

March 4, 2021

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 Review – Labrador-Island Link Monthly Update – March 2021*

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. On January 19, 2021, the Board requested Hydro continue monthly reporting and outlined specific information, at a minimum, to be included.¹

1.0 COVID-19 PANDEMIC EFFECTS ON MUSKRAT FALLS PROJECT EXECUTION

The safety of project workers and their families, the communities in which Nalcor Energy operates, and the public is of utmost importance to Nalcor Energy and the company is taking all responsible measures to protect people’s health and safety. The Lower Churchill Project (“LCP”) and its contractors continue to follow all COVID-19 Health and Safety measures as per the established guidelines.

On February 12, 2021, the Chief Medical Officer of Health announced that the recent rise in COVID-19 cases in the province are due to the COVID-19 UK variant, B.1.1.7, and as a result has moved the province to Alert Level 5. On February 13, 2021, LCP issued a declaration of Force Majeure to GE Grid and GE Power for the Soldiers Pond Site for a period of up to two weeks as a precautionary measure in alignment with the Newfoundland and Labrador Public Health special measures order. After a review of the provincial COVID-19 status, and consideration of the public health guidelines and site safety protocol, LCP ended Force Majeure on February 17, 2021 for the Soldiers Pond Site.

¹ Hydro’s report has been adjusted to reflect the Board’s request, with the exception of information related to the LIL monthly energy transfers and Maritime Link availability and exports and imports in the month. Both pieces of information are currently included in Hydro’s monthly energy supply report and are not available in a time frame that corresponds with the timing of this report.

In response to the heightened risk arising from the February 2021 COVID-19 outbreak in the St. John's Metro Area, LCP asked workers at the Muskrat Falls site to remain at work for two weeks beyond their originally-scheduled rotation. This enabled work to safely continue at site while new quarantine measures for workers entering the site were being implemented. Workers entering the site are now subject to a one week quarantine period prior to entry onto the site.

LCP continues to closely monitor the COVID-19 pandemic and follow advice from medical experts and Public Health guidance, and will implement mitigation measures as necessary to reasonably mitigate the COVID-19 risk to workers and the communities they live in.

2.0 LABRADOR-ISLAND LINK

2.1 Commissioning Activities

2.1.1 Bipole Commissioning

After successful completion of Pole 1 and Pole 2 dynamic commissioning tests, bipole dynamic commissioning commenced on February 1, 2021.

On February 3, 2021, during bipole dynamic commissioning, the LIL experienced an unplanned trip on Pole 2 when a failed eyebolt caused a section of Pole 2 conductor to fall from a tower. As previously reported, the protection and controls software switched from bipole to monopole operation on Pole 1 with no loss of load. Dynamic commissioning and power transfer continued in monopole mode from February 3, 2021 to February 7, 2021 when a section of Electrode Line 2 ("EL2") failed. Dynamic commissioning and power transfer was paused from February 7, 2021 to February 21, 2021 while repairs to the Pole 2 conductor and Electrode Line 1 ("EL1") were ongoing. On February 21, 2021, the LIL was reenergized in bipole mode, with the use of EL1, to transfer power to the island. Bipole dynamic commissioning tests recommenced on February 24, 2021 and trial operations are scheduled to start by March 11, 2021.

GE Grid's schedule for beam manufacturing, for the final valve hall remediation work, has not changed. Manufacturing at their supplier facility in Germany is scheduled to start early March 2021; beams for one pole are scheduled to be complete by the end of March 2021 and beams for the second pole complete by the end of April 2021. LCP has received a preliminary plan for the final valve hall remediation work; an updated plan is expected from GE Grid in March 2021 based on beam manufacturing status.

2.1.2 Soldiers Pond Synchronous Condensers

In late February 2021, LCP notified GE Power that they could proceed with their elliptical bearing approach for all three synchronous condensers, as per their recommendation.

GE Power has commenced work on Synchronous Condenser 2 to remove the 4 lobe bearing in preparation for receipt of the elliptical bearing, which is planned to be shipped to the Soldiers Pond Site in early March 2021. The 4 lobe bearing removed from Synchronous Condenser 2 will be shipped to a machine shop for elliptical bearing redesign and then installed in Synchronous Condenser 1. Balancing of Synchronous Condenser 3, with the elliptical bearing, is ongoing.

Currently, all three synchronous condensers are scheduled to be complete by August 2021. The schedule will be updated to reflect the elliptical bearing approach.

2.2 Operations

2.2.1 Labrador-Island Link Damage

In Hydro's correspondence of February 15, 2021,² it was noted that additional damage had occurred on the electrode line and transmission line since the February 4, 2021 monthly report. Further damage to the electrode line has occurred since the February 15, 2021 update. In total, 36 electrode line conductor spans required conductor splicing, repair, or restringing, as well as 11 crossarms required repair or replacement. Repairs to EL1 were complete on February 19, 2021 and to EL2 on February 25, 2021. The Pole 2 damage, also detailed in the February 15, 2021 update was repaired on February 18, 2021. Root Cause Investigations into the electrode line and transmission line failures are underway.

