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October 17, 2022

The Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL A1A 5B2

Attention: Cheryl Blundon
Director Corporate Services & Board Secretary

Re: Monthly Energy Supply Report for the Island Interconnected System for September 2022

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.

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Monthly Energy Supply Report for the Island Interconnected System for September 2022

October 17, 2022

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 2022.

2.0 System Hydrology

Reservoir inflows in September 2022 were approximately 31% above the month’s historical average.

Inflows in 2022 are 137% 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	2022 (GWh)	2021 (GWh)	20-Year Average (GWh)	Minimum Storage Limit (GWh)	Maximum Operating Level (GWh)	Maximum Operating Level (%)
30-Sep-2022	2,177	1,573	1,791	1,434	2,452	89

1 The aggregate reservoir storage level on September 30, 2022 was 2,177 GWh, which is 11% below the
2 seasonal maximum operating level and 52%¹ above the minimum storage limit.² The current storage
3 level is shown in Figure 1 in relation to the 20-year average storage level for the end of September 2022
4 of 1,791 GWh. At the end of September 2021, the aggregate storage level was 1,573 GWh.

5 Overall system inflows in September 2022 were above average due to heavy rainfall attributable to Post-
6 Tropical Cyclone Fiona and additional weather events in late September 2022. Inflows to the Bay
7 d’Espoir System were 134% of average. Hinds Lake and Cat Arm inflows were 141% and 77% of average,
8 respectively. No energy exports to mitigate spill were required.

9 The annual planned outages for Unit 6 at the Bay d’Espoir Hydroelectric Generating Facility were
10 completed on September 11, 2022. The Hinds Lake Hydroelectric Generating Station also completed its
11 annual planned outage on September 11, 2022. Units 1 and 2 at the Cat Arm Hydroelectric Generating
12 Station began their annual planned outages on September 11 and September 12, 2022, respectively.

13 Figure 1 plots the 2021 and 2022 storage levels, minimum storage limits, maximum operating level
14 storage, and the 20-year average aggregate storage for comparison.

¹ Percent above the minimum storage limit was incorrectly calculated in the May to August 2022 Monthly Energy Supply Reports. The value was calculated as a percentage of the minimum storage limit using the formula $(\text{Current Storage} \div \text{Minimum Storage Limit}) \times 100$. The value in this report is calculated as a percentage *above* the minimum storage limit to align with Monthly Energy Supply Reports prior to May 2022 using the formula $((\text{Current Storage} \div \text{Minimum Storage Limit}) - 1.0) \times 100$.

² 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 the 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.

