

September 27, 2019

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

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

Dear Ms. Blundon:

**Re: Reliability and Resource Adequacy Study – Liberty Recommendations – Hydro's Comments**

On November 16, 2018, Newfoundland and Labrador Hydro ("Hydro") filed its "Reliability and Resource Adequacy Study" addressing short- and long-term integration of the Muskrat Falls project into the Provincial electrical system, as well as proposed changes to Hydro's planning criteria. The Liberty Consulting Group ("Liberty") was engaged by the Board of Commissioners of Public Utilities ("Board") to review this study. Liberty filed its report "Review of Newfoundland and Labrador Hydro's Reliability and Resource Adequacy Study" on August 20, 2019.

While the Board has not yet established a process for the full review of both Hydro's filing and Liberty's report, the Board requested that Hydro file comments in relation to certain recommendations posed by Liberty. The specific recommendations and Hydro's responses to those recommendations are set out below.

**Liberty Recommendation #1**

"Hydro should promptly examine the likelihood and the range of consequences of an extended bipole LIL outage under extreme weather circumstances, and should undertake a robust examination of generation options (including continued use of the Holyrood steam units) to mitigate that risk."<sup>1</sup>

**Hydro's Response**

Nalcor has continued to develop emergency response planning with respect to the overland portion of the Labrador- Island Link ("LIL"). Working from risk analysis, recommendations, and previous years' efforts, Nalcor has evaluated its response time to repair from an operational perspective. This includes solidifying a material storage philosophy and the required support contracts/mutual assistance agreements. Significant work has been done on advancing the design of critical emergency engineering solutions, emergency work methods, as well as evaluating possible real-time monitoring/weather prediction models available for the LIL. The team has also made progress on implementing multiple lessons learned from the 2018 mock exercises with a plan to execute multiple mock exercises of varying scale within the final quarter of 2019. The final detailed report, outlining the progress thus far, is expected to be complete in November 2019. The report will also include additional detail on items discussed above. Once complete, the report will be provided to the Board for its consideration.

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<sup>1</sup> "Review of Newfoundland and Labrador Hydro's Reliability and Resource Adequacy Study" on August 20, 2019. The Liberty Consulting Group, August 19, 2019 at p. 21.

Additionally, Hydro is in the process of undertaking a third-party engineering review focused on the original design criteria and the structural capacity of the as-built design based on site-specific details and potential extreme weather conditions. The analysis will also assist with the identification of critical areas within the system as a result of such extreme circumstances, which will help guide operational response protocols in the future. The review will include a comparison to utility established guidelines and standards within Canada, along with Hydro's operational experience with existing lines throughout the Province. Hydro anticipates that this will be completed in the fourth quarter of 2019 and will be shared with the Board at that time.

Following the receipt of both reports, Hydro will incorporate the findings into its modelling exercises to examine the resource options that would mitigate any identified associated risks. Hydro will communicate the results of its analysis to the Board once available.

#### **Liberty Recommendation #2**

"Hydro should promptly commence a stakeholder engagement process to address VOLL, informed by a sound, contemporaneous examination of extended bipole outage risk and the options, including extension of generation at Holyrood, for mitigating that risk."<sup>2</sup>

#### **Hydro's Response**

Hydro agrees with the proposed approach and is working to secure appropriate resources to develop and execute the stakeholder engagement process. Hydro will provide an update to the Board and stakeholders as part of the annual update to the "Reliability and Resource Adequacy Study," to be filed with the Board on November 15, 2019.

#### **Liberty Recommendation #5**

"Hydro should promptly analyze whether differences in its system and those of Manitoba Hydro and Hydro Quebec have any implications for benchmarking its planning reserve margin."<sup>3</sup>

#### **Hydro's Response**

Hydro accepts this recommendation and will include discussion of the same in its annual update of the "Reliability and Resource Adequacy Study," to be filed with the Board on November 15, 2019.

#### **Liberty Recommendation #7**

"Promptly conduct the analyses necessary to assess short-term and indefinite extension of Holyrood's life as a supply resource."<sup>4</sup>

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<sup>2</sup> "Review of Newfoundland and Labrador Hydro's Reliability and Resource Adequacy Study" on August 20, 2019. The Liberty Consulting Group, August 20, 2019 at p. 22.

<sup>3</sup> "Review of Newfoundland and Labrador Hydro's Reliability and Resource Adequacy Study" on August 20, 2019. The Liberty Consulting Group, August 20, 2019 at p. 22.

<sup>4</sup> "Review of Newfoundland and Labrador Hydro's Reliability and Resource Adequacy Study" on August 20, 2019. The Liberty Consulting Group, August 20, 2019 at p. 30.



### **Hydro's Response**

The current capital and operating plan for the Holyrood Thermal Generating Station ("Holyrood TGS") is based on the shut down of steam production in the spring of 2021 and the subsequent transition of Unit 3 to operate as a synchronous condenser. The current plan has been developed to ensure reliable operation of the steam generating units up to April 1, 2021. Contingency plans have been developed for capital and operational activities at the Holyrood TGS for extensions of one to two years. These contingency plans will help to ensure reliable operation of the Holyrood TGS in the event of further delays in the Muskrat Falls project integration and/or reliability issues after integration. Hydro is confident that these plans can be implemented safely and reliably if a decision is made to extend steam operation at the Holyrood TGS.

