newfoundland labrador hydro
a nalcor energy company

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December 10, 2019

The 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 Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: Monthly Energy Supply Report for the Island Interconnected System for November 2019

Enclosed please find one original and eight copies of Newfoundland and Labrador Hydro's Monthly Energy Supply Report for the Island Interconnected System as directed by the Board of Commissioners of Public Utilities in correspondence dated February 8, 2016 and with schedule modifications on July 26, 2016 and July 29, 2016.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

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

Encl.

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

Praxair Canada Inc.
Ms. Sheryl E. Nisenbaum

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

Newfoundland Power
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

Industrial Customer Group
Mr. Dean A. Porter, Poole Althouse

Teck Resources Limited
Mr. Shawn Kinsella

Monthly Energy Supply Report for the Island Interconnected System for November 2019

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A report to the Board of Commissioners of Public Utilities

Contents

1.0 Introduction

On February 8, 2016, the Board of Commissioners of Public Utilities ("Board") requested Newfoundland and Labrador Hydro ("Hydro") file a biweekly report containing, but not limited to, the following:

1) System Hydrology Report, as contained in Hydro's Quarterly report;
2) The thermal plant operated in support of hydrology;
3) Production by plant/unit; and
4) Details of any current or anticipated long-term derating.

In July 2016, the Board indicated that a monthly report would thereafter be sufficient. This report covers data for November 2019.

2.0 System Hydrology

Table 1 summarizes the aggregate storage position of Hydro's reservoirs at the end of the reporting period.

Table 1: System Hydrology Storage Levels

Date	2019 (GWh)	2018 (GWh)	20-Year Average (GWh)	Revised 2019 Minimum Storage Target (GWh)[1]	Maximum Operating Level (GWh)	Maximum Operating Level (%)
30-Nov-2019	1,600	1,702	1,995	1,319	2,452	65%

Reservoir inflows in November 2019 were approximately 57% above average for the month. To date, 2019 inflows have been 2% above average.

The aggregate reservoir storage level on November 30, 2019 was 1,600 GWh, 35% below the seasonal maximum operating level and 21% above the revised minimum storage level.[2] The current storage level

[1] 2019 minimum storage targets revised from August 31, 2019 to December 31, 2019 due to a change in the Labrador Island Link ("LIL") assumptions.

[2] Minimum storage targets are developed annually to provide guidance in the reliable operation of Hydro's major reservoirs—Victoria, Meelpaeg, Long Pond, Cat Arm, and Hinds Lake. The minimum storage target is designed to show the minimum level of aggregate storage required such that if there was a repeat of Hydro's critical dry sequence, or other less severe sequence, Hydro's load can still be met through the use of the available hydraulic storage, maximum generation at Holyrood Thermal Generating Station ("Holyrood TGS"), and now-firm imports. Hydro's long-term critical dry sequence is defined as January 1959 to March 1962 (39 months). Other dry periods are also examined during the derivation to ensure that no other shorter term historic dry sequence could result in insufficient storage.

is shown in relation to the 20-year average storage level for the end of November of 1,995 GWh. At the end of November 2018, aggregate storage level was 1,702 GWh.

A series of rainfall events occurred over all reservoir basins in early to mid-November 2019. This precipitation has increased the total system energy in storage to a level above the minimum storage limit. This has allowed for a reduction in the production from the Holyrood Thermal Generating Station ("Holyrood TGS") units to minimum levels, supplemented by a purchase agreement for imports over the Maritime Link through November 2019. In addition, Hydro entered into a firm capacity and energy purchase agreement with Corner Brook Pulp and Paper Limited ("CBPP") for an approximate two-week period in November 2019[3], with total deliveries of 14.9 GWh.

Hydro actively manages its resources to ensure its ability to reliably supply customers with least-cost energy. Imports will continue to be used to economically supplement or offset generation from the Holyrood TGS, to the extent that they are technically feasible. Standby units have not been used for water management purposes and Hydro does not currently foresee using production from standby generation to support reservoir levels.

Figure 1 plots the 2018 and 2019 storage levels, maximum operating level storage, and the 20-year average aggregate storage for comparison.[4]

[3] November energy purchases from Corner Brook Pulp and Paper Limited delivered under the Firm Energy Power Purchase Agreement, approved by Board Order No. P.U. 35(2019).
[4] 2019 minimum storage targets revised from August 31, 2019 to December 31, 2019 due to a change in the LIL assumptions.

