

April 8, 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.

Completions and commissioning work is ongoing at both the Soldiers Pond Site and Muskrat Falls Site in accordance with Project health and safety guidelines and COVID-19 protocols. 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.

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.

2.0 LABRADOR-ISLAND LINK

2.1 Commissioning Activities

2.1.1 Bipole Commissioning

Interim Bipole Trial Operations started on March 19, 2021. Within the first 24 hours of re-energization, following a 14 day shutdown, LIL experienced a pole trip which resulted in an automatic switch to monopole operation. Bipole operation recommenced approximately one hour later. The pole trip is under review. On April 1, 2021, during a power ramp down to perform a system test, the LIL tripped. LIL was back online later the same day. The cause of the trip is under investigation. Once the investigations into the two incidents are complete the status of the 30 day Trial Operations period will be determined. Trial Operations has continued without incident since April 1, 2021.

GE Grid's schedule for beam manufacturing, for the final valve hall remediation work, has changed. Manufacturing at GE Grid's supplier facility in Germany was scheduled to start early March 2021; it is now scheduled to start in early April 2021. Full details on the delay and new schedule are pending, but early indication from GE Grid is that they will have all beams manufactured by the end July 2021. GE Grid will provide LCP with a revised installation schedule based on manufacturing status. GE Grid and LCP are investigating schedule mitigation strategies.

2.1.2 Soldiers Pond Synchronous Condensers

GE Power are progressing with completions and commissioning of the synchronous condensers with elliptical bearings. The elliptical bearings have been installed in SC3 and commissioning activities are ongoing. The elliptical bearings for SC2 are on site and preparation for installation is underway. The SC1 4 lobe bearings are currently undergoing remanufacturing to elliptical bearings and are expected back on site in May 2021.

GE Power has presented a schedule based on the elliptical bearing approach for all three synchronous condensers. The current schedule has SC3 complete in May 2021, SC2 complete in July 2021, and SC1 complete in September 2021. As a result, synchronous condenser availability is not in the project critical path at this time.

2.2 Operations

2.2.1 Labrador-Island Link Damage

As previously reported, repairs to Electrode Line 1 were complete on February 19, 2021, and to Electrode Line 2 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 ongoing.

2.2.2 Outages

The trips during Interim Bipole commissioning are noted above. There were no system outages as a result.

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

As previously reported, Andritz has redesigned the bolt arrangement between the turbine inner and intermediate head covers in response to excessive radial loading measured under overspeed conditions. While undertaking the modifications to Unit 2, Andritz identified weld defects on the inner head cover stiffener plates. Andritz completed fracture analyses on the head covers and embedded components to determine weld criticality and has identified a subset of welds that must be inspected and rectified if deficiencies are found.

Andritz engineering has identified a further subset of priority welds that must be completed prior to commencement of overspeed testing. These, along with the head cover modification, have been completed and Unit 2 is being prepared for resumption of overspeed testing. The remaining welds are scheduled for completion during inspection intervals within the commissioning period, and all welding rework on Unit 2 will be completed prior to release for service.

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

3.1.3 Unit 3

Installation of Unit 3 is nearing completion and pre-commissioning activities are underway.

Welding inspections are underway on Unit 3 and any necessary rework will be scheduled along with commissioning checks and activities. The Unit 3 inner and intermediate head cover modification will be made after the results of overspeed testing on Unit 2 are known.

3.1.4 Unit 4

Installation and assembly of Unit 4 is ongoing. The Unit 4 inner and intermediate head cover modification will be made after the results of overspeed testing on Unit 2 are known.

3.2 Operations

As noted in the section above, Andritz has identified a design issue with the bolts between the inner and intermediate head covers for the generating units.

Unit 1 was taken out of service for 10 days in March to address critical welds on the discharge ring. Following completion of the welding rework, Unit 1 was returned to service on March 25. Monthly head cover and weld inspections continue to be performed. Should additional welding rework be required on Unit 1, Andritz engineering has determined this work can be deferred until a later planned outage with the implementation of an inspection program, which has been completed. Planned outage(s) will be

required to address the Unit 1 inner/intermediate head cover bolts and stator bar replacement. Timing of inspections and 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. GE Grid notified LCP that the FAT complete date for the Final Bipole Software has slipped by approximately five weeks - from June 22, 2021 to July 29, 2021. LCP has updated its schedule to reflect GE Grid’s FAT completion date of July 29, 2021. LCP continues to monitor GE Grid’s performance as schedule slippage for the Final Bipole Software remains a risk.

Trial Operations is complete after 30 consecutive days of power transfer without a trip attributed to the HVdc system. LCP has an allowance of 60 days to complete Final Bipole Trial Operations. GE Grid has included 90 days in their schedule to complete Final Bipole Trial Operations, as per their contractual requirements.

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 19, 2021	March 19, 2021
Final Bipole Software		
Final Software to Site	July 29, 2021	July 29, 2021
Dynamic Commissioning: Complete	September 7, 2021	September 14, 2021
Trial Operations: Start (at available power)	September 7, 2021	September 15, 2021
Trial Operations: Complete (at available power)	December 9, 2021	November 14, 2021

Delays related to the COVID-19 pandemic and design modifications required for the 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.

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	May 31, 2021	
Unit 3	July 31, 2021	
Unit 4	September 30, 2021	

Based on the schedules presented above, the overall Muskrat Falls Project completion date is currently November 14, 2021.

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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