

April 13, 2023

Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL, A1A 5B2

Attention: Cheryl Blundon
Director of Corporate Services & Board Secretary

Re: *Reliability and Resource Adequacy Study Review – Labrador-Island Link Monthly Update – March 2023*

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.¹ 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.² On January 19, 2021, the Board requested Hydro continue monthly reporting and outlined specific information, at a minimum, to be included.^{3,4} Enclosed please find the update as requested.

1.0 LABRADOR-ISLAND LINK

1.1 Commissioning Activities

1.1.1 Bipole Commissioning

Hydro commenced the execution of LIL high-power testing on March 30, 2023. All sequences worked as expected during high-power testing, and testing was successfully completed on April 8, 2023, satisfying the technical requirements to achieve the final commissioning of project assets.

¹ “Investigation and Hearing into Supply Issues and Power Outages on the Island Interconnected System - Phase Two - The Liberty Consulting Group Eighth Quarterly Monitoring Report on the Integration of Power Supply Facilities to the Island Interconnected System - Further Information and Continued Quarterly Monitoring Reports in 2020,” Board of Commissioners of Public Utilities, November 21, 2019.

² “Investigation and Hearing into Supply Issues and Power Outages on the Island Interconnected System - Phase Two - The Liberty Consulting Group Eighth Quarterly Monitoring Report on the Integration of Power Supply Facilities to the Island Interconnected System - Further Information - Hydro’s Comments,” Newfoundland and Labrador Hydro, November 29, 2019, p. 1.

³ “Newfoundland and Labrador Hydro - Reliability and Resource Adequacy Study Review - Information Required for Monthly Reports,” Board of Commissioners of Public Utilities, January 19, 2021.

⁴ 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 preparation for testing, Hydro worked closely with GE Canada (“GE”) to mitigate three outstanding technical items related to hardware and software. The three technical items are discussed below and include:

- 1) Firing angle measurement (software);
- 2) Submarine Cable connection (software); and
- 3) Direct Current Current Transformer (“DCCT”) measurement (hardware).

Firing Angle Measurement/Submarine Cable Connection (Software)

GE developed a new version of software (Version 1.1.37e) to correct both software issues. This software successfully completed Factory Acceptance Testing on March 21, 2023 and was released to site on March 24, 2023. It was then used to complete dynamic commissioning, including high-power testing, which was successfully completed on April 8, 2023.

Direct Current Current Transformer Measurement (Hardware)

Hydro is supporting GE in troubleshooting and root cause analysis efforts on the DCCT hardware. In the interim, protocols and procedures have been implemented to address the DCCT issue until a long-term solution is developed, including:

- Hydro has established operating restrictions during cold temperatures to limit LIL power flows to ensure there is no risk of overload.
- Hydro has established operating procedures to be utilized during maintenance activities to reduce the likelihood of a trip and reduce system impact.
- GE and Hydro’s engineering team have identified and implemented remedial actions to ensure protection systems operate as intended.

Hydro worked closely with GE and all key stakeholders to ensure interim protocols and procedures were in place to address the DCCT issues to reduce the potential impact to customers. With these mitigations in place, the LIL testing program, including high-power testing was successfully completed.

Hydro is currently reviewing commissioning results and, with all tests passed successfully, it is anticipated that the LIL will be released for high-power operation. Testing was completed up to 700 MW and Hydro’s plan is to operate the LIL with a 700 MW limit for the coming months. Hydro does not anticipate any requirement for operation in excess of this value during this period due to warmer conditions and lighter system loads.

Under direction of the Newfoundland and Labrador System Operator (“NLSO”), a controlled 900 MW test will be executed prior to operation of the LIL above 700 MW. This test will be performed in cold weather conditions during the winter of 2023–2024. All software and switching functionality required for operation up to 900 MW was proven during high-power tests. However, controlled testing at the highest power levels is recommended prior to operation in this range.

With successful completion of high-power testing, Hydro is working toward completion of requirements for commissioning as outlined by the applicable financing and revenue agreements. Hydro is preparing to

submit a Commissioning Certificate for review by the Independent Engineer and approval by the relevant parties. Hydro is also preparing an application for Board approval of the effective date of the rate approved for transmission service once the LIL has come online.⁵

1.1.2 Soldiers Pond Synchronous Condensers

Throughout March, Hydro continued to work through restarts on Synchronous Condenser (“SC”) 1 and SC3 as previously reported; both units were in service for high-power testing and remain in service. SC2 has been in continual service throughout the reporting period with no issues.

SC1 commenced startup on March 2, 2023 and after successful testing, the unit was put into service on March 18, 2023. SC3 commenced startup on February 27, 2023 but experienced an issue with a breaker that did not close due to ice interference. Testing was performed on SC3 and it was returned to operations on April 3, 2023. An investigation is ongoing to determine if further mitigating actions are required.

Through testing and early operation, the synchronous condensers have demonstrated acceptable performance to enable commissioning. Efforts are underway to resolve specified punch list items. Hydro has implemented monitoring programs and has developed engineering solutions and procedures to permit operation in the interim. With these mitigations in place, the NLSO is satisfied that the assets will support reliable system operation while punch list items are addressed.

Monthly meetings between the CEOs of Hydro and GE Power are ongoing to ensure all outstanding issues are resolved to satisfaction.

1.2 Operations

The LIL has been operating at various times and power transfer levels during the month. In total, 151 GWh was delivered over the LIL during the month of March 2023. Hydro continues to operate generation at Holyrood to ensure supply adequacy and reliable operation for customers. Energy and capacity delivered over the LIL are used to minimize thermal generation whenever possible.

On March 8, 2023, a Bipole trip occurred due to the DCCT measurement issue noted above. In this case there was an issue with a component of a DCCT which was subsequently replaced. An additional trip occurred on March 14, 2023, also related to the DCCT measurement issue noted above. In this case, DCCT signal noise caused protection to misoperate tripping Pole 1. Mitigations outlined above were established to reduce the risk of a trip and system impact for this type of scenario.

In both cases, there was no impact to Island customers following the trips due to successful runbacks of the Maritime Link.

1.3 Outages

There were no LIL-related customer outages to report for March 2023.

⁵ *Public Utilities Act*, RSNL 1990, c P-47, Board Order No. P.U. 3(2018), Board of Commissioners of Public Utilities, February 9, 2018.

2.0 MUSKRAT FALLS GENERATION

2.1 Operations

During the month of March 2023, the Muskrat Falls units were available for service at all times other than the noted exception:

- Unit 1 went offline on March 21, 2023 as a result of a forced outage due to a crack in the discharge ring flange. Andritz has implemented a temporary fix that will allow Unit 1 to return to service for 250 hours until a permanent repair can be performed, anticipated to be completed on April 26, 2023.

3.0 LABRADOR-ISLAND LINK SCHEDULE

As noted in Section 1.1.1, testing required to demonstrate the LIL has satisfied the requirements to enable commissioning have been successfully completed. It is anticipated that confirmation of commissioning as outlined in the financing and revenue agreements will occur in the coming days.

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

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO



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