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November 12, 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 October 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/las

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

Ms. C. Blundon
Public Utilities Board

2

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

Newfoundland Power
Regulatory Email

Consumer Advocate
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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 October 2019

November 12, 2019

A report to the Board of Commissioners of Public Utilities



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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 October 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 (%)
31-Oct-2019	1,186	1,672	1,867	1,417	2,452	48%

Reservoir inflows in October 2019 were approximately 38% of average for the month. To date, 2019 inflows have been 5% below average.

The aggregate reservoir storage level on October 31, 2019 was 1,186 GWh, 52% below the seasonal maximum operating level and 19% (231 GWh) below the revised minimum storage level.² The current

¹ 2019 minimum storage targets revised from August 31, 2019 to December 31, 2019 due to a change in the 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 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.

1 storage level compares with the 20-year average storage level for the end of October of 1,867 GWh. At
 2 the end of October 2018, aggregate storage level was 1,672 GWh.

3
 4 Given current energy storage and the revised minimum storage limits, Hydro continued to engage
 5 Nalcor Energy Marketing (“NEM”) through October 2019 to import energy on its behalf; Hydro also
 6 continued to maximize generation at the Holyrood Thermal Generating Station (“Holyrood TGS”) as
 7 system conditions allowed. A combination of these efforts has helped to secure system energy. These
 8 efforts will continue until system energy levels improve and Hydro has determined they are no longer
 9 required. At this point, Hydro does not foresee using production from standby generation to support
 10 reservoir levels.

11
 12 Figure 1 plots the 2018 and 2019 storage levels, maximum operating level storage, and the 20-year
 13 average aggregate storage for comparison.³

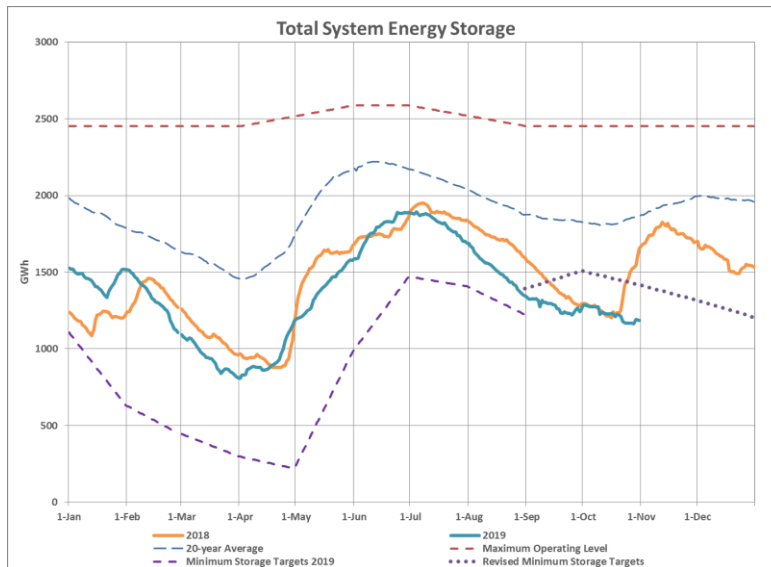


Figure 1: Total System Energy Storage for October 31, 2019

14 **3.0 Production by Plant**

15 Production during October 2019 by plant and unit, both hydraulic and thermal, is provided in Table 2.
 16 Quantities imported are also provided in Table 2.

³ 2019 minimum storage targets revised from August 31, 2019 to December 31, 2019 due to a change in the LIL assumptions.

