

May 19, 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 April 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



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Encl.

ecc: Board of Commissioners of Public Utilities
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Monthly Energy Supply Report for the Island Interconnected System for April 2020

May 19, 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 April 2020.

2.0 System Hydrology

Reservoir inflows in April 2020 were approximately 89% of the month’s historical average. Inflows in 2020 have been 68% 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 (%)
April 30, 2020	854	1,194	1,678	220	2,518	34%

The aggregate reservoir storage level on April 30, 2020 was 854 GWh, 66% below the seasonal maximum operating level and 288% 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 April of 1,678 GWh. At the end of April 2019 the aggregate storage level was 1,194 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 Figure 1 plots the 2019 and 2020 storage levels, maximum operating level storage, and the 20-year
2 average aggregate storage for comparison. The minimum storage limits are established to the end of
3 April 2020. Hydro is establishing minimum storage limits to April 30, 2021 in consideration of potential
4 delays in the availability of the Labrador-Island Link (“LIL”) to deliver energy to the Island Interconnected
5 System. This will help ensure sufficient storage to reliably serve customers should the LIL continue to be
6 delayed beyond the fall of 2020.

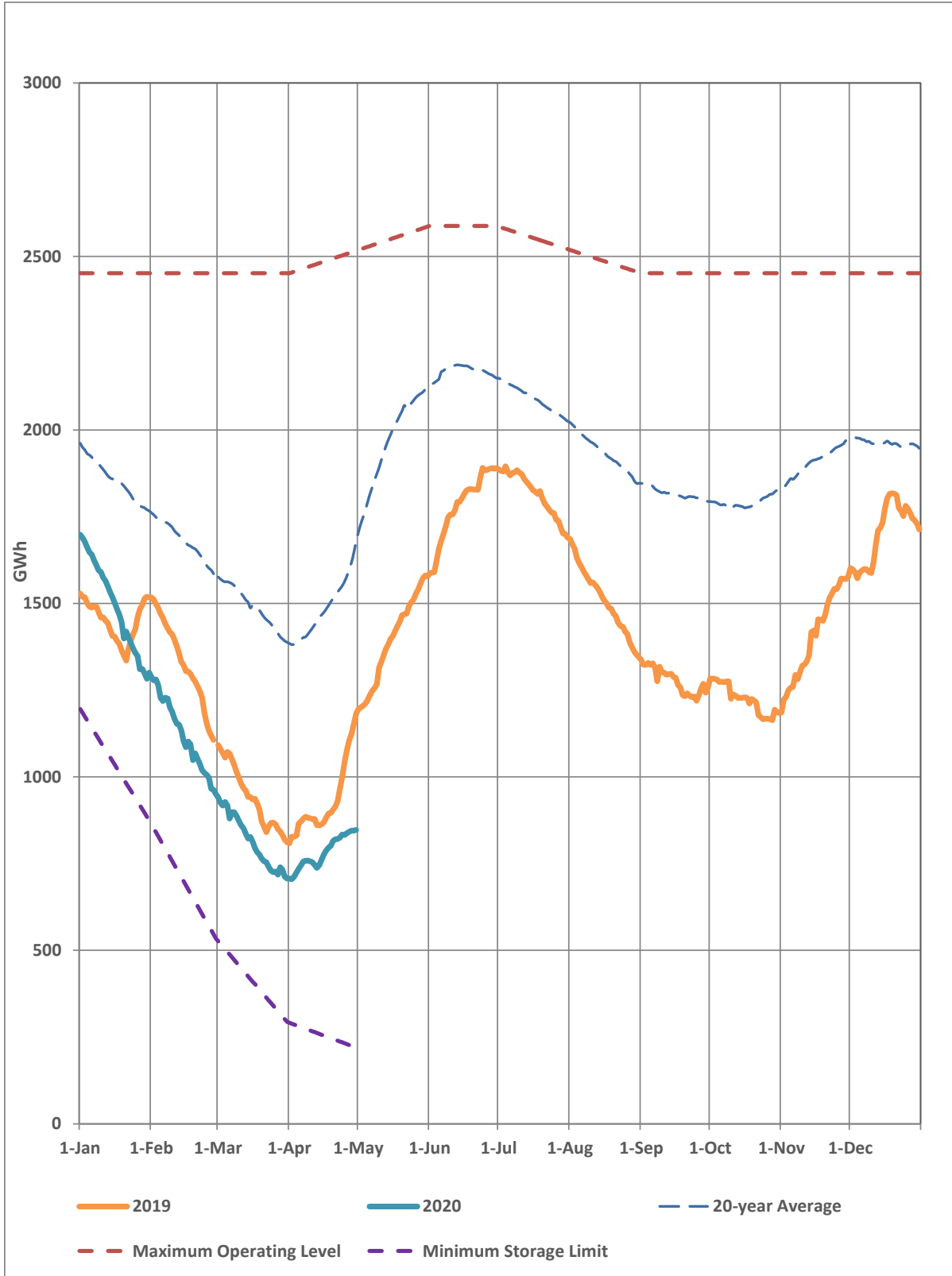


Figure 1: Total System Energy Storage for 2020

3.0 Purchases and Production by Plant

Production during April 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 and 2 at the Holyrood Thermal Generating Station (“Holyrood TGS”) were required to generate at minimum throughout April 2020 to reliably meet Hydro’s customer demand requirements. While system energy in storage remained above the minimum storage limit, below average inflows persisted through the month, primarily due to the cooler temperatures and the late onset of the spring freshet. Hydro continued to maintain reduced production from its Cat Arm and Hinds Lake facilities to ensure those plants remained capable of operating at their rated capacity until the arrival of the spring freshet.

