

March 17, 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: Newfoundland and Labrador Hydro – Labrador East Reliability Plan Update**

Newfoundland and Labrador Hydro (“Hydro”) is currently executing the Muskrat Falls to Happy Valley Interconnection Project (“Project”), as approved by the Board of Commissioners of Public Utilities (“Board”) in Order No. P.U. 9(2019), to address reliability issues and forecast capacity shortfalls in Labrador East.<sup>1</sup> On November 12, 2019, Hydro filed correspondence with the Board indicating that based on an analysis of voltage conditions in Labrador East, the transmission interconnection portion of the Project cannot be established until the first generation unit at Muskrat Falls is released for service and voltage deviations are maintained within acceptable limits as set in Hydro’s Transmission Planning Criteria. On December 4, 2019, the Board directed Hydro to resume filing the monthly Labrador East Reliability Plan Updates that were suspended in January 2019 and requested that Hydro provide additional information in the December 2019 report and subsequent reports, where required. Hydro’s March 2020 Labrador East Reliability Plan Update follows.

**i. Ensure Reliability of the North Plant for Peak Loading Conditions**

**Board Direction:** “The January 15, 2019 status update of this initiative stated ‘A third-party service provider for the North Plant Diesels carried out an on-site assessment on April 26, 2018. The assessment indicated that the units were not in a condition to guarantee reliable service for the 2018/2019 winter season.’ Have any assessments of the North Plant been undertaken since April 26, 2018? If so, please provide details.”

**Status:** Complete. Hydro completed the installation of the immersion heater due to safety concerns with the operation of a 600 V space heater. Both units are reliable for the current winter season. The North Plant diesel generation was utilized to reduce the number of customers affected by the planned outage on February 29, 2020 to replace a cracked crossarm on L1301.

**ii. Ensure Reliability of the Gas Turbine for Peak Loading Conditions**

**Board Direction:** “Please confirm that all winter readiness activities have been completed on the gas turbine and that the unit has been tested this year to ensure that it can transition between synchronous condenser mode to generation mode if required over this winter season.”

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<sup>1</sup> The Labrador East Interconnected System includes the communities of Happy Valley-Goose Bay, North West River, Sheshatshiu and Mud Lake.

**Status:** Complete. The gas turbine has been fully tested and verified as available and operational and the synchronous condenser function is operating and online. Happy Valley gas turbine generation was utilized to reduce the number of customers affected by the planned outage on February 29, 2020 to replace a cracked crossarm on L1301.

### iii. Inspection of L1301/L1302

**Board Direction:** “Hydro should continue to report on any issues identified during the six-week inspection program that was reinstated on October 22, 2019.”

**Status:** Ongoing

**Update:** Hydro completed the inspection of L1301/L1302 on February 25, 2020. A cracked crossarm was discovered on L1301 Structure 404. The crossarm was repaired on February 29, 2020. A four hour outage impacting half of Hydro’s customers in Labrador East was required to complete the repairs, while the remaining customers were supplied using the Happy Valley Gas Turbine and North Plant. The inspection frequency for L1301/L1302 has been increased to every three weeks until April 28, 2020, during the time when freeze/thaw cycles have a greater potential effect on the crossarms. An inspection was also completed on March 16, 2020. No deficiencies were identified during that inspection. The next inspection is planned for the week of April 6, 2020.

### iv. Curtailable/Interruptible Service Options

**Board Direction:** “Hydro should identify any curtailable or interruptible customers that are on the Labrador East system and the number and duration of any curtailments/interruptions in the reporting month.”

**Status:** Ongoing

**Update:** The interruptible service option for Labrador Lynx Limited was approved in Board Order No. P.U. 42(2019). To date, Hydro has not made any requests for interruption.

### v. Operations Protocol

**Board Direction:** “The January 15, 2019 Labrador East Reliability Plan stated that the transfer capacity of L1301/L1302 had been reduced by 1 MW to 76 MW due to an issue with the tap changer on the T31 transformer at Churchill Falls. Was the tap changer repair undertaken since that time? Please confirm the expected transfer capacity of L1301/L1302 for this winter season.”

**Status:** No change. As noted in Hydro’s December 2019 Update,<sup>2</sup> Hydro did not proceed with repair of the tap changer. Hydro determined that the immaterial increase in transfer capacity did not warrant an extended outage. Therefore, transfer capacity on the transmission system remains at 76 MW.

### vi. Labrador East Customer Communication Initiative

**Board Direction:** “Please provide a copy of Hydro’s Advance Notification Protocol communications plan for Labrador East.”

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<sup>2</sup> “Newfoundland and Labrador Hydro – Labrador East Reliability Plan Update,” Newfoundland and Labrador Hydro, December 17, 2019.

**Status:** Complete. Please refer to Hydro’s “Labrador East Reliability Plan Update,” filed with the Board on December 17, 2019, att. 1.

