

Office of the Consumer Advocate

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January 16, 2023

The Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, Newfoundland and Labrador
A1A 5B2

Attention: Ms. Cheryl Blundon
Director of Corporate Services & Board Secretary

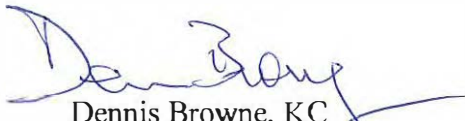
Dear Ms. Blundon:

**Re: Newfoundland and Labrador Hydro – Reliability and Resource Adequacy
Study Review – 2022 Update – Requests for Information**

Further to the above-captioned, enclosed are the Consumer Advocate's Requests for Information numbered CA-NLH-031 to CA-NLH-060.

If you have any questions regarding the enclosed, please contact the undersigned at your convenience.

Yours truly,


Dennis Browne, KC
Consumer Advocate

IN THE MATTER OF

the *Electrical Power Control Act*, 1994, SNL 1994,
Chapter E-5.1 (the “EPCA”) and the *Public Utilities Act*,
RSNL 1990, Chapter P-47 (the “Act”), as amended, and
regulations thereunder;

AND

IN THE MATTER OF

Newfoundland and Labrador Hydro’s (“Hydro’s”)
Reliability and Supply Adequacy Study.

**CONSUMER ADVOCATE
REQUESTS FOR INFORMATION**

CA-NLH-031 to CA-NLH-060

Issued: January 17, 2023

- CA-NLH-031 Has experience over the past year caused Hydro to reassess the availability forecast used in its planning studies for Holyrood TGS?
- CA-NLH-032 With respect to the Muskrat Falls project:
- a) What is the actual/forecast in-service date for each component of the Muskrat Falls project?
 - b) What is the most recent cost estimate for the Muskrat Falls project?
 - c) What is the latest information concerning government rate mitigation?
 - d) What is the average rate on the Island System assumed in Hydro's load forecast and what is the basis for this assumption?
 - e) Has Hydro considered a load forecast scenario without government rate mitigation, and if so, how is the load forecast impacted?
 - f) When does Hydro expect to file its next GRA?
- CA-NLH-033 Please prepare a table showing for each month over the past two years: energy production from Muskrat Falls generation, energy deliveries to the Island Interconnected System over the LIL, energy sales to the U.S. via Quebec, energy deliveries to Nova Scotia over the Maritime Link as required under the various Muskrat Falls agreements, and energy deliveries via the Maritime Link beyond Nova Scotia to the U.S.
- CA-NLH-034 Have energy deliveries to Nova Scotia as required under the various Muskrat Falls agreements met obligations? If not, why not, and how will Hydro meet such obligations?

- CA-NLH-035 Is there a reason to assume that the LIL will perform any better or worse than the experience with HVDC in the Nordic region of Europe? Does Daymark believe that the Nordic HVDC experience is directly relevant to the LIL? Please elaborate.
- CA-NLH-036 Do the Nordic countries rely on their HVDC systems to provide dependable capacity?
- CA-NLH-037 With respect to the Maritime Link:
- a) Over the period since commissioning, what has been the overall availability of the Maritime Link?
 - b) Please provide a table showing monthly availability data for the Maritime Link since commissioning.
 - c) Does the Maritime link provide a useful data point upon which to base the availability forecast for the LIL?
- CA-NLH-038 How does Hydro incorporate outages of the Maritime Link in its reliability planning? Where do outages of the Maritime Link rank in terms of criticality to the reliability of supply to the Island Interconnected System?
- CA-NLH-039 Given the very high availability rates of high-voltage transmission systems in general, how many years will it take before Hydro is confident in using actual availability data for the LIL in its planning studies?
- CA-NLH-040 What is Hydro's current estimate of the length of time necessary to repair a bi-pole outage on the LIL?
- CA-NLH-041 In its planning studies, how, and on what basis, does Hydro value lost load; e.g., unsupplied energy?

- CA-NLH-042 Please confirm that Hydro has not factored electrification and government zero-carbon initiatives into its load forecast. Specifically, please provide a table showing the levels of demand and energy that Hydro has incorporated in its load forecast owing to government electrification and zero-carbon efforts.
- CA-NLH-043 Has Hydro commissioned Hatch, or a different firm, to undertake a study to determine if minimum loading levels at Holyrood can be safely reduced?
- CA-NLH-044 What is the current status of gas turbine technology burning “green” fuels; e.g., switchgrass?
- CA-NLH-045 It is understood that more than 30 countries have announced their commitment to hydrogen as part of their environmental strategies to cut carbon emissions and reach net zero (<https://www.linkedin.com/pulse/which-countries-investing-hydrogen-nicholas-wrigley>, September 5, 2022)”.
a) What is the status of green hydrogen (hydrogen produced from renewable energy) policy and development efforts in Canada and NL?
b) In Hydro’s view, is green hydrogen a viable alternative for meeting a significant portion of the energy needs of the province going forward?
c) Could the Gull Island site be developed to produce green hydrogen? Is it under consideration?
d) What are the current plans with respect to green hydrogen in some of the more advanced countries like China, Japan, India and Saudi Arabia?

