Q. In reference to Table 2 on page 13 of the ESRA Report, please provide details of P50 and P90 load forecasts, including how Hydro estimates probability of actual peak being 50%/90% lower than forecast, conversely being higher than forecast 50%/10% of the time.

A. Hydro's P90 demand forecast establishes the influence that severe winter weather has on island system peak requirements due to weather driven loads demanded by Newfoundland Power and Hydro Rural customers. Peak demands on the Island Interconnected System are highly influenced by weather as measured by wind chill.

On a probabilistic basis, the peak demand forecast based on the 90th percentile or P90 wind chill infers that peak demand will be lower than forecast 90% of the time and higher than forecast 10% of the time. Similarly, the peak demand forecast based on the average or P50 load factor infers that peak demand will be lower than forecast 50% of the time and higher than forecast 50% of the time.

Hydro estimates probability of actual peak being 90% lower than forecast, conversely being higher than forecast 10% of the time, through inference based on historical wind chill. Hydro uses the historical wind chill in conjunction with Hydro's long established forecast model, which predicts utility peak demand load requirements on the basis of wind chill along with other explanatory variables of peak demand.

Hydro maintains a database of historical weather records from weather stations at three geographically dispersed locations on the island from which the coldest[1] annual weighted Island wind chill is established for each of the past 30 years. From this database, Hydro establishes the historical average (P50) wind chill as well as the 90th percentile (P90) wind chill. Hydro uses the P50 and P90 wind chill values in Hydro's peak demand model to predict incremental peak demand requirements associated with P90 verses P50 wind chill conditions.

Hydro estimates probability of actual base case peak being 50% lower than forecast, conversely being higher than forecast 50% of the time, through inference based on historical load factors. Both Hydro and Newfoundland Power forecast peak demand requirements for each of their respective customer groups based on average historical annual load factor records.

[1] The data set encompasses the core day time hours at which island peaks have historically occurred.