

April 17, 2020

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 March 2020

Enclosed please find Newfoundland and Labrador Hydro's Monthly Energy Supply Report for the Island Interconnected System as directed by the Board of Commissioners of Public Utilities.

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

ecc: **Board of Commissioners of Public Utilities**
Ms. Jacqui Glynn
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Mr. Stephen F. Fitzgerald, Browne Fitzgerald Morgan & Avis

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Mr. Dean A. Porter, Poole Althouse

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Monthly Energy Supply Report for the Island Interconnected System for March 2020

April 17, 2020



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 provides data for March 2020.

2.0 System Hydrology

Reservoir inflows in March 2020 were approximately 70% of the month’s historical average. Inflows in 2020 have been 53% of the year to date historical average.

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	2020 (GWh)	2019 (GWh)	20-Year Average (GWh)	Minimum Storage Limit (GWh)	Maximum Operating Level (GWh)	Maximum Operating Level (%)
March 31, 2020	707	811	1,388	294	2,452	29%

The aggregate reservoir storage level on March 31, 2020 was 707 GWh, 71% below the seasonal maximum operating level and 140% above the minimum storage limit.¹ The current storage level is shown in Figure 1 in relation to the 20-year average storage level for the end of March of 1,388 GWh. At the end of March 2019 the aggregate storage level was 811 GWh.

¹ 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 non-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 The second snow survey of 2020 was completed in mid-March. The survey indicated that, for the system
 2 as a whole, snowpack water equivalent (mm) was approximately 93% of average and equivalent energy
 3 (GWh) was approximately 94% of average. Based on the available snowpack data, the snowpack was
 4 approximately 125.1 mm of snow water equivalent at Bay d’Espoir,² approximately 162.0 mm at Hinds
 5 Lake, and approximately 298.0 mm at the Cat Arm.

6 Hydro actively manages its resources to ensure its ability to reliably supply customers with least-cost
 7 energy. Hydro continued generating thermally above minimum at varying levels throughout March 2020
 8 to help support reservoir levels at the Long Pond reservoir,³ and to ensure all facilities remained capable
 9 of generating at rated capability through the end of the winter operating season. Imports are used to
 10 economically supplement or offset generation from the Holyrood TGS, to the extent that they are
 11 technically feasible. Standby units have not been used for water management purposes and Hydro does
 12 not currently foresee using production from standby generation to support reservoir levels.

13 Figure 1 plots the 2019 and 2020 storage levels, maximum operating level storage, and the 20-year
 14 average aggregate storage for comparison. The minimum storage limits are established to the end of
 15 April 2020. The 2020 targets will be established following the freshet.

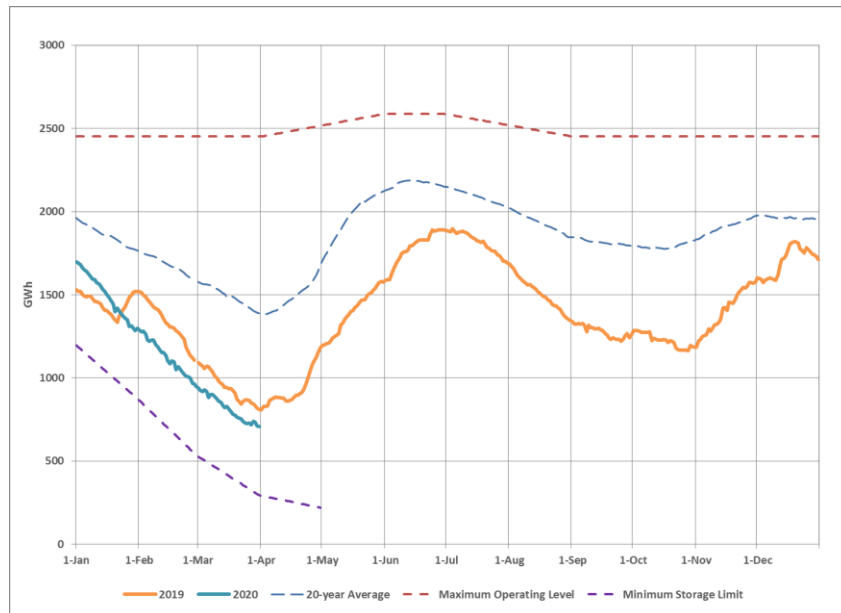


Figure 1: Total System Energy Storage for 2020

² The snowpack value at the Bay d’Espoir location represents a weighted total.

³ Long Pond is the head pond for the Bay d’Espoir Generating Station.

3.0 Purchases and Production by Plant

Production during March 2020 by plant and unit, both hydraulic and thermal, is provided in Appendix A. Quantities of purchases and imports are also provided in Appendix A.

