

January 31, 2020

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: The Liberty Consulting Group Eighth Quarterly Monitoring Report on the Integration of Power Supply Facilities to the Island Interconnected System – Further Update**

On November 15, 2019, The Liberty Consulting Group (“Liberty”) filed its Eighth Quarterly Monitoring Report on the Integration of Power Supply Facilities to the Island Interconnected System (“Liberty Report”). On November 21, 2019, the Board of Commissioners of Public Utilities (“Board”) requested that Newfoundland and Labrador Hydro (“Hydro”) provide further information as a result of the findings in the Liberty Report, with established deadlines for provision of the information. Hydro provided responses on November 29, 2019 and December 13, 2019, as well as a Labrador-Island Link (“LIL”) and Muskrat Falls Unit 1 schedule update on December 20, 2019. Hydro provided a monthly update on January 14, 2020. This update further addresses two of the requests in the Board’s November 21, 2019 correspondence, as well as a brief progress update regarding Muskrat Falls Unit 1.

### **Board Request #2**

The Board requested the schedule for LIL software development and testing and directed Hydro to advise the Board on any future changes to this schedule, the reason for the change, and the implications of any delay for delivery of power and energy to the Island Interconnected System over the LIL.

In the January 14, 2020 monthly update to the Board, Hydro noted that the Integrated Project Schedule had not changed since the December 20, 2019 update. Nalcor Energy (“Nalcor”) has since informed Hydro that GE’s software development progress is slower than planned and, as a result, the “FAT<sup>1</sup> Complete; Interim Software to Site” milestone will not be met on February 2, 2020. GE will be providing an updated schedule to Nalcor which is planned to be available for the February 11-12, 2020 quarterly monitoring meetings with Liberty.

The Integrated Project Schedule as of December 20, 2019 is included as Table 1 for ease of reference.

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<sup>1</sup> Factory Acceptance Testing (“FAT”).

**Table 1: Integrated Project Schedule as of December 20, 2019**

<b>GE Milestone</b>	
<b>Interim Software – Limited Functionality</b>	
FAT Complete; Interim Software to Site	February 2, 2020
Dynamic Commissioning: Low Load Testing	March 3 to March 15, 2020
Dynamic Commissioning: Trial Operations at Low Load	March 16 to June 12, 2020
<b>Final Software – Full Functionality</b>	
Final Software to Site	June 9, 2020
Dynamic Commissioning Complete at Available Power	July 15, 2020
High Power Testing	July 16, 2020

#### **Board Request #4**

The Board referenced Liberty’s discussion of binding/vibration issues with the Soldiers Pond Synchronous Condensers. The Board required Hydro to report on these two issues, including details of the problems and the investigation into their root causes, as well as a plan and schedule to address them.

High vibration was observed on Unit 3 and a binding issue was observed on Units 1 and 2 during the commissioning phase of the synchronous condensers. As noted in Hydro’s December 13, 2019 correspondence, root cause investigations into both the vibration and binding issues were initiated by GE and external experts. Nalcor has provided Hydro with the following update regarding the vibration and binding issues and the schedule impact.

#### **Vibration**

Since the update on December 13, 2019, Ontario Power Generation concluded its Operation Deflection Shape test on synchronous condenser Unit 3 and FZA, LLC concluded its Soil Structure Interaction Analysis on the foundation for Unit 3. Final reports from both consultants are pending; however, early observations from the consultants indicate axial vibration (parallel to the rotor shaft) is associated with the half-moon housing support structure and lateral vibration (perpendicular to the rotor shaft) is associated with the foundation.

To remediate the axial vibration a half-moon stiffener platform has been installed on Unit 3. GE is running the machine to test vibration levels at various start-up and operating regimes.

A conceptual design for the resolution of the lateral vibration related to the foundation is expected from FZA, LLC in early February 2020.

#### **Binding**

Units 1 and 2 have not been successfully rotated. During manual rotation checks it was observed that the units required an excessive force to rotate, indicating a binding element. Further tests have shown excessive bearing deflection is causing contact and binding of the bearing.

The bearings and bearing housings for Units 1 and 2 have been modified to include a circumferential slot in the housing to reduce the bearing/housing apex point. Re-installation of the bearing and bearing housing in Unit 2 is underway. Testing of Unit 2 is expected in early February 2020.

Redesign of the spare bearing from a twin oil pocket to a single oil pocket is complete. Installation of the spare bearing is pending the outcome of Unit 2 testing with the modified circumferential slot bearing/housing.

### **Schedule**

In the December 13, 2020 correspondence, Hydro noted that two units were scheduled for March 2020 and the third unit for May 2020. The current schedule has extended commissioning of all three units to June 2020. The synchronous condensers are not currently on the project critical path; however, further schedule slippage remains a risk.

Additional details on both Synchronous Condenser issues will be available for the February 11-12, 2020 meetings with Liberty.

### **Muskrat Falls Unit 1 Update**

As planned, on January 28, 2020, Muskrat Falls Unit 1 reached the Ready to Turn milestone with first rotation of the unit using hydraulic energy. Mechanical testing will continue before first energy is generated by the unit, which is expected later in February 2020. Commercial operation from Unit 1 is anticipated in mid-March 2020.

Should you have any questions or comments about any of the enclosed, please contact the undersigned.

Yours truly,

### **NEWFOUNDLAND AND LABRADOR HYDRO**



Geoffrey P. Young, Q.C.  
Corporate Secretary & General Counsel  
GPY/las

cc: **Newfoundland Power**  
Mr. Gerard M. Hayes

**Consumer Advocate**  
Mr. Dennis M. Browne, Q.C, Browne Fitzgerald Morgan & Avis

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