

August 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 (“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. An update of the forecast schedule and estimate of costs to complete, including COVID-19 related impacts, is ongoing. An update of the Integrated Project Schedule (“IPS”) and any Authorization for Expenditure updates will be complete by the end of September 2020.

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.

Factory Acceptance Testing (“FAT”) for the Interim Bipole Software concluded on July 24, 2020 followed by the release of the software to site on July 30, 2020 to commence dynamic commissioning. A number of deficiencies were identified during FAT; however, the number and severity of the deficiencies were small enough that Nalcor, in agreement with the Independent Third Party, granted GE Grid permission to send the “Release A” version of interim software to site to proceed with the next stage of on-site testing. Outstanding deficiencies identified during FAT, as well as any identified during dynamic commissioning of “Release A,” that are required to be resolved before the start of trial operations will

be corrected in “Release B.” A schedule from GE Grid for “Release B” and start of trial operations is pending.

As part of the dynamic commissioning process, energization of Pole 2 of the LIL commenced on August 13, 2020; however, during energization, an equipment failure in the Soldiers Pond Pole 2 Valve Hall triggered a trip on the LIL. While GE Grid initially believed that the issue was limited to Pole 2 and commissioning could proceed on Pole 1, it was later discovered that the same issue appears to exist on Pole 1. LIL commissioning is paused until a root cause analysis is complete.

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, SC Unit 2 has been operating at low output (up to 45 MVar) since August 3, 2020 in support of LIL commissioning. Vibration data is being collected and analyzed by GE Renewable Energy (“GE Power”). Overall levels are below alarm set points at the current MVar levels. A full vibration analysis will be undertaken when commissioning loading is complete in September. The hydrogen system issue reported in July 2020 has been investigated and it has been determined that a sensor inside SC Unit 2 was not registering the correct hydrogen concentration due to its location. To finish commissioning, the unit will be taken offline at the end of August 2020 to relocate the sensor.

The elliptical bearings for SC Unit 3 have been delivered to the Soldiers Pond site. Preparation for installation is underway. It is anticipated to take approximately six weeks to complete. The bearing redesign may address the observed lateral vibration and eliminate the requirement for the foundation remediation work discussed below. Testing to determine whether this is the case will take place beginning in October 2020. If the elliptical bearings resolves the lateral vibration for SC Unit 3 then the bearings for the other units will undergo the same redesign.

With respect to the foundation remediation work intended to address the lateral vibration issue, work is ongoing in parallel with the bearing redesign work discussed above to preserve schedule to the greatest degree possible. GE consultants, Vector and SGH, completed the 25% design review phase on August 5, 2020, and presented pros and cons for the two most promising foundation remediation concepts. Based on the current design stage and selected concepts, GE has provided possible construction sequences and a range of schedule durations for the foundation remediation work, as follows:

- Three units in parallel – 21 to 25 weeks to complete;
- Three units in series – 41 to 60 weeks to complete; and
- Test one unit before proceeding with other two units – 31 to 46 weeks to complete.

The selection of a construction sequence will be based on a decision matrix that includes SC Unit 3 elliptical bearing performance, SC Unit 2 vibration analysis, LIL commissioning status, and the requirement to have synchronous condensers online for the transfer of available power from Labrador. Remediation options and schedule will be refined as the design review progresses and the key factors of the decision matrix evolve. The design review stage is scheduled to be complete in November 2020;

however, contractor mobilization can start in September 2020 upon completion of the 60% design review phase. The earliest start date for construction is October 2020.

Muskkrat 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.

Mechanical commissioning of Unit 1 has been completed with the successful 150% overspeed test on the unit. With the completion of the overspeed test, Unit 1 was dewatered for a planned inspection. The duration of the inspection is expected to be approximately two weeks and should be finished by the end of August 2020. Unit 1 commissioning is expected to resume by the end of August, with completion of Unit 1 commissioning and Ready for Operation¹ forecast for September 2020.

The issue with the Unit 1 lower bracket keys reported to the Board in July 2020 was addressed prior to completion of the 150% overspeed test. Additionally, the extent of the issue with secondary concrete of the upstream water passage for Unit 1, which was also reported in the July 2020 update, has been assessed and a repair method has been presented by Andritz. Repairs are underway.

Unit 2 pre-commissioning and dry commissioning activities, along with commissioning of the generator step-up and station service transformers, are ongoing. Water up and commencement of wet commissioning is expected in the coming weeks. Modifications to Unit 1, including rotor rim keys and lower bracket keys, have been incorporated in Unit 2 in parallel with other work. Unit 2 intake concrete will be assessed at an appropriate time during wet commissioning. Completion of Unit 2 commissioning and Ready for Operation is forecast for November 2020.

Assembly of Units 3 and 4 is ongoing. The schedules for Unit 3 and 4 are under evaluation and will be incorporated in the IPS to be updated in September 2020.

If you have any questions, please contact the undersigned.

NEWFOUNDLAND AND LABRADOR HYDRO



Geoffrey P. Young, Q.C.
Vice President, General Counsel & Corporate Secretary
GPY/sk

ecc: **Board of Commissioners of Public Utilities**
Jacqui Glynn
Maureen P. Green, Q.C.
PUB Official Email

¹ Released for service.

Newfoundland Power

Gerard M. Hayes
Regulatory Email

Consumer Advocate

Dennis M. Browne, Q.C., Browne Fitzgerald Morgan & Avis
Stephen F. Fitzgerald, Browne Fitzgerald Morgan & Avis
Sarah G. Fitzgerald, Browne Fitzgerald Morgan & Avis
Bernice Bailey, Browne Fitzgerald Morgan & Avis

Industrial Customer Group

Paul L. Coxworthy, Stewart McKelvey
Denis J. Fleming, Cox & Palmer
Dean A. Porter, Poole Althouse

Praxair Canada Inc.

Sheryl E. Nisenbaum

Teck Resources Limited

Shawn Kinsella