- CA-NLH-046 To what extent can the province's hydro reservoirs be used to balance the variability of production from renewable energy sources such as wind and solar? Can hydro reservoirs be called upon quickly enough to balance variations in wind and solar production?
- CA-NLH-047 Is Hydro considering battery storage as an alternative for balancing production variations in wind and solar? What is the current status of battery storage development for such purposes?
- CA-NLH-048 Is solar a viable alternative for electricity production in NL? How do solar radiation levels and current levels of solar electricity production in NL compare to the province of Ontario, and the states of Minnesota and Arizona?
- CA-NLH-049 Is wind a viable alternative for electricity production in NL? How do average wind speeds and levels of wind electricity production in NL compare to the province of Ontario, and the states of Minnesota and Arizona? To what extent do freezing temperatures such as those experienced in NL impact wind generation development?
- CA-NLH-050 Might Hydro be denied a Certificate of Approval, or any other required environmental approvals, to operate Holyrood until 2030?
- CA-NLH-051 What is the estimated impact on rates if the \$1 billion costs associated with keeping Holyrood TGS in service until 2030 are realized (Reliability and Resource Adequacy Study, 2022 Update, Volume III, Tables 8 and 9)? Has Hydro incorporated these costs and rate impacts in its load forecast, or does Hydro believe that

these costs would be covered under the government's rate mitigation plan?

CA-NLH-052 (2022 Update, Vol.I, page 5) Would the proposed Clean Energy Standard prohibit all new fossil-fuel options including those for standby or peaking purposes or to support intermittent supply? If not, then has Hydro ruled them out as uneconomic or for some other reason?

CA-NLH-053 Will Hydro be compelled to move to the LOLE ≤ 0.1 ? If not, then why is it planning to do so? Would a less severe criterion be appropriate for either the IIS or LIS and, if so, what would be the implications?

CA-NLH-054 Please provide the historical annual LOLH performance of Hydro for the LIS and the IIS since 1990. Also, provide these figures on a monthly basis for 2020, 2021 and 2022.

CA-NLH-055 (2022 Update, Vol. I, Tables 3 and 4). Table 3 shows that for the bridging period, 2023 to 2030, with no generation additions and Holyrood, Hardwoods and Stephenville retired, the LOLH ≤ 2.8 criterion would not be met under the seven scenarios considered. In Table 4, with the retention of the Holyrood TGS, the criterion would be satisfied in scenarios 1 to 5 (except for 2030 for scenarios 3 and 5) but not for scenarios 6 and 7. Does Hydro assess scenarios 6 and 7 to be reasonably likely? More specifically, does it have a probability assessment for the scenarios?

CA-NLH-056 (2022 Update Vol. I, Tables 4 and 5) The figures in Table 5 show an improvement over Table 4's results due to the retention of the Hardwoods Gas Turbine in addition to the Holyrood TGS; notably

the LOLH figures for scenarios 6 and 7 are now largely within the $LOLH \leq 2.8$ criterion except for 2030.

- a) Has Hydro completed a benefit-cost study of the cost of maintaining Hardwoods versus the benefits of the marginal improvements in the LOLH results in scenarios 6 and 7? If so, please provide that study.
- b) In Table 4, are the excesses of the LOLH in scenarios 6 and 7 similar to any LOLH results that Hydro has experienced in the past?
- c) Instead of maintaining Hardwoods, has Hydro considered any alternatives (either in capacity additions, demand management or rate design) that would be sufficient to reduce the LOLH projections to the 2.8 criterion for scenarios 6 and 7?

CA-NLH-057

If the LIL bipole is subject to a forced outage rate of 10% or more in a year then how does that translate into average time lost and frequency of outage? Are forced outages expected to be correlated with the seasons?

CA-NLH-058

- (a) If the LIL bipole is subject to a forced outage rate of 10% then how does that affect the estimated all-in marginal cost for the IIS?
- (b) What if the LIL forced outage rate were 15%?

CA-NLH-059

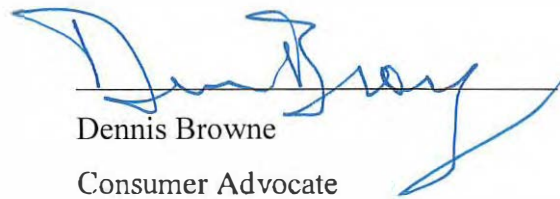
(Update 2022, Vol. II, pages 22 and 23) In the near term reliability report, five of the nine scenarios for the years 2023 to 2027, namely scenarios 5 to 9, assume “no LIL.”

- a) Please describe the circumstances under which no annual availability of the LIL could occur.
- b) How would Hydro satisfy its Nova Scotia commitments under the Energy and Capacity Agreement in the circumstances?

CA-NLH-060

For each year from 2023 to 2027, does Hydro have an estimate of the minimum capacity the LIL bipole could reliably provide in a plausible worst-case scenario? If so, please provide and explain.

Dated at St. John's in the Province of Newfoundland and Labrador, this 17th day of January, 2023.



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