 4 a. Confirm or provide the corrected values if not confirmed that the actual IIS utility demand
5 (1,549 MW) in winter 2018-2019 exceeds both the P50 (1,478 MW) and P90 (1,539 MW)
6 forecasts for that year, as presented in the November 2019 RRAS update.
- 7 b. Explain the causes of the high actual demand in terms of how the key drivers of the forecast
8 compared to the actual values that year.
- 9 c. Provide an explanation and analysis of how the May 15, 2020 report forecasts considered
10 and differ from 2019-2020 winter period actual demands.

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- 13 A. a. Table 1 confirms the winter 2018–2019 Island Interconnected System utility demand at the
14 time of system peak was 1,549 MW, exceeding both the P50 and P90 forecasts for utility
15 demand.

Table 1: Coincident Customer Peak Demands for Winter 2018–2019¹

	P50 Peak Demand Forecast (MW)	P90 Peak Demand Forecast (MW)	Actual ²
Utility ³	1,478	1,539	1,549
Industrial ⁴	179	179	157
Island Interconnected System Coincident Customer Demand ⁵	1,657	1,718	1,706

¹ Forecast as per “Near-Term Generation Adequacy Report,” Newfoundland and Labrador Hydro, May 30, 2018 (rev. 1), originally filed May 22, 2018.

² February 20, 2019 actual peak loads for time interval 18:45–19:00; peak occurred at 18:54.

³ Coincident demand of Newfoundland Power and Hydro Rural retail.

⁴ Coincident demand of Island Industrial Customers.

⁵ Island Interconnected System coincident customer demand exclusive of transmission losses and station service.

1 b. Section 6.4 of Volume III of Newfoundland and Labrador Hydro’s (“Hydro”) 2019 Update to
2 the Reliability and Resource Adequacy Study contains a discussion of Hydro’s Island
3 Interconnected System Winter 2018–2019 peak.

4 In that discussion Hydro noted that weather conditions across the Island Interconnected
5 System for the first two months of winter 2018–2019 (December and January) were less
6 severe than historically measured average (P50) conditions. The Island Interconnected
7 System experienced the highest electrical demands for the winter of 2018–2019 during a
8 period of cold and windy weather that occurred in the month of February 2019. The
9 maximum peak demand for the Island Interconnected System for winter 2018–2019
10 occurred during the early evening of February 20, 2019.

11 The Island Interconnected System coincident customer demand of 1,706 MW that occurred
12 during the February 20, 2019 system peak was between the P50 peak demand forecast
13 value of 1,657 MW and the P90 peak demand forecast value of 1,718 MW, with actual
14 industrial demand less than forecast and actual utility demand higher than the P90 forecast.
15 The observed weather condition can be summarized as colder than average temperatures
16 combined with about average wind conditions. The weather conditions leading into the
17 Island Interconnected System evening peak were onerous on a temperature basis but not
18 quite as severe as what a P90 wind chill condition would be, based on historical weather
19 records. Hydro has reviewed the events surrounding utility demand requirements on the
20 peak day.

21 Weather conditions on the Avalon Peninsula deteriorated throughout February 20, 2019
22 with both temperatures and wind chills reaching their lowest points at the time the peak
23 occurred. As temperatures on the Avalon were declining across the day, it could be
24 expected that the performance efficiency of heat pumps used by customers for space
25 heating would have waned, contributing to higher peak demand requirements in the
26 evening period.

27 Voltage reduction activity by Newfoundland Power would have reduced peak demand
28 requirements during the core morning and evening peak periods. Combined with the

1 prevailing weather conditions on this day, Newfoundland Power’s voltage reduction activity
2 may have contributed to a later than typical utility peak that occurred at 19:15.

3 Based on these observations, the utility demand requirement can be considered significant
4 for the prevailing weather conditions experienced on the peak day.

5 Table 2 provides the summarized customer class peak demands as experienced on February
6 21, 2020 as well as the expected coincident customer class demand for the winter peak
7 period of 2020–2021 as forecast in the spring of 2020.

Table 2: Island Coincident Customer Demand (MW)

	Actual 2019–2020 ⁶	Forecast 2020–2021 ⁷
Utility ⁸	1,448	1,484
Industrial ⁹	144	178
Island Interconnected System Coincident Customer Demand ¹⁰	1,591	1,662

8 The weather conditions on the day of peak can be summarized as warmer than average
9 temperatures with wind conditions about average. Unlike normal winters however, the
10 north-eastern Avalon experienced a record snowfall in January that resulted in a significant
11 snow level on the ground throughout the winter season. Significant snow levels on the
12 ground can act as an insulator for buildings, reducing heating requirements for utility
13 customers. The extent to which this impacted total system demand has not been quantified.

14 Hydro considered the actual peak demand for the 2019-2020 winter period to be lower than
15 expected for the given wind and temperature conditions and attributes the snow level on
16 the ground as a contributing factor. Hydro has also considered the likelihood that the
17 increased utilization of heat pump technologies within the utility customer base may be

⁶ February 21, 2020 actual peak loads for time interval 07:30–07:45am; peak occurred at 07:37.

⁷ Forecast as per “Near-Term Reliability Report”, Newfoundland and Labrador Hydro, May 15, 2020.

⁸ Coincident demand of Newfoundland Power and Hydro Rural retail.

⁹ Coincident demand of Island Industrial Customers.

¹⁰ Island Interconnected System coincident customer demand exclusive of transmission losses and station service.

- 1 contributing to lower system demands; however, these impacts are under study and
- 2 currently remain unquantified.