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October 18, 2021

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 September 2021

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

A handwritten signature in blue ink, appearing to read "Shirley A. Walsh", written over a horizontal line.

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

Encl.

ecc: **Board of Commissioners of Public Utilities**
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Monthly Energy Supply Report for the Island Interconnected System for September 2021

October 18, 2021



A report to the Board of Commissioners of Public Utilities

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Appendix A: Production and Purchases

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 September 2021.

2.0 System Hydrology

Reservoir inflows in September 2021 were approximately 71% above the month’s historical average. Inflows in 2021 increased to 88% 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	2021 (GWh)	2020 (GWh)	20-Year Average (GWh)	Minimum Storage Limit (GWh)	Maximum Operating Level (GWh)	Percentage of Maximum Operating Level (%)
30-Sep-2021	1,573	1,751	1,791	908	2,452	64

The aggregate reservoir storage level on September 30, 2021 was 1,573 GWh, which is 36% below the seasonal maximum operating level and 73% above the minimum storage limit.¹ The current storage level

¹ Minimum storage limits 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 limit is designed to indicate 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, 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 is shown in Figure 1 in relation to the 20-year average storage level for the end of September of
2 1,791 GWh. At the end of September 2020, the aggregate storage level was 1,751 GWh.

3 Bypass of the Upper Salmon Plant that commenced on August 27, 2021 continued through the month of
4 September to support storage in the Long Pond Reservoir. Bypass is expected to continue until the
5 Upper Salmon Plant returns to service. Planned bypass volumes are such that they offset generation at
6 the Bay d’Espoir Hydroelectric Generating Station, with adjustments to bypass flow to maintain Long
7 Pond Reservoir storage in response to inflows and deliveries to the Island system via the Labrador-Island
8 Link (“LIL”). As of September 30, 2021, a total of 40 GWh has been bypassed.

9 Figure 1 plots the 2020 and 2021 storage levels, minimum storage limits, maximum operating level
10 storage, and the 20-year average aggregate storage for comparison.