2.3 Outages

LIL dynamic commissioning is still ongoing; there are no operational outages to report for the month of February 2021.

3.0 MUSKRAT FALLS GENERATION

3.1 Commissioning Activities

3.1.1 Unit 1

Unit 1 was released for service and transferred to operations on December 22, 2020.

3.1.2 Unit 2

While work at the Muskrat Falls Site plans to continue through the current COVID-19 Alert Level 5, the focus of attention is on activities that advance progress on Units 2 and 3 until the COVID-19 risk diminishes in Newfoundland and Labrador.

As noted in the February 4, 2021 monthly update, Andritz identified a design issue with the bolts between the inner and intermediate head covers for the generating units. The bolts are subjected to excessive radial loading during overspeed conditions. Andritz has developed and implemented modifications to this bolt arrangement which includes the installation of redesigned bolts as well as the installation of a series of dowels (fitted studs) between the two covers. While undertaking these modifications to Unit 2, Andritz identified weld defects on the head cover stiffener plates.

The criticality of these welds was reassessed by Andritz in light of the results of the re-analyzed head cover loading under overspeed conditions, and these welds are now deemed critical and now require rework. Re-welding of the affected stiffener plate welds is now under way. Andritz is also undertaking further analysis to confirm if any other welds require inspection and rework. Off-line commissioning of Unit 2 will resume after Andritz corrects this issue.

The head cover joint modification and weld inspection/rectification will be undertaken on Units 1, 3, and 4.

² "Reliability and Resource Adequacy Study Review – Labrador-Island Link Monthly Update – February 2021 Further Update," Newfoundland and Labrador Hydro, February 15, 2021.

LCP also noted in the February 2021 monthly update that delays related to the COVID-19 pandemic and design modifications required for the head cover bolts have created schedule risk for Unit 2 and a subsequent schedule risk to Unit 3. The schedule for both units has shifted by one month.

3.1.3 Unit 3

Unit 3 assembly is nearing completion with installation/assembly approximately 96% complete.

3.1.4 Unit 4

Unit 4 rotor has been installed with installation/assembly approximately 79% complete.

3.2 Operations

Andritz has recommended monthly inspections of the head cover bolts on Unit 1 until the necessary modifications to Unit 2 as described in Section 3.1.2 above are completed. The February 2021 inspection has been completed with no issues found.

The timing of inspections and the required modifications will be scheduled with operations.

4.0 MUSKRAT FALLS PROJECT OVERALL SCHEDULE

The current schedule for the bipole software is outlined in Table 1. The Interim Bipole Software Schedule has been updated to reflect the completion of electrode and transmission line repairs, and subsequent restart of dynamic commissioning tests. The Final Bipole Software Schedule has been updated to reflect GE Grid’s slower than planned progress. LCP continues to monitor GE Grid’s performance as schedule slippage for the Final Bipole Software remains high.

Trial Operations is complete after 30 consecutive days of power transfer without a trip attributed to the HVdc system. LCP has currently forecasted the completion of Trial Operations on October 22, 2021.

Table 1: LIL Bipole Software Commissioning Schedule

Interim Bipole Software		
GE Grid Milestones	GE Grid Schedule	LCP Schedule
Interim Software to Site	October 29, 2020	October 29, 2020
Dynamic Commissioning: Complete	March 10, 2021	March 10, 2021
Trial Operations at Low Load: Start	March 11, 2021	March 11, 2021
Final Bipole Software		
Final Software to Site	June 22, 2021	June 22, 2021
Dynamic Commissioning: Complete	July 27, 2021	August 22, 2021
Trial Operations: Start (at available power)	July 27, 2021	August 23, 2021
Trial Operations: Complete (at available power)	October 4, 2021	October 22, 2021

The forecast completion schedule for the Muskrat Falls Generating units outlined in Table 2 has been provided to LCP by Andritz.

Table 2: Muskrat Falls Generation Commissioning Schedule

Generating Unit	Completion of Commissioning and Ready for Operation	Status
Unit 1	December 22, 2020	Released for service
Unit 2	April 30, 2021	
Unit 3	June 30, 2021	
Unit 4	September 30, 2021	

Based on the schedules presented above, the overall Muskrat Falls Project completion date is currently October 22, 2021.

5.0 STUDIES RELATED TO RELIABILITY AND RESOURCE ADEQUACY PROCEEDING

As per Hydro's correspondence of October 2, 2020, the "Assessment of the Labrador-Island Link Reliability Considering Climatological Loads" is expected to be filed with the Board by March 12, 2021, following which Hydro anticipates filing an update to its "Reliability Resource Adequacy Study" on March 26, 2021. As communicated during the second technical conference related to the *Reliability and Resource Adequacy Study Review* proceeding on November 30, 2020, Hydro is proceeding with "An Assessment to Determine the Potential Longer Term Viability of the Holyrood Thermal Generating Station." Hydro anticipates the findings of this work to be available for final consideration by the Board and parties by the end of 2021/early 2022.

If you have any questions or comments, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO



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Vice President, General Counsel, Corporate Secretary & Commercial
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