Following a rain event in the Bay d’Espoir watershed on March 27, 2020, Holyrood TGS generation was reduced to minimum while permitting imports to supplement system energy, when economic and technically feasible. On April 2, 2020 imports to supplement system energy were suspended and remained so through the end of April 2020. Imports to maintain thermal generation at minimum were sought until mid-April at which point lower system load allowed thermal generation to remain at minimum without the support from imports.

In April 2020, Holyrood TGS Unit 1 was operated for 712.2 hours and Holyrood TGS Unit 2 was operated for 720 hours. Holyrood TGS Unit 3 was not operated in April 2020. Total Holyrood TGS generation was 102.7 GWh. Standby units were not operated during the month other than for testing purposes.

Imports on the Maritime Link were used in April 2020 to offset the use of thermal units and for ponding purposes; increasing the ponded balance to 3.0 GWh. Total imported energy over the Maritime Link was 7.4 GWh. There was no energy imported over the LIL in April 2020 due to the continued outage.

5.0 Unit Deratings

Holyrood TGS Unit 1 was operating and available at full capacity through April 2020. On April 21, 2020 the unit was taken off line for approximately 8 hours for a planned outage to change generator brushes. On May 1, 2020 the unit was taken off line and placed on hot standby with eight hour recall time as the unit was no longer required to be online to meet system requirements.

Holyrood TGS Unit 2 was operating and available at full capacity through April 2020.

1 Holyrood TGS Unit 3 was placed on hot standby on March 31, 2020 with a recall time of 8 hours as the
2 unit was no longer required to be online to meet system requirements. On April 10, 2020 the status was
3 moved to cold standby. On April 24, 2020 the unit was taken off-line to facilitate its planned annual
4 maintenance outage.

5 The Stephenville Gas Turbine remained available at full capacity for the entire month of April 2020 with
6 the exception of April 28, 2020. While completing a test run, the unit experienced a vibration trip. It was
7 determined that the trip was the result of a loose connection in the vibration system wiring. The wiring
8 was repaired and the unit was returned to service the same day.

9 The Hardwoods Gas Turbine was available at full capacity throughout April 2020 with the exception of a
10 planned outage from April 23, 2020 to April 26, 2020 to replace a fan shaft in the unit cooling system.



Appendix A

Generation Production and Purchases

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

Generation Production and Purchases from April 1 to April 30, 2020²

	<u>Generation (GWh)</u>	<u>Year to Date (GWh)</u>
Hydro Generation (Hydro)		
Bay d'Espoir Plant		
Unit 1	42.5	169.5
Unit 2	42.2	168.4
Unit 3	36.0	150.9
Unit 4	8.1	58.9
Unit 5	10.7	73.5
Unit 6	19.1	79.9
Unit 7	93.4	361.4
Subtotal Bay d'Espoir Plant	251.9	1,062.5
Upper Salmon Plant	54.6	229.9
Granite Canal Plant	16.5	81.2
Hinds Lake Plant	19.9	135.7
Cat Arm Plant		
Unit 1	14.5	130.2
Unit 2	26.1	145.6
Subtotal Cat Arm Plant	40.7	275.8
Paradise River	5.5	12.3
Star Lake Plant	12.3	50.3
Rattle Brook Plant	0.8	1.3
Nalcor Exploits Plants	53.1	202.8
Mini Hydro	0.0	0.0
Total Hydro Generation	455.4	2,051.7
Thermal Generation (Hydro)		
Holyrood TGS		
Unit 1	50.5	250.1
Unit 2	52.2	243.1
Unit 3	0.0	199.0
Subtotal Holyrood TGS Units	102.7	692.2
Holyrood Gas Turbine and Diesels	0.0	2.4
Hardwoods Gas Turbine	0.0	0.1
Stephenville Gas Turbine	0.0	0.4
Other Thermal	0.1	0.1
Total Thermal Generation	102.9	695.3
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	2.4	13.8
Co-Generation	5.2	18.6
Subtotal Corner Brook Pulp and Paper	7.6	32.4
Wind Purchases	16.5	63.4
Maritime Link Imports ³	7.4	178.8
New World Dairy	0.1	0.6
Labrador-Island Link Imports ⁴	0.0	0.0
Total Purchases	31.6	275.2
Total⁵	589.9	3,022.2

² Gross generation.

³ Includes energy flows as a result of purchases and inadvertent energy.

⁴ Includes purchases as a result of testing activity.

⁵ Actuals reflect rounded values to the nearest tenth of a GWh. Differences between total vs. addition of individual components due to rounding.