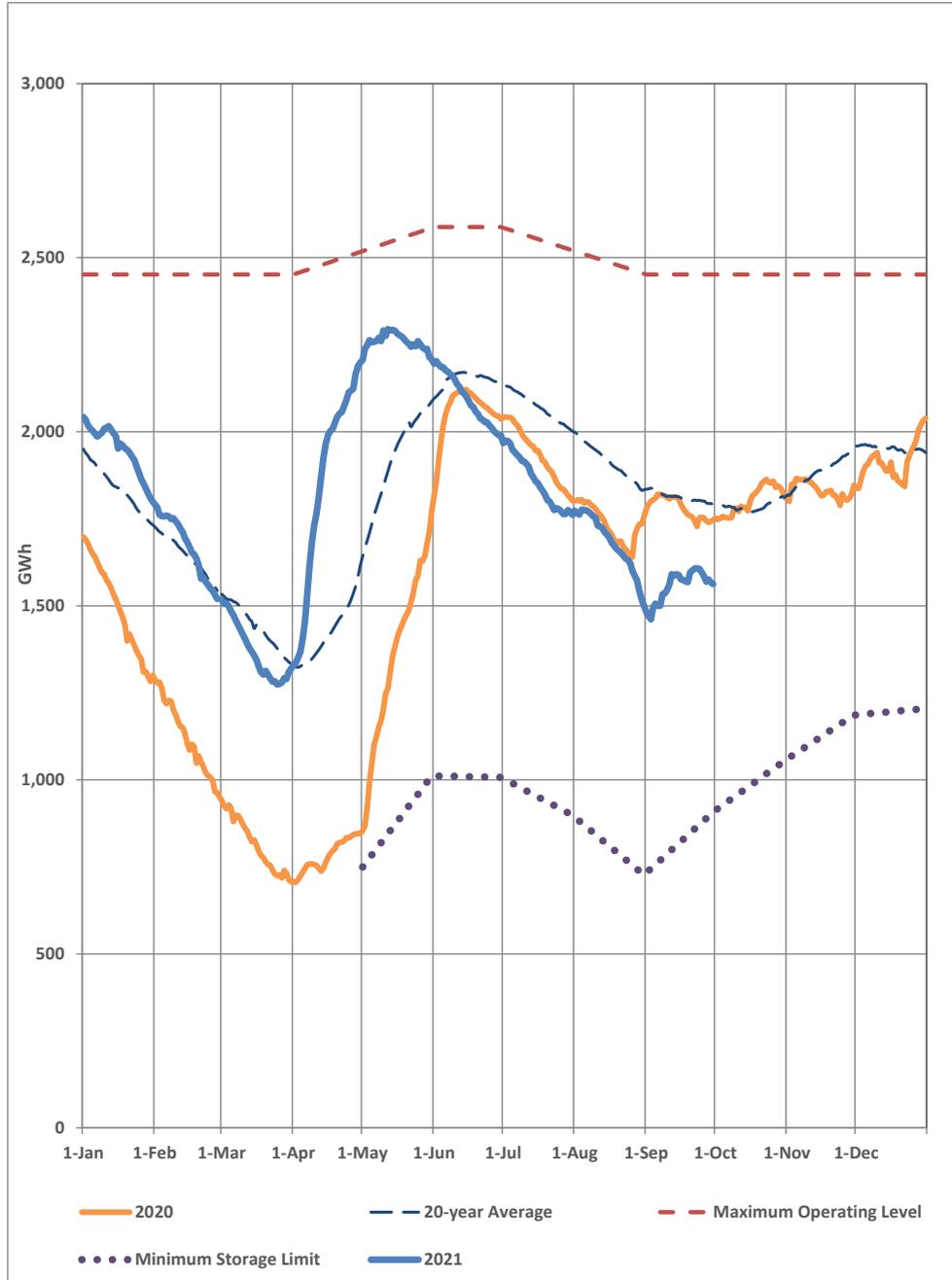


Figure 1: Total System Energy Storage

3.0 Production and Purchases

Appendix A provides a breakdown of power purchases, including imports, and production by plant during September 2021.

4.0 Thermal Production and Imports

Holyrood Thermal Generating Station (“Holyrood TGS”) Unit 3 was operated for 8.7 hours in September 2021 for system requirements. Holyrood TGS Unit 1 and Unit 2 were not operated during September 2021. Total energy production from Holyrood TGS during the month of September 2021 was 0.2 GWh.

Standby units were operated during the month for system operating limit requirements and for testing purposes. Standby units were operated for a total of 14.8 hours during the month. Total standby production during the month was 0.4 GWh. Standby generation was not required to support reservoir storage.

Testing activities continued on the LIL in September 2021, resulting in the delivery of 80.9 GWh of energy at Soldiers Pond. In addition, an import of 0.0 GWh² occurred over the Maritime Link due to ponding activities. The ponded balance at month end was -5.4 GWh. Total exports over the Maritime Link for the month of September 2021 were 28.0 GWh.^{3,4}

5.0 Unit Deratings

Holyrood TGS Unit 1 was on annual maintenance outage until September 10, 2021. For the remainder of the month the unit was on a forced extension of the planned outage to accommodate completion of the turbine major overhaul capital project, which had to be extended due to findings during the overhaul that resulted in additional work scope.

Holyrood TGS Unit 2 remained on annual maintenance outage for the month of September 2021.

Holyrood TGS Unit 3 was on a maintenance outage to convert the unit from synchronous condenser mode to generation mode until September 2, 2021. The unit remained on annual maintenance outage

² Actual import totaled 39 MWh.

³ Total exports include the provision of emergency and inadvertent energy to Nova Scotia Power Inc., provision of the Nova Scotia Block, and export activity conducted by Nalcor Energy Marketing including the export of spilled energy on Hydro’s behalf.