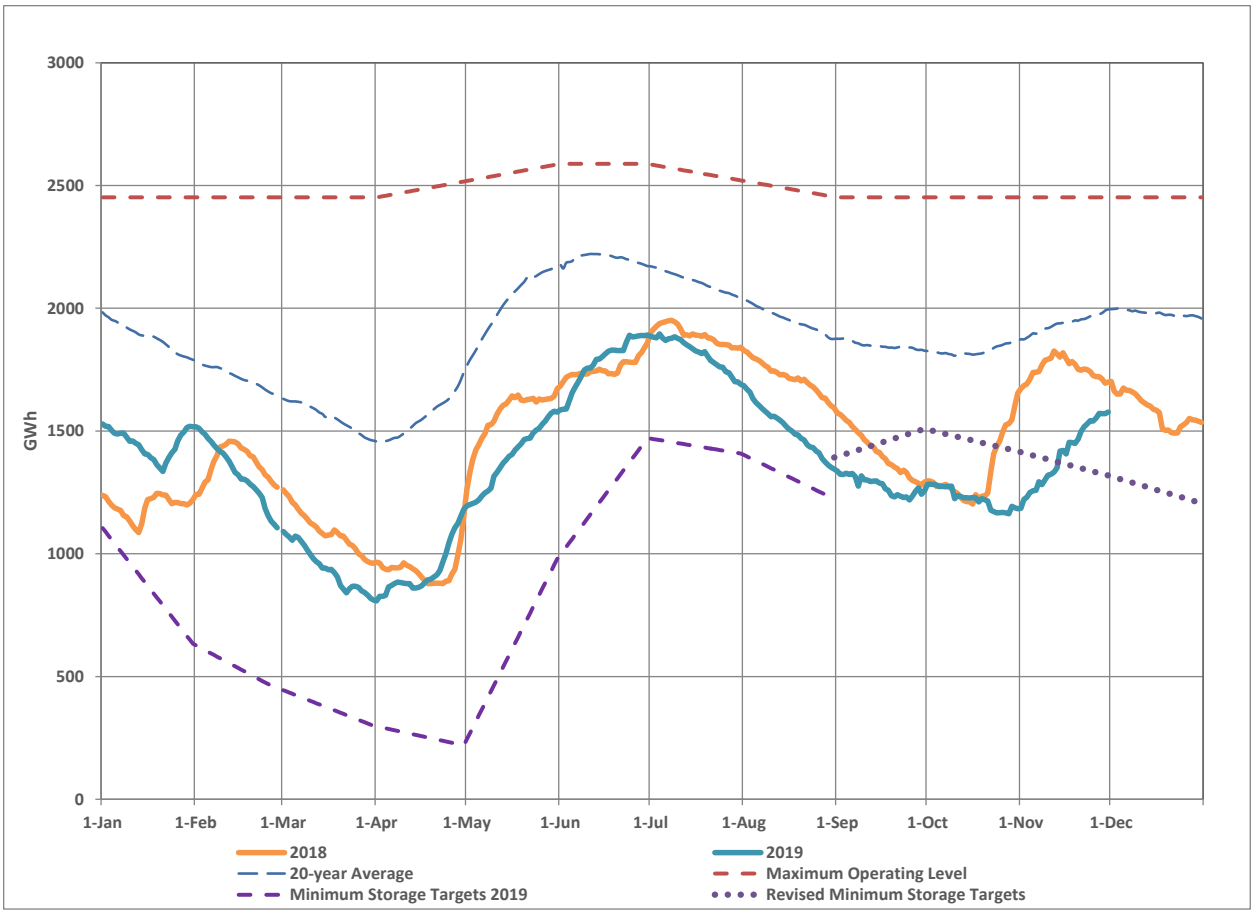

Figure 1: Total System Energy Storage for November 30, 2019

3.0 Production by Plant

Production during November 2019 by plant and unit, both hydraulic and thermal, is provided in Table 2.

Quantities imported are also provided in Table 2.

