

March 25, 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.

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

On March 17, 2020, Nalcor Energy (“Nalcor”) announced that it was ramping down operations at the Muskrat Falls site in Labrador in light of the escalation of the COVID-19 pandemic. Nalcor is assessing the situation on a continual basis, as information becomes available and federal and provincial government actions and directives materialize, to understand the overall impacts project wide.

In light of the pandemic, Nalcor declared force majeure, effective March 13, 2020, on the GE Grid CD0501-001 contract (LIL software) and the GE Power CD0534-001 contract (synchronous condensers); both GE Grid and GE Power have responded with their agreement. Nalcor, GE Grid, and GE Power are taking whatever measures possible to mitigate the impacts. Nalcor also declared force majeure, effective March 14, 2020, at the Muskrat Falls Hydroelectric Generating Facility site in Labrador and letters were issued under various contracts.

In addition, for the safety of staff and public health in general, as of March 17, 2020, Nalcor enacted its work-from-home policy as per its Business Continuity Plan. The Lower Churchill Project office closed and the majority of the Project Delivery Team is now working remotely from their homes. As a result of the current circumstances, Nalcor is unable to provide a reliable schedule forecast at this time. The Integrated Project Schedule will not be updated for both the LIL and Muskrat Falls sites until there is greater certainty on the path forward.

## **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.*

As of March 18, 2020, GE Grid's facility in Stafford, UK implemented its work from home policy for non-essential personnel; however, software development continues and a core team of personnel remain on site to complete testing work in the lab. GE Grid has completed all Factory System Tests and is currently fixing bugs discovered during testing. GE Grid has engaged external expertise to assist with solving some critical bugs that were discovered. On March 12, 2020, in anticipation of travel restrictions related to COVID-19, Nalcor recalled its personnel that had been in Stafford to witness testing. No Muskrat Falls Project personnel are currently on site in Stafford.

Due to COVID-19 travel restrictions, Nalcor and GE Grid are working on contingency plans to ensure software development, testing, and witnessing continues during this period of work and travel restrictions. Teleconferences are used to obtain regular progress updates. GE Grid is developing a plan to allow the Factory Acceptance Tests to proceed with Nalcor personnel participating remotely.

In February 2020 GE Grid started Open Circuit Test/Open Line Test at the Muskrat Falls and Soldiers Pond Sites. Testing concluded successfully in March 2020; any minor issues noted have either been resolved or are in the process of being resolved.

## **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.*

Vibration was observed on SC Unit 3 and a binding issue was observed on SC Units 1 and 2 during the commissioning phase. As noted in Hydro's December 13, 2019 correspondence, root cause investigations into both the vibration and binding issues were initiated by GE Power and external experts. GE Power is continuing its root cause investigation and conducting testing with respect to the synchronous condenser vibration and binding issues. Currently, work is continuing at the synchronous condenser site; however, work may be required to stop at any time due to developments related to COVID-19. Nalcor has provided Hydro with the following update regarding the vibration and binding issues:

### **Vibration**

Half-moon bearing housing support stiffeners have been installed on SC Units 2 and 3 to mitigate the axial vibration issue; installation on SC Unit 1 is planned for the end of March 2020. A reduction in axial vibration was observed in SC Unit 3 during commissioning tests. Vibration measurements will be collected during commissioning of SC Units 1 and 2 to determine if the half-moon bearing housing support stiffener resolves the axial vibration issue on those units.

GE Power has run SC Unit 3 at various start-up and operating regimes to test vibration levels and has run the Unit at maximum speed (900 RPM) for several consecutive days. Axial and lateral vibration measurements have been collected to establish a baseline. SC Unit 3 housing is now being removed to start the circumferential slot refurbishment, the same modification as SC Unit 2.

GE Power and its external expert, FZA, are continuing to assess options to resolve the lateral vibration associated with the foundation resonance. GE Power has issued a Request for Proposals to engineering firms for detailed design work.

### **Binding**

SC Unit 2 modified bearing housing has been re-installed and was manually rotated in February 2020, confirming that the binding issue is resolved. Balancing of SC Unit 2 is ongoing, after which testing at maximum speed (900 RPM) will commence.

The modified bearing housing for SC Unit 1 has arrived at Soldiers Pond. Re-installation of the modified bearing housing and spare bearing (modified single oil lift pocket bearing) will commence in the coming weeks.

### **Schedule**

The synchronous condensers are not currently on critical path and do not impact the LIL commissioning at low power. As a result of the current circumstance related to COVID-19, further schedule information is not available at this time.

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

With the ramping down of operations at the Muskrat Falls Project site, construction work has been placed on hold and the site is now in care and maintenance mode. Nalcor has maintained essential systems and operations at the site; this is expected to continue for at least one month. As a result of the ongoing COVID-19 issue, Nalcor is unable to provide a reliable forecast date for the key milestones that have not yet been achieved.

The following description reflects work completed by Andritz Hydro (“Andritz”), the contractor responsible for the turbines and generator contract, up to the March 17, 2020 interruption:

- Andritz continued with wet commissioning (which had commenced on January 28, 2020);
- Andritz completed initial mechanical runs for Unit 1 up to synchronous speed and was working on off-line exciter and generator testing;
- Fabrication of the replacement generator rotor rim keys was expedited and replacement of both Unit 1 and Unit 2 generator rotor rim keys was completed; and
- Minor issues that had arisen during Unit 1 commissioning were addressed by Andritz.

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  
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