Table 2: Generation Production from October 1 to 31, 2019⁴

	<u>Generation (GWh)</u>	<u>Year to Date (GWh)</u>
Hydro Generation (Hydro)		
Bay d'Espoir Plant		
Unit 1	9.3	358.6
Unit 2	0.0	347.8
Unit 3	31.9	228.0
Unit 4	14.8	204.9
Unit 5	13.0	196.4
Unit 6	13.6	200.1
Unit 7	30.5	471.2
Subtotal Bay d'Espoir Plant	113.2	2,007.1
Upper Salmon Plant	22.7	456.7
Granite Canal Plant	17.3	209.5
Hinds Lake Plant	2.4	279.7
Cat Arm Plant		
Unit 1	28.6	357.1
Unit 2	35.8	382.5
Subtotal Cat Arm Plant	64.4	739.6
Paradise River	2.0	23.5
Star Lake Plant	13.2	100.3
Rattle Brook Plant	0.8	10.9
Nalcor Exploits Plants	27.7	477.7
Mini Hydro	0.1	2.0
Total Hydro Generation	263.7	4,307.0
Thermal Generation (Hydro)		
Holyrood TGS		
Unit 1	17.0	333.7
Unit 2	83.2	387.3
Unit 3	86.4	279.2
Subtotal Holyrood TGS Units	186.5	1,000.2
Holyrood Gas Turbine and Diesels	0.2	8.1
Hardwoods Gas Turbine	0.0	1.1
Stephenville Gas Turbine	0.1	1.1
Other Thermal	0.1	0.5
Total Thermal Generation	186.9	1,011.0
Purchases		
Requested Newfoundland Power and Vale	0.0	0.1
Corner Brook Pulp and Paper Secondary	1.8	32.4
Corner Brook Pulp and Paper Co-Generation	4.3	49.3
Wind Purchases	16.2	142.7
Maritime Link Imports ⁵	53.3	177.6
New World Dairy	0.3	2.7
Labrador-Island Link Imports ⁶	0.0	214.6
Total Purchases	75.9	619.4
Total⁷	526.4	5,937.4

⁴ Gross generation.

⁵ Includes energy flows as a result of purchases and inadvertent energy.

⁶ Includes purchases as result of testing activity.

⁷ Actuals reflect rounded values to the nearest tenth of a GWh. Differences between total and 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 October 2019 to reliably meet Hydro's customer demand requirements as well as to secure the hydroelectric energy in storage. Unit 1 was operated for 160 hours, Unit 2 was operated for 710 hours and Unit 3 was operated for 744 hours. Total Holyrood TGS generation was 186.5 GWh.

Standby units were operated for a total of 8.2 hours during the month. Total standby generation was 0.3 GWh. No standby generation was specifically required to support reservoir storage.

Imports on the Maritime Link were used in October 2019 to help secure system storage. Imports were not used for ponding purposes, therefore the September balance of -0.3 GWh remains the same. Total imported energy over the Maritime Link was 55.1 GWh. There was no energy imported over the LIL in October 2019.

5.0 Unit Deratings

Holyrood Unit 1 was returned to service on October 25, 2019 with a scheduled derating to 150 MW while awaiting completion of on-line safety valve testing. On October 29, 2019 the unit was derated to 70 MW for approximately two hours while the west forced draft ("FD") fan was shut down to allow repairs to a broken damper linkage. Shortly after the west fan was repaired, the east FD fan tripped due to overheated cells in the variable frequency drive ("VFD"). This caused the unit to trip. After investigation of the failure and confirmation of the health of the VFD, the unit was returned to service later that same day. On October 30, 2019 the on-line safety valve testing was completed and the unit was rated for full load capability.

Holyrood Unit 2 was capable of full load throughout October 2019. On October 23, 2019 the unit tripped. An investigation determined that the trip was caused by an electrical failure of an internal power supply in the exciter. Further troubleshooting identified short circuits in two current monitoring relays that distribute power to the internal electronics of the exciter's control system. The two relays were replaced with spares, which restored the operating capability of the unit. The unit was returned to service approximately 28 hours after the trip. On October 30, 2019 the east fan tripped while on-line at high load. This caused an opacity excursion due to low airflow, and eventual trip of the unit. The unit

1 was returned to service later the same day after confirming the health of the system. Further
2 investigation of the failure is ongoing.

3
4 Holyrood Unit 3 remained on-line, rated at full capability, through the month of October 2019.

5
6 The Stephenville Gas Turbine remained derated to 25 MW during the month of October 2019. Hydro
7 expects that this unit will be returned to full capacity by November 18, 2019.

8
9 The Hardwoods Gas Turbine remained out of service through the month of October 2019 for planned
10 maintenance and capital project completion. The unit is now expected to return to service at full
11 capacity on November 9, 2019.