Table 2: Generation Production from November 1 to 30, 2019[5]

	Generation (GWh)	Year to Date (GWh)
Hydro Generation (Hydro)		
Bay d'Espoir Plant		
Unit 1	19.4	378.1
Unit 2	30.3	378.1
Unit 3	29.7	257.7
Unit 4	11.3	216.2
Unit 5	13.0	209.4
Unit 6	28.7	228.8
Unit 7	67.6	538.8
Subtotal Bay d'Espoir Plant	**199.9**	**2,207.0**
Upper Salmon Plant	33.8	490.5
Granite Canal Plant	24.0	233.5
Hinds Lake Plant	8.3	285.7
Cat Arm Plant		
Unit 1	26.4	383.5
Unit 2	28.7	411.2
Subtotal Cat Arm Plant	**55.1**	**794.7**
Paradise River	3.4	26.9
Star Lake Plant	12.5	112.9
Rattle Brook Plant	1.9	12.8
Nalcor Exploits Plants	37.8	515.5
Mini Hydro	0.1	2.1
Total Hydro Generation	**377.0**	**4,681.6**
Thermal Generation (Hydro)		
Holyrood TGS		
Unit 1	62.8	396.5
Unit 2	41.3	428.6
Unit 3	49.0	328.2
Subtotal Holyrood TGS Units	**153.0**	**1,153.2**
Holyrood Gas Turbine and Diesels	0.7	8.8
Hardwoods Gas Turbine	0.1	1.2
Stephenville Gas Turbine	0.0	1.1
Other Thermal	0.2	0.6
Total Thermal Generation	**154.0**	**1,165.1**
Purchases		
Requested Newfoundland Power and Vale	0.0	0.1
Corner Brook Pulp and Paper		
Firm Energy PPA[6]	14.9	14.9
Secondary	0.8	33.2
Co-Generation	2.7	52.0
Subtotal Corner Brook Pulp and Paper	**18.4**	**100.2**
Wind Purchases	21.4	164.1
Maritime Link Imports[7]	64.3	241.9
New World Dairy	0.2	2.8
Labrador-Island Link Imports[8]	0.0	214.6
Total Purchases	**104.2**	**723.7**
Total[9]	**635.3**	**6,570.3**

[5] Gross generation.
[6] November energy purchases from Corner Brook Pulp and Paper Limited of 14.9 GWh delivered under Firm Energy Power Purchase Agreement, approved by Board Order No. P.U. 35(2019).
[7] Includes energy flows as a result of purchases and inadvertent energy.
[8] Includes purchases as a result of testing activity.
[9] Actuals reflect rounded values to the nearest tenth of a GWh. Differences between total vs. addition of individual components due to rounding.

4.0 Thermal Production and Imports

Units 1, 2, and 3 at the Holyrood TGS were required to generate during November 2019 to reliably meet Hydro's customer demand requirements. Unit 1 was operated for 710 hours, Unit 2 was operated for 452 hours, and Unit 3 was operated for 618 hours. Total Holyrood TGS generation was 153.0 GWh.

Standby units were operated for a total of 11.6 hours during the month. Total standby generation was 0.9 GWh. No standby generation was specifically required to support reservoir storage.

Imports on the Maritime Link were used in November 2019 to help secure system storage and for ponding purposes; increasing the ponded balance to 1.5 GWh. Total imported energy over the Maritime Link was 64.3 GWh. There was no energy imported over the Labrador Island Link "("LIL") in November 2019.

5.0 Unit Deratings

Holyrood Unit 1 was capable of full load throughout November 2019. On November 5, 2019 the unit tripped when the east variable frequency drive ("VFD") tripped due to overheated power cells. Investigation found an error with the installation of the VFD cabinet cooling fans. This was corrected and the unit was returned to service approximately 8 hours later.

Holyrood Unit 2 was capable of full load throughout November 2019. From November 7, 2019 to November 19, 2019 the unit was taken offline for economic dispatch (available but not operating). On November 19, 2019 during start-up of the unit, the unit tripped on high drum level while at 28 MW. Operations re-established the unit approximately 15 minutes later.

Holyrood Unit 3 was also capable of full load throughout November 2019. The unit was taken offline for economic dispatch from November 2, 2019 to November 6, 2019 (available but not operating). For the remainder of November 2019, the unit remained online, rated at full capability.

The Stephenville Gas Turbine remained derated to 25 MW through the month of November 2019. While Hydro had expected that this unit would be returned to full capacity by November 18, 2019, the overhauled engine could not be commissioned on site and had to be returned to the overhaul shop for disassembly and rebuild. The spare engine, which was undergoing refurbishment, has been delayed but

it is expected to be returned by December 31, 2019. It is expected that the Stephenville Gas Turbine will be returned to its full capacity by mid January 2020.

The Hardwoods Gas Turbine was returned to service on November 8, 2019 at its full capacity of 50MW. The unit remained in service at full capacity for the remainder of November 2019.