## vii. Load Forecast

**Board Direction:** “Please provide the most recent load forecast for Labrador East.”

**Status:** Unchanged. Please refer to Table 1 for the most recent load forecast<sup>3</sup> for Labrador East, as provided to the Board on December 17, 2019.<sup>4</sup>

**Table 1: Labrador East Interconnected Load Forecast(MW)**

	2019–2020 <sup>5</sup>	2020–2021	2021–2022	2022–2023	2023–2024	2024–2025
P50 Peak	78.4	79.1	79.4	79.7	80.0	80.4
P90 Peak	79.8	80.5	80.8	81.1	81.4	81.8

## Energization Timing of L1303

As noted in the December 17, 2019 correspondence to the Board, due to outage coordination with the Muskrat Falls Project for site activities, Hydro was unable to complete functional testing activities for the Protection and Control and Supervisory Control and Data Acquisition equipment. Testing was successfully completed on February 12, 2020, confirming that, in the event of a catastrophic failure on L1301, Hydro is in a position to provide power on a contingency basis to Labrador East over the new system through the energization of L1303. While this tie-in could pose a customer equipment risk due to the previously identified voltage issues, Hydro would make a decision based on customer outage exposure using the limited ability to supply the required load from the Happy Valley Gas Turbine and the North Plant, anticipated L1301 restoration time, weather forecasts, and energization time for the interconnection.

Hydro has reassessed the interconnection timing of L1303 and subsequent retirement of L1301. If L1301 were to be decommissioned upon interconnection, any long-duration reliability issues (issues that cannot be resolved within several hours) would have a direct effect on Labrador East. Hydro has therefore decided to maintain L1301 as a backup supply for the winter of 2020–2021. Hydro plans to complete the interconnection in August 2020, or sooner should two<sup>6</sup> Muskrat Falls units become available before August. L1301 will remain available until the summer of 2021, assuming acceptable reliability of the new interconnection.

## Other Capital Projects Affected by the Labrador East Interconnection Timing

As a result of Hydro’s decision to maintain L1301 as a backup for the interconnection for the winter of 2020–2021, Churchill Falls transformer T31 will not be available in 2020 to replace Holyrood T7 as originally planned by Hydro and approved by the Board. This project will be carried over to 2021. Hydro has performed an analysis of the resulting risk and it has been confirmed that there will be low risk to customers as a result of the deferral and that all potential power transformer overloads would be within the limits specified in Hydro’s operating guidelines. Hydro has advised Newfoundland Power Inc. of this decision.

<sup>3</sup> Effective December 2019. forecasted load at Happy Valley Terminal Station.

<sup>4</sup> “Newfoundland and Labrador Hydro – Labrador East Reliability Plan Update,” Newfoundland and Labrador Hydro, December 17, 2019.

<sup>5</sup> Includes a load of 4.2 MW based on an updated forecast to reflect latest load indications from Labrador Lynx Limited.

<sup>6</sup> Two units at Muskrat Falls provides for increased operational flexibility.

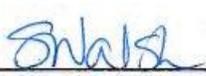
In addition, the 50 MVA transformer in Muskrat Falls Terminal Station 3 on the North Spur will not be available in 2020 to relocate and install in the Happy Valley Terminal Station under the Labrador East Interconnection project.<sup>7</sup> The installation of this transformer, which is necessary to provide transmission planning N-1 contingency within the Happy Valley Terminal Station, will also be carried over to 2021. During this time, potential transformer overloads will be avoided by operation of the Happy Valley Gas Turbine in generation mode. The remaining project work will be completed as planned in 2020.

Hydro is not aware of any other items that could impact the reliability of the Labrador East Interconnected System during the 2019–2020 winter season.

Should you have any questions or comments about any of the enclosed, please contact the undersigned.

Yours truly,

**NEWFOUNDLAND AND LABRADOR HYDRO**



Shirley A. Walsh  
Senior Legal Counsel, Regulatory  
SAW/las

cc: **Newfoundland Power**  
Mr. Gerard M. Hayes

**Consumer Advocate**  
Mr. Dennis M. Browne, Q.C, Browne Fitzgerald Morgan & Avis

**Industrial Customer Group**  
Mr. Paul L. Coxworthy, Stewart McKelvey  
Mr. Denis J. Fleming, Cox & Palmer  
Mr. Dean A. Porter, Poole Althouse

ecc: **Board of Commissioners of Public Utilities**  
Ms. Jacqui Glynn  
PUB Official Email

**Newfoundland Power**  
Ms. Kelly C. Hopkins  
Regulatory Email

**Consumer Advocate**  
Mr. Stephen F. Fitzgerald, Browne Fitzgerald Morgan & Avis  
Ms. Sarah G. Fitzgerald, Browne Fitzgerald Morgan & Avis  
Ms. Bernice Bailey, Browne Fitzgerald Morgan & Avis

**Iron Ore Company of Canada**  
Mr. Gregory A.C. Moores, Stewart McKelvey

**Labrador Interconnected Group**  
Mr. Senwung Luk, Olthuis Kleer Townshend LLP  
Ms. Julia Brown, Olthuis Kleer Townshend LLP

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<sup>7</sup> This transformer is also part of the existing system currently serving Labrador East.