4.0 Thermal Production and Imports

Units 1, 2, and 3 at the Holyrood TGS were required to generate during March 2020 to reliably meet Hydro's customer demand requirements. While system energy in storage remained above the minimum storage target, reservoir storage at Long Pond continued to decline. Hydro also decreased production from its Cat Arm and Hinds Lake facilities to ensure those plants remained capable of operating at their rated capacity through the remainder of the winter operating season. As such, thermal generation above minimum production was required at varying levels through March 2020. Below average inflows persisted through the month and careful monitoring and assessment allowed the combined energy requirement for thermal generation, supplemented by imports when economic and technically feasible, to be reduced throughout the month in recognition of the coming end of the winter operating season and beginning of the spring freshet. The combined hourly target of 425 MW for thermal generation and imports that was set on February 25, 2020 remained in place until March 3, 2020, at which point it was reduced slightly to 400 MW. On March 10, 2020, the combined hourly target was reduced further to 335 MW, inclusive of a purchase agreement for imports over the Maritime Link which remained in place for the remainder of the month.⁴ The hourly target was further reduced to 290 MW on March 27, 2020 following a rain event in the Bay d'Espoir watershed. This target minimized the use of Holyrood generation and allowed the suspension of import activities beyond those committed as part of the monthly purchase agreement. Following conclusion of the rain event, guidelines were issued to maintain Holyrood TGS generation at minimum while permitting imports to supplement system energy in addition to those committed to in the monthly purchase agreement. This guidance remained in place through the end of the month.

In March 2020, Holyrood TGS Unit 1 was operated for 744.0 hours, Holyrood TGS Unit 2 was operated for 719.8 hours, and Holyrood TGS Unit 3 was operated for 730.8 hours. Total Holyrood TGS generation was 189.9 GWh. Standby units were not operated during the month other than for testing purposes.

⁴ In March 2020, Hydro had a purchase agreement with Nalcor Energy Marketing for the purchase of 79 MW delivered to the Island Interconnected System for all hours beginning March 10 at 00:00 to March 31 23:59.

1 Imports on the Maritime Link were used in March 2020 to offset the use of thermal units and to support
2 reservoir levels. This enabled the economic shut of the first unit at the Holyrood TGS on March 31, 2020.
3 In addition, ponding resumed during the month, increasing the ponded balance to 0.2 GWh. Total
4 imported energy over the Maritime Link was 77.0 GWh. There was no energy imported over the
5 Labrador-Island Link in March 2020 due to the continued outage.

6 **5.0 Unit Deratings**

7 Holyrood TGS Unit 1 operated at full capability through March 2020.

8 Holyrood TGS Unit 2 was online and capable of operating at full load throughout March 2020, with the
9 exception of a brief period from March 4 to 5, 2020 when the unit was taken offline to enable the repair
10 of the unit disconnect switch.

11 Holyrood TGS Unit 3 operated at full capability through March 2020. As of March 31, 2020 the unit was
12 no longer required to be online to meet system requirements and was placed into hot standby with a
13 recall time of eight hours.

14 The Stephenville Gas Turbine remained available at full capacity for the entire month of March 2020.

15 The Hardwoods Gas Turbine was available at full capacity throughout March 2020 with the exception of
16 an outage on March 17, 2020 to replace a motor in the unit cooling system. The unit was returned to
17 service on the same day.

Appendix A

Generation Production and Purchases

Monthly Energy Supply Report for the Island Interconnected System for March 2020
Appendix A: Generation Production and Purchases

Table 2 Generation Production and Purchases¹

March 1 to March 31, 2020

	<u>Generation (GWh)</u>	<u>Year to Date (GWh)</u>
Hydro Generation (Hydro)		
Bay d'Espoir Plant		
Unit 1	43.0	127.0
Unit 2	42.7	126.2
Unit 3	36.3	114.9
Unit 4	6.7	50.8
Unit 5	12.9	62.9
Unit 6	15.2	60.8
Unit 7	91.2	268.0
Subtotal Bay d'Espoir Plant	248.1	810.6
Upper Salmon Plant	62.0	175.3
Granite Canal Plant	19.2	64.7
Hinds Lake Plant	29.2	115.8
Cat Arm Plant		
Unit 1	35.7	115.7
Unit 2	37.1	119.5
Subtotal Cat Arm Plant	72.8	235.1
Paradise River	3.8	6.8
Star Lake Plant	12.9	38.0
Rattle Brook Plant	0.1	0.4
Nalcor Exploits Plants	50.9	149.7
Mini Hydro	0.0	0.0
Total Hydro Generation	499.1	1,596.3
Thermal Generation (Hydro)		
Holyrood TGS		
Unit 1	64.3	199.7
Unit 2	61.5	190.9
Unit 3	64.1	199.0
Subtotal Holyrood TGS Units	189.9	589.5
Holyrood Gas Turbine and Diesels	0.0	2.4
Hardwoods Gas Turbine	0.0	0.1
Stephenville Gas Turbine	0.0	0.3
Other Thermal	0.0	0.0
Total Thermal Generation	189.9	592.3
Purchases		
Requested Newfoundland Power and Vale	0.0	0.0
Corner Brook Pulp and Paper		
Capacity Assistance	0.0	0.0
Firm Energy PPA	0.0	0.0
Secondary	2.1	11.4
Co-Generation	5.4	13.3
Subtotal Corner Brook Pulp and Paper	7.5	24.8
Wind Purchases	18.0	46.9
Maritime Link Imports ²	77.0	171.4
New World Dairy	0.2	0.5
Labrador-Island Link Imports ³	0.0	0.0
Total Purchases	102.7	243.6
Total⁴	791.7	2,432.3

¹ Gross generation.

² Includes energy flows as a result of purchases and inadvertent energy.

³ Includes purchases as result of testing activity.

⁴ Actuals reflect rounded values to the nearest tenth of a GWh. Differences between total vs. addition of individual components due to rounding.