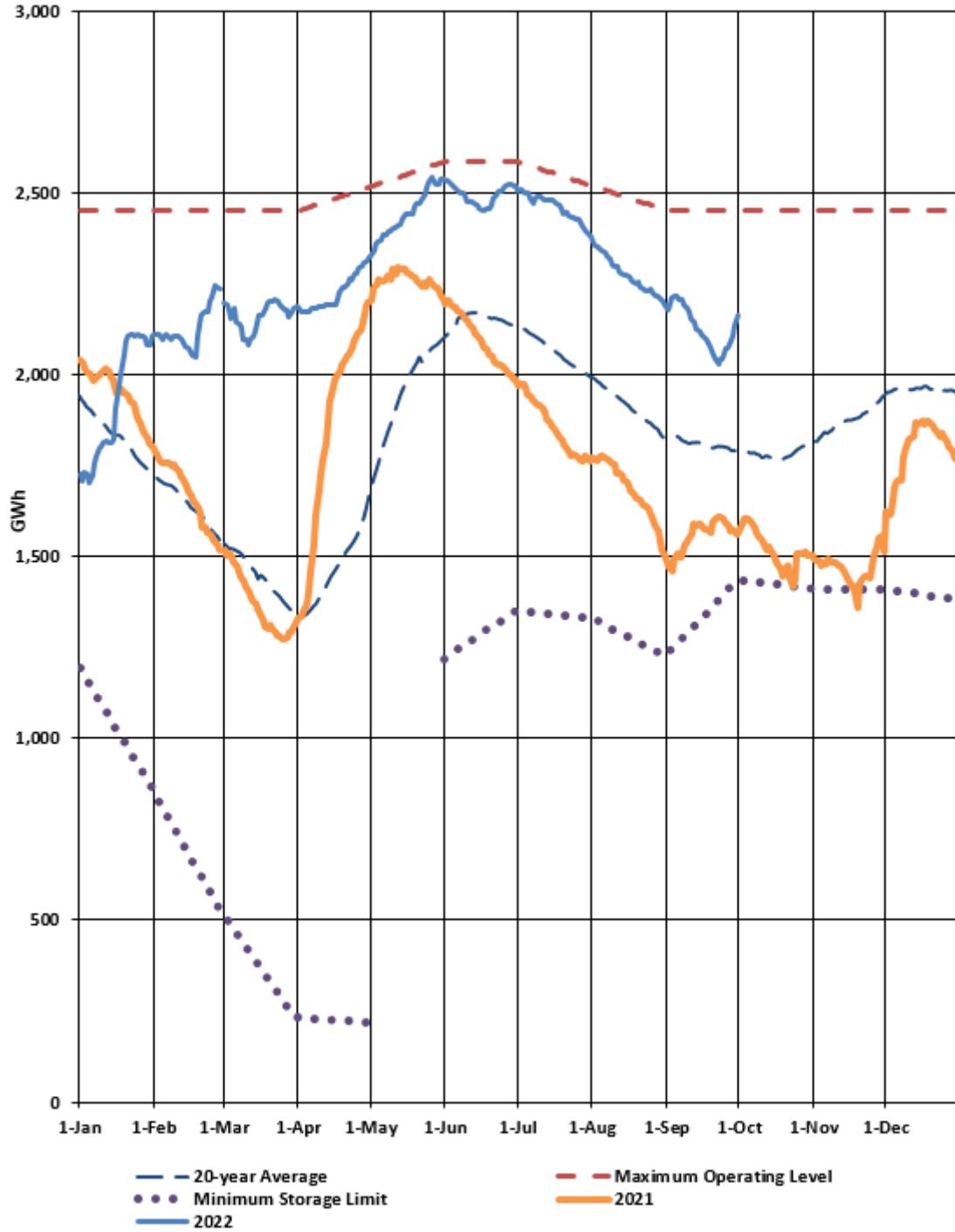


Figure 1: Total System Energy Storage

3.0 Production and Purchases

Appendix A provides a breakdown of power purchases, including imports, and production by plant during September 2022.

4.0 Thermal Production and Imports

No units at the Holyrood TGS were required to generate during September 2022 for system requirements; Unit 1 was briefly online for testing. Total energy production from the Holyrood TGS during the month of September 2022 was 0.6 GWh.

Standby units were operated for a total of 15.9 hours during the month to support system requirements. Total standby production during the month was 0.2 GWh. Standby generation was not required to support reservoir storage. The Hardwoods Gas Turbine was operated in synchronous condenser mode for 708 hours. The Stephenville Gas Turbine was operated in synchronous condenser mode for 308 hours.

Power transfers on the Labrador-Island Link (“LIL”) in September 2022 resulted in a total metered energy value of 75.9 GWh at Soldiers Pond. The total energy delivered to Hydro under the Muskrat Falls Power Purchase Agreement was 23.9 GWh. Total metered energy over the Maritime Link to Nova Scotia for the month of September 2022 was 55.9 GWh.^{3,4} Energy Marketing exported 44.8 GWh⁵ associated with the delivery of the Nova Scotia Block and Supplemental Energy⁶ as well as 14.6 GWh of bulk surplus energy.⁷ There were no ponding exports in September 2022 and the negative balance has remained at 9.8 GWh since August 22, 2022.⁸ In addition, 0.4 GWh was repaid to Energy Marketing by Corner Brook Pulp and Paper Limited (“CBPP”) pursuant to the Temporary Energy Exchange Agreement. This energy was also exported over the Maritime Link.

³ Totals include the provision of emergency and inadvertent energy to Nova Scotia Power Inc., provision of the Nova Scotia Block, the Supplemental Block, and export activity conducted by 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.

⁵ Due to power system operations, metered quantities may not match commercially transacted volumes.

⁶ Nova Scotia Block and Supplemental Energy quantities are reflected at the point of commercial transaction.