Hydro is also working on contingency plans for longer term indefinite operation of the Holyrood TGS, including possible standby operation.

### **Liberty Recommendation #8**

"Immediately conduct a detailed assessment of the impacts of a delay in LIL operation into and past the coming winter."<sup>5</sup>

### **Hydro's Response**

Hydro accepts this recommendation and will provide the results of the assessment in the update requested by the Board in correspondence dated August 28, 2019. This update will be filed with Hydro's "2019–2020 Winter Readiness Planning" report on October 10, 2019. The analysis will provide commentary on system capacity and energy capability in consideration of the following parameters:

- LIL unavailability until June 1, 2020;
- Expected capacity assistance available;
- Expected available import power over the Maritime Link; and
- Holyrood TGS thermal DAFORs<sup>6</sup> of 15%, 18%, and 20%.

### **Liberty Recommendation #9**

"Resolving the issues that have surrounded LIL monopole availability should continue to form a critical focus and Hydro should ensure that longer-term uncertainties about Holyrood's future do not lead to decisions that compromise its ability to operate reliably now."<sup>7</sup>

### **Hydro's Response**

Early monopole operation of the LIL confirmed functionality of software and Pole 1 hardware and identified issues that require resolution prior to bipole operations. Lessons learned during start-up are being used to inform development of the final bipole software and provide overall reliability and availability of the LIL.

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<sup>5</sup> "Review of Newfoundland and Labrador Hydro's Reliability and Resource Adequacy Study" on August 20, 2019. The Liberty Consulting Group, August 20, 2019 at p. 35.

<sup>6</sup> Derated Adjusted Forced Outage Rate ("DAFOR").

<sup>7</sup> "Review of Newfoundland and Labrador Hydro's Reliability and Resource Adequacy Study" on August 20, 2019. The Liberty Consulting Group, August 20, 2019 at p. 35.

To improve reliability of the LIL during bipole start-up, a static version of bipole software is being used to commission Pole 2 hardware in advance of software delivery. Deficiencies identified in the static version are being resolved prior to bipole commissioning.

The power transfer period during this past winter provided valuable time for Nalcor Power Supply - Operations to become familiar with the operating modes, controls, and sub-systems and provided an opportunity for on-the-job training.

Early operation and integration challenges of new assets are accompanied by risk. There are likely new issues to arise as bipole is commissioned in the field versus what is seen in the laboratory setting. This will require real-time solutions or restrictions to the operating modes until solutions can be implemented. Because of these risks, it was decided that the Holyrood TGS would be kept available in standby mode until the LIL is proven reliable.

Hydro continues to take measures to ensure the Holyrood TGS is fully available to supply customers until the LIL is proven to be reliable. Examples of such activities include chemical cleanings of the boiler economizer and the air heater baskets during the 2019 maintenance season. Further, the contingency plans developed for capital and operational activities at the Holyrood TGS for extensions of one to two years would allow for sufficient time to fully assess any capital and operating requirements should the plant be required to generate beyond that period, pending the outcome of the review of Hydro's "Reliability and Resource Adequacy Study."

Please refer to Hydro's response to Recommendation #7 for further discussion of Hydro's review of the future of the Holyrood TGS.

#### **Liberty Recommendation #12**

"Engage an entity with substantial experience in boiler construction and repair to conduct a detailed assessment of the Holyrood TGS's major systems."<sup>8</sup>

#### **Hydro's Response**

Hydro agrees to engage a third party to validate and further inform Hydro's understanding of requirements to continue the operation of the Holyrood TGS. This will include an assessment of the assets, including the boilers and all major systems, and lead to a finalization of a plan to determine what would be required to extend the life of the Holyrood TGS generating assets. Hydro anticipates the engagement with the appropriate entity in the fourth quarter of 2019; Hydro further anticipates filing a supplemental capital budget application with the Board in fourth quarter of 2019 and commencement of the assessment work upon Board approval.

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<sup>8</sup> "Review of Newfoundland and Labrador Hydro's Reliability and Resource Adequacy Study" on August 20, 2019. The Liberty Consulting Group, August 20, 2019 at p. 63.

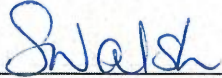
Ms. C. Blundon  
Public Utilities Board

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Should you have any questions, please contact the undersigned.

Yours truly,

**NEWFOUNDLAND AND LABRADOR HYDRO**



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Shirley A. Walsh  
Senior Legal Counsel, Regulatory  
SAW/sk

cc: Gerard M. Hayes, Newfoundland Power  
Paul L. Coxworthy, Stewart McKelvey  
Danny Dumaresque

Dennis M. Browne, Q.C., Browne Fitzgerald Morgan & Avis  
Denis J. Fleming, Cox & Palmer

ecc: Ian Kelly, Q.C., Curtis Dawe

Dean A. Porter, Poole Althouse

Roberta Frampton Benefiel, Grand Riverkeeper® Labrador Inc.

