Q. Further to the responses to PUB-NP-090 and PUB-NP-101, six of the twelve Canadian utilities surveyed by Newfoundland Power use a similar peak demand forecasting methodology based on load factor. Nonetheless, Newfoundland Power's recent peak forecasts were consistently under-forecasted (see Table 2). This suggests the methodology may not be appropriate. Please provide an analysis of the sources of Newfoundland Power's underforecast, for example – data problems, forecasting method, and flaws in the forecasting process.

A. Table 1 shows Newfoundland Power's and Newfoundland Labrador Hydro's ("Hydro") system peak forecasts for the last five winter seasons and provides a comparison of the respective forecasts to the actual peak over that timeframe.

Table 1:
System Peak Demand (MW)[1]

Winter Season	Actual	Newfoundland Power Forecast	Hydro Forecast	Newfoundland Power Variance	Hydro Variance
2019-2020	1,367	1,389	1,407	-1.6%	-2.8%
2020-2021	1,300	1,361	1,406	-4.5%	-7.5%
2021-2022	1,383	1,351	1,400	2.4%	-1.2%
2022-2023	1,463	1,368	1,407	6.9%	4.0%
2023-2024	1,487	1,448	1,437	2.7%	3.5%

Newfoundland Power makes the following observations regarding Table 1:

- Over the last five winter seasons, Newfoundland Power's system peak forecast varied by -4.5% to 6.9% from actual system peak, similar to Hydro's system peak forecast which varied by -7.5% to 4.0% from actual system peak.

- While both utilities use different peak forecasting methodologies, the forecast variances are broadly similar over the five-year period.[2] In addition to the ranges described above, the five-year average variance was 1.2% for Newfoundland Power and -0.8% for Hydro, which is reasonably comparable.[3]

- For the 2022-2023 winter season, Newfoundland Power's forecast peak was 6.9% lower than actual system peak. At that time, it was the largest peak ever recorded by the Company and resulted in a system load factor of 47.1%, which was also its

[1] Weather-adjusted. The data is summarized from the response to Request for Information PUB-NLH-009.
[2] Newfoundland Power uses a system load factor methodology to forecast its dead demand while Hydro uses an econometric model.
[3] On an absolute value basis, the five-year average variance was 3.6% for Newfoundland Power and 3.8% for Hydro.

lowest system load factor on record.[4] Further, the system load factor of 47.1% was 2.1% lower than the previous lowest system load factor of 49.2% over the last two decades.[5]

Hydro's forecast for the 2022-2023 winter season was also lower than the actual peak, varying by 4.0%.

- For the 2023-2024 winter season, Newfoundland Power's forecast peak was 2.7% lower than actual system peak, which was the highest peak in its history. This result was within the Company's variance range over the last decade of -4.5% to 3.4% when excluding the 2022-2023 winter season result.

  The Company's variance of 2.7% for the 2023-2024 winter season was also consistent with Hydro's variance of 3.5%.

Based on these observations, Newfoundland Power submits the following:

- The Company's forecasting results are not suggestive of issues with its forecasting methodology. Most notably, Newfoundland Power's most recent forecast for the 2023-2024 winter season was relatively close to the actual peak.

- The 2022-2023 winter season provided for a historically low system load factor, which could not have been reasonably anticipated. Hydro's methodology, which takes a more conservative approach, also provided for a forecast of 4.0% lower than the actual peak. Given this, it would not be reasonable to conclude that Newfoundland Power's forecasting methodology is not appropriate based on the results of the 2022-2023 winter season.

- The Company's five-year system load factor methodology is designed to consider its most recent actual results, without biasing any one year. For example, the methodology factors in the 2022-2023 winter season system load factor without having its forecast demand being entirely based on that one year. Newfoundland Power's approach is consistent with sound public utility practice and is reflective of the historical variability in its system load factor.[6,7]

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4 For example, over the 20-year period 2003 to 2022, the Company's system load factor averaged 51.2% within a range of 49.2% to 52.9%. The system peak was also much higher than the system peak experienced in the previous three winter seasons.

5 Ibid.

6 In 2021, Newfoundland Power surveyed 12 Canadian utilities to understand their peak demand forecasting methodologies. Of the 12 surveyed utilities, six use methodologies similar to Newfoundland Power's load factor methodology, which relies on forecast energy consumption and historic energy and demand data. Of those, one utility uses one year of historical data, three utilities use three to five years of historical data, and two utilities use 10 years of historical data. Of the utilities that use historic data in their econometric model, the data ranges from 10 to 40 years.

7 Over the past 20 years, the Company's system load factor increased from the previous year 11 times and decreased from the previous year nine times.