⁴ Physical delivery of the Nova Scotia Block will only occur when the LIL is online and able to transfer power.

1 until September 7, 2021 when the unit was placed into start-up mode. During start-up activities on
2 September 10, 2021 and September 11, 2021 there were three unit trips. One trip was caused by a
3 failure of forced draft fan Variable Frequency Drive power cells. The others were related to start-up
4 activities. On September 11, 2021 the unit was put on-line for eight hours with load up to 30 MW when
5 a boiler tube failure resulted in a unit trip. The unit was on forced outage for the remainder of the
6 month to permit investigation and remedial actions related to the tube failure.

7 The Hardwoods Gas Turbine was available at full capacity for the entire month of September 2021⁵ with
8 the exception of a planned unit de-rating to 50% capacity on September 29, 2021 to facilitate the engine
9 module overhead crane annual inspections.

10 The Stephenville Gas Turbine was available at full capacity for the entire month of September 2021.⁶

11 The Holyrood Gas Turbine was available at full capacity for the entire month of September 2021.⁷

⁵ Due to limitations inherent in the design of combustion turbines, the output of combustion turbines may be reduced in the event that ambient temperatures exceed the threshold required for full rated output. This threshold is dependent on the design of each turbine.

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Appendix A

Production and Purchases

Table A-1: Generation and Purchases¹

	September 1–30, 2021 (GWh)	YTD ² September 30, 2021 (GWh)
Hydro Generation (Hydro)		
Bay d'Espoir Plant		
Unit 1	35.5	322.7
Unit 2	37.0	314.5
Unit 3	23.2	264.2
Unit 4	8.8	120.5
Unit 5	0.0	132.4
Unit 6	0.0	113.2
Unit 7	40.1	628.6
Subtotal Bay d'Espoir Plant	144.6	1,896.0
Upper Salmon Plant	0.0	343.8
Granite Canal Plant	19.6	166.5
Hinds Lake Plant	24.4	259.2
Cat Arm Plant		
Unit 1	32.1	297.7
Unit 2	34.3	307.0
Subtotal Cat Arm Plant	66.4	604.7
Paradise River	1.9	14.2
Star Lake Plant	4.9	97.9
Rattle Brook Plant	1.5	9.4
Nalcor Exploits Plants	37.6	434.6
Mini Hydro	0.0	0.0
Total Hydro Generation (Hydro)	300.9	3,826.3
Thermal Generation (Hydro)		
Holyrood TGS		
Unit 1	0.0	206.6
Unit 2	0.0	242.2
Unit 3	0.2	112.8
Subtotal Holyrood TGS Units	0.2	561.6
Holyrood Gas Turbine and Diesels	0.3	8.8
Hardwoods Gas Turbine	0.1	1.6
Stephenville Gas Turbine	0.0	0.4
Other Thermal	0.1	0.1
Total Thermal Generation (Hydro)	0.7	572.5
Purchases		
Requested Newfoundland Power and Vale	0.0	0.0
CBPP ³		
Capacity Assistance	0.0	0.0
Firm Energy Power Purchase Agreement	0.0	0.0
Secondary	3.1	17.9
Co-Generation	4.3	38.5
Subtotal CBPP	7.4	56.3
Wind Purchases	10.6	136.6
Maritime Link Imports ⁴	0.1	1.4
New World Dairy	0.2	2.6
LIL Imports ⁵	80.9	404.9
Total Purchases	99.2	601.7
Total⁶	400.8	5,000.4

¹ Gross generation.

² Year-to-date ("YTD").

³ Corner Brook Pulp and Paper Limited ("CBPP").

⁴ Includes energy flows as a result of purchases and inadvertent energy.

⁵ Includes purchases as result of testing activity as well as deliveries that are then exported over the Maritime Link.

⁶ Actuals reflect rounded values to the nearest tenth of a GWh. Differences between total vs. addition of individual components due to rounding.