Q. **Re: PUB-NLH-217**

Citation (p. 9):

In the event of a complete LIL outage, capacity available to supply Island load would include approximately:

- 1013 to 1043 MW of on Island hydro-electric (variation due to reservoir levels);
- 276 MW of on Island thermal generation;
- Up to 300 MW of import via the Maritime Link; and
- Potential interruptible customer loads of 60 MW or more.

Please indicate for how many hours a year NLH can count on 1013 to 1043 MW from Island hydro-electric generation.

A. The ability of the hydro-electric generation on the island to supply maximum output for extended periods of time is dependent, to a large degree, on the reservoir storage levels at the time of the Labrador - Island HVdc Link (LIL) outage, the expected inflows post outage and the required reservoir storage levels necessary to ensure the supply of energy in the post outage period.[1]

As noted in Hydro's response to PUB-NLH-212, Hydro has set the maximum LIL bipole outage duration at two weeks for loss of the overhead line. The worst case two-week outage window with respect to capacity to supply the load would occur during the winter peak load period.

[1] Hydro has large multi-year storage reservoirs designed to enable sustained production levels during dry periods and to capture as much water as economically possible without spilling. As a result of this storage capability, the plants have significant operating flexibility to adjust to changing production requirements.

A review of the average hydrology for the Hydro island hydro-electric generation indicates that there would be in excess of 1400 GWh of storage in the hydro reservoirs. Using hourly data from Hydro's Energy Management System, an hourly load shape for the worst-case two-week outage window in the year 2025 was developed. A typical hydro-electric dispatch to follow the load pattern for the two-week outage was found to result in generation of 262.3 GWh of energy. Operating the hydro-electric generation at the maximum level for the entire two-week outage period is found to result in an 87.2 GWh increase in energy production. Given the storage position in the reservoirs, there is no issue with operating the hydro generation continuously at maximum output for a two-week LIL outage. On average, in excess of 1,400 GWh of energy would be in storage in Hydro's on-island reservoirs. Assuming no inflows (which is a conservative assumption), 1,400 GWh is sufficient to generate 1,000 MW for a period of approximately two months.[2] As further demonstrated in Hydro's response to GRK-NLH-074, Hydro would have sufficient energy resources from both on-island hydro, the Maritime Link and standby thermal resources to supply full load.

[2] [1,400 GWh * 1,000 MWh/GWh] / 1,000 MW = 1,400 hours
[1,400 hr / 24 hr/day / 30 days/month] = 1.94 months, or approximately 2 months