⁷ Bulk surplus energy includes Muskrat Falls energy and energy repaid to Energy Marketing by CBPP that is sold to external markets.

⁸ The ponded balance was incorrectly reported as -9.1 GWh in Monthly Energy Supply Report for August 2022 as it excluded -0.7 GWh of losses. The correct ponded balance is -9.8 GWh for both August 2022 and September 2022 as there were no ponding transactions in September.

1 **5.0 Unit Deratings**

2 Unit 1 at the Holyrood TGS remained on planned annual maintenance outage until September 26, 2022.
3 The unit was available at that point with a derating to 90 MW, as one of two cooling water pumps had
4 not yet been returned to service following its planned overhaul. Unit 1 was not required by the
5 Newfoundland and Labrador System Operator for system support for the remainder of September 2022.
6 On September 29, 2022, Unit 1 was synchronized for approximately eight hours to exercise and prove
7 systems after completion of the annual overhaul. It was then returned to a cold standby state, with a
8 derating to 90 MW.

9 Unit 2 at the Holyrood TGS was offline on a planned annual maintenance outage for the entire month of
10 September 2022. The scheduled return to service date is October 29, 2022.

11 Unit 3 at the Holyrood TGS operated as a synchronous condenser for the entire month of September
12 2022.

13 The Hardwoods Gas Turbine was available at full capacity for the entire month of September 2022.

14 The Holyrood Gas Turbine was available at full capacity for the entire month of September 2022 with
15 the exception of a planned outage from September 18 to 23, 2022 to complete corrective and
16 preventive maintenance activities and the installation of the main lube oil cooler hood.

17 The Stephenville Gas Turbine was available at full capacity for the entire month of September 2022 with
18 the exception of a planned outage from September 7 to 9, 2022 to complete corrective and preventive
19 maintenance activities. The unit became unavailable due to a forced outage resulting from the loss of
20 coolant from the generator cooling system on September 27, 2022. The expected return to service date
21 for the unit is October 17, 2022.



Appendix A

Production and Purchases

Table A-1: Generation and Purchases¹

	September 2022 (GWh)	YTD ² 2022 (GWh)
Hydro Generation (Hydro)		
Bay d'Espoir		
Unit 1	38.9	339.6
Unit 2	38.8	342.5
Unit 3	27.7	290.3
Unit 4	7.6	161.1
Unit 5	10.2	158.5
Unit 6	7.1	163.2
Unit 7	63.3	648.6
Subtotal Bay d'Espoir	193.5	2,103.8
Upper Salmon	37.8	378.8
Granite Canal	21.1	159.9
Hinds Lake	13.3	293.4
Cat Arm		
Unit 1	8.9	232.3
Unit 2	13.4	256.1
Subtotal Cat Arm	22.3	488.4
Paradise River	1.2	24.2
Star Lake	11.6	104.7
Rattle Brook	1.1	12.4
Nalcor Exploits	27.4	438.3
Mini Hydro	0.0	0.0
Total Hydro Generation (Hydro)	329.4	4,003.9
Thermal Generation (Hydro)		
Holyrood TGS		
Unit 1	0.6	194.9
Unit 2	0.0	210.5
Unit 3	0.0	139.2
Subtotal Holyrood TGS Units	0.6	544.6
Holyrood Gas Turbine and Diesels	0.1	1.5
Hardwoods Gas Turbine	0.1	0.8
Stephenville Gas Turbine	0.0	0.5
Other Thermal	0.0	0.5
Total Thermal Generation (Hydro)	0.8	547.9
Purchases		
Requested Newfoundland Power and Vale CBPP	0.0	0.0
Capacity Assistance	0.0	0.0
Firm Energy Power Purchase Agreement	0.0	0.0
Secondary	3.8	33.9
Co-Generation	2.3	36.9
Subtotal CBPP	6.1	70.8
Wind Purchases	15.7	131.2
Maritime Link Imports ³	1.1	1.7
New World Dairy	0.3	2.4
LIL Imports ⁴	75.9	880.7
Total Purchases	99.0	1,086.8
Total⁵	429.2	5,638.6

¹ Gross generation.

² Year-to-date ("YTD").

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

⁴ Includes purchases as result of testing activity as well as deliveries that are then exported over the Maritime Link.

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