

October 26, 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 – Monthly Update**

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 Consulting Group’s (“Liberty”) Eighth Quarterly Monitoring Report on the Integration of Power Supply Facilities to the Island Interconnected System. In its response, Hydro committed to providing Liberty and the Board with a monthly status update regarding the schedule for the Labrador-Island Link (“LIL”) software development and testing, updated information in response to the specific requests detailed in the Board’s November 21, 2019 correspondence, and other pertinent information with respect to the Muskrat Falls Project (“Project”). Nalcor Energy (“Nalcor”) has provided Hydro with the following information on various aspects of the Muskrat Falls Project.

**COVID-19 Pandemic Effects on Muskrat Falls Project Execution**

Nalcor and its contractors continue to follow all COVID-19 Health and Safety measures as per the established guidelines. Since May, significant emphasis has been placed on strictly adhering to public health guidelines at all Muskrat Falls Project worksites and locations.

**Labrador-Island Link Software Development and Testing Schedule (Board Request #2)**

*The Board requested the schedule for LIL software development and testing and for 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.*

GE Grid completed Factory Acceptance Testing (“FAT”) for Release B of the Interim Bipole Software on October 23, 2020. The test results are currently under review. When the FAT is confirmed to have passed, the software will be released to site for installation; however, resumption of commissioning activities is pending resolution of the valve hall incident.

With respect to the Final Bipole Software, GE Grid has presented Nalcor with the following milestone dates: FAT complete on April 30, 2021; Dynamic Commissioning complete on June 4, 2021; and Trial Operations Start on June 5, 2021. Nalcor is reviewing the milestones and will update the Project forecast based on an assessment of GE Grid’s schedule.

As previously reported, on August 13, 2020, during dynamic commissioning of the LIL, a flashover incident in the Soldiers Pond Pole 2 valve hall resulted in equipment failure triggering a trip of the LIL. Subsequently, on August 22, 2020, a similar incident occurred in the Muskrat Fall Pole 1 valve hall. GE Grid's root cause investigation into the incident is ongoing. The focus of the root cause investigation has been on a residue that has been observed on some of the fiberglass beams located inside the valve halls in both the Muskrat Fall and Soldiers Pond converter stations. These beams support the electronic components of the converter and are supposed to act as insulators as well as a part of the physical supporting structure. The presence of this residue correlates with a measured decrease in beam resistivity (indicating a loss of insulation capability) to an unacceptable level, and is believed to be the cause of the flashover. The damaged beams at Muskrat Fall and Soldiers Pond have been removed and replaced. GE Grid has advised that the final remediation solution for the valve hall will involve replacing approximately 90% of the total installed beams, numbering approximately 350, which were supplied by the primary vendor. Approximately 10% of the beams were supplied by a secondary vendor; none of those beams have failed resistivity tests and will not be replaced. GE Grid has placed an order with the secondary vendor to supply replacement's for all affected beams. While GE Grid has not completed their final root cause analysis report, they have communicated verbally that the issue with the beams is the result of insufficient heat curing in the factory. GE Grid's final remediation plan and schedule are pending the conclusion of the root cause investigation.

Based on the preliminary results of the root cause investigation, GE Grid presented Nalcor with an interim solution that, if effective, would allow dynamic commissioning of Pole 1 to recommence. The interim plan involved cleaning the Pole 1 beams to remove the conductive material. Post cleaning, the resistivity of all beams was checked to confirm whether the resistivity increased to the required level. GE Grid has advised that the cleaning process failed to achieve the desired results on some beams. Based on this outcome, GE Grid has presented Nalcor with an alternative plan to allow dynamic commissioning of Pole 1 to proceed. The alternative plan involves removing beams from Pole 2 that passed the resistivity test and installing them on Pole 1, which will allow dynamic commissioning of Pole 1 to recommence by late November. The beams from Pole 1 and 2 that did not pass the resistivity test will be heat cured at a facility on the Island and reinstalled on Pole 2. This will allow dynamic commissioning of bipole to recommence by mid-December. As previously mentioned, the final remediation solution will involve replacing all affected beams, even those that have been heat cured for the interim re-energization plan.

#### **Synchronous Condenser Binding/Vibration (Board Request #4)**

*The Board referenced Liberty's discussion of binding/vibration issues with the Soldiers Pond Synchronous Condensers ("SC"). 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.*

At the Soldiers Pond Synchronous Condenser Site, dynamic commissioning of SC Unit 2 recommenced on September 28, 2020. The unit was operated with no load (no MVARs) to capture offline vibration data. After the offline data was collected, the unit was filled with hydrogen and is currently undergoing offline testing with hydrogen in order to progress to the on-load testing phase; this is currently planned to start in early November. The unit will be tested at various loads up to 100% capacity to test its performance and capture online vibration data.

The SC Unit 3 elliptical bearings have been installed and the unit is reassembled. Reconnection of external auxiliary systems is complete. Static commissioning checks are ongoing. Rotation of the unit up to 900rpm for offline testing is scheduled to start the week of October 26, 2020.

Installation of SC Unit 1 bearings and housings are pending the outcome of SC Unit 3 commissioning with the elliptical bearing design. In the meantime, GE Power is reinstalling the dish heads on SC Unit 1 in preparation for the start of foundation remediation work.

The foundation design work intended to address the lateral vibration issue is progressing. GE Power plans to mobilize equipment and resources to Soldiers Pond by mid-November. Foundation remediation work on SC Unit 1 is the priority in order to determine if further foundation remediation is required for the remaining units or if the units only require bearing modifications.

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

Andritz Hydro (“Andritz”) is responsible for the turbines and generator contract. Andritz is progressing its work scope under the contract in accordance with its 2020 work plan, which was developed to respect COVID-19 conditions. Andritz has advanced commissioning of Unit 1, pre-commissioning of Unit 2, and assembly of Units 3 and 4.

#### ***Unit 1***

On September 22, 2020, Unit 1 was synchronized to the Labrador power grid for the first time, marking the achievement of the First Power milestone. Commissioning activities for Unit 1 were completed, and a 72-hour trial run has been completed. Unit 1 has been taken off-line to complete post commissioning inspections prior to releasing it for service. While these items are expected to be completed by the end of October 2020, Unit 1 may be kept off-line until early November to complete preventative maintenance on the Unit 1 intake gates.

#### ***Units 2, 3 and 4***

On October 19, 2020, Unit 2 was turned with water for the first time, marking the beginning of wet commissioning activities on that unit. Completion of Unit 2 commissioning and Ready for Operation is expected in December 2020.

The Unit 3 rotor has been installed. Completion of Unit 3 commissioning and Ready for Operation is forecast for May 2021.

The Unit 4 turbine assembly has been pressure tested, and preparations to install the unit's intermediate head cover are underway. Completion of Unit 4 commissioning and Ready for Operation is forecast for September 2021.

If you have any questions, please contact the undersigned.

### **NEWFOUNDLAND AND LABRADOR HYDRO**



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Vice President, General Counsel & Corporate Secretary  
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