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September 17, 2024

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

Attention: Jo-Anne Galarneau
Executive Director and Board Secretary

Re: Monthly Energy Supply Report for the Island Interconnected System for August 2024

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/rr

Encl.

ecc:

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Monthly Energy Supply Report for the Island Interconnected System for August 2024

September 17, 2024

A report to the Board of Commissioners of Public Utilities



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1 **1.0 Introduction**

2 On February 8, 2016, the Board of Commissioners of Public Utilities (“Board”) requested Newfoundland
3 and Labrador Hydro (“Hydro”) file a biweekly report containing, but not limited to, the following:

- 4 1) System Hydrology Report;
- 5 2) The thermal plant operated in support of hydrology;
- 6 3) Production by plant/unit; and
- 7 4) Details of any current or anticipated long-term derating.

8 In July 2016, the Board indicated that a monthly report would thereafter be sufficient. This report
9 provides data for August 2024.

10 **2.0 System Hydrology**

11 Reservoir inflows in August 2024 were 82% below the month’s historical average.¹ Table 1 summarizes
12 the aggregate storage position of Hydro’s reservoirs at the end of the reporting period.

Table 1: System Hydrology Storage Levels

Date	2024 (GWh)	2023 (GWh)	20-Year Average (GWh)	Minimum Storage Limit (GWh)	Maximum Operating Level (GWh)	Maximum Operating Level (%)
31-August-2024	1,785	1,895	1,881	1,285	2,454	73

13 The aggregate reservoir storage level on August 31, 2024 was 1,785 GWh, which is 27% below the
14 seasonal maximum operating level and 39% above the minimum storage limit.² Hydro’s reservoirs
15 experienced continued dry weather throughout the month of August 2024, with little rain received
16 across most Island reservoirs. Inflows to the reservoirs of the Bay d’Espoir Generation System
17 (“Bay d’Espoir System”) were 111% below average in August 2024. Inflows to the Hinds Lake Reservoir

¹ Calculated in terms of energy (gigawatt hour [“GWh”]).

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 supplemented with maximized deliveries of power from the Muskrat Falls Hydroelectric Generating Facility over the Labrador-Island Link (“LIL”). Hydro’s long-term critical dry sequence is defined as January 1959 to March 1962 (39 months). Other dry periods are also considered during this analysis to ensure that no other shorter-term historic dry sequence could result in insufficient storage.

1 were 30% below average. Inflows to the Cat Arm Reservoir were closer to the long term historical
2 average with more rain in the area, finishing the month at approximately 6% above average.

3 On August 2, the Paradise River Hydroelectric Generating Station was taken offline on a forced outage
4 due to low reservoir levels. The unit was then offline from August 9 to 24, 2024 due to a leaking
5 penstock expansion joint. Bay d’Espoir Hydroelectric Generating Station (“Bay d’Espoir”) Unit 7
6 continued with its planned annual outage at the start of August. The unit then experienced a forced
7 extension to its annual outage from August 3 to 15, 2024 due to a failed generator bearing cooler.

8 Bay d’Espoir Unit 5 was taken offline twice on a planned outage to facilitate terminal station work on
9 August 8 and 23, 2024 respectively, and in each case it was returned to service on the same day.

10 Bay d’Espoir Unit 4 began a planned annual outage on August 11, 2024 and remained offline for the
11 remainder of the month. Bay d’Espoir Unit 3 was taken offline on August 12, 2024 for a planned outage
12 to facilitate terminal station work, returning to service later that same day. The unit was then taken
13 offline on its planned annual outage on August 18, 2024, and remained offline for the rest of the month.

14 Bay d’Espoir Unit 6 continued its planned annual outage which began on July 25, 2024 until
15 August 23, 2024, when the unit was then returned to service. Cat Arm Hydroelectric Generating Station

16 (“Cat Arm”) Unit 1 was taken offline on August 25, 2024 for its planned annual outage, remaining offline
17 for the rest of the month. Cat Arm Unit 2 was also taken offline on August 27, 2024 on a planned outage
18 to replace a leaking surface air cooler, with the unit returning to service the same day. Finally, the Hinds
19 Lake Hydroelectric Generating Station was taken offline on August 29, 2024 for a planned brush
20 replacement, with the unit returning the service the same day.

21 Figure 1 plots the 2023 and 2024 storage levels, minimum storage limits, maximum operating level
22 storage, and 20-year average aggregate storage for comparison. In addition to the 2023–2024 limits,
23 Hydro has established the minimum storage limits to April 30, 2025. The 2024–2025 limits were
24 developed considering maximized delivery of power from the Muskrat Falls Hydroelectric Generating
25 Facility, supplemented by available Recapture Energy from the Churchill Falls Generating Station over
26 the LIL, utilizing the transmission limits associated with the >58.0 Hz under-frequency load shedding
27 scheme.³

³ The 2024–2025 analysis assumed that only two units at the Holyrood Thermal Generating Station (“Holyrood TGS”) would be online and operating at minimum load during the winter 2024–2025 period. Hydro plans to have all three units at the Holyrood TGS available at full capability, if needed. The minimum storage methodology was updated to ensure Hydro’s reservoirs could continue to provide reliable service to customers at the lowest possible cost, in an environmentally responsible manner. In this context Hydro expects Island reservoirs to be supported with MF energy instead of thermal energy from the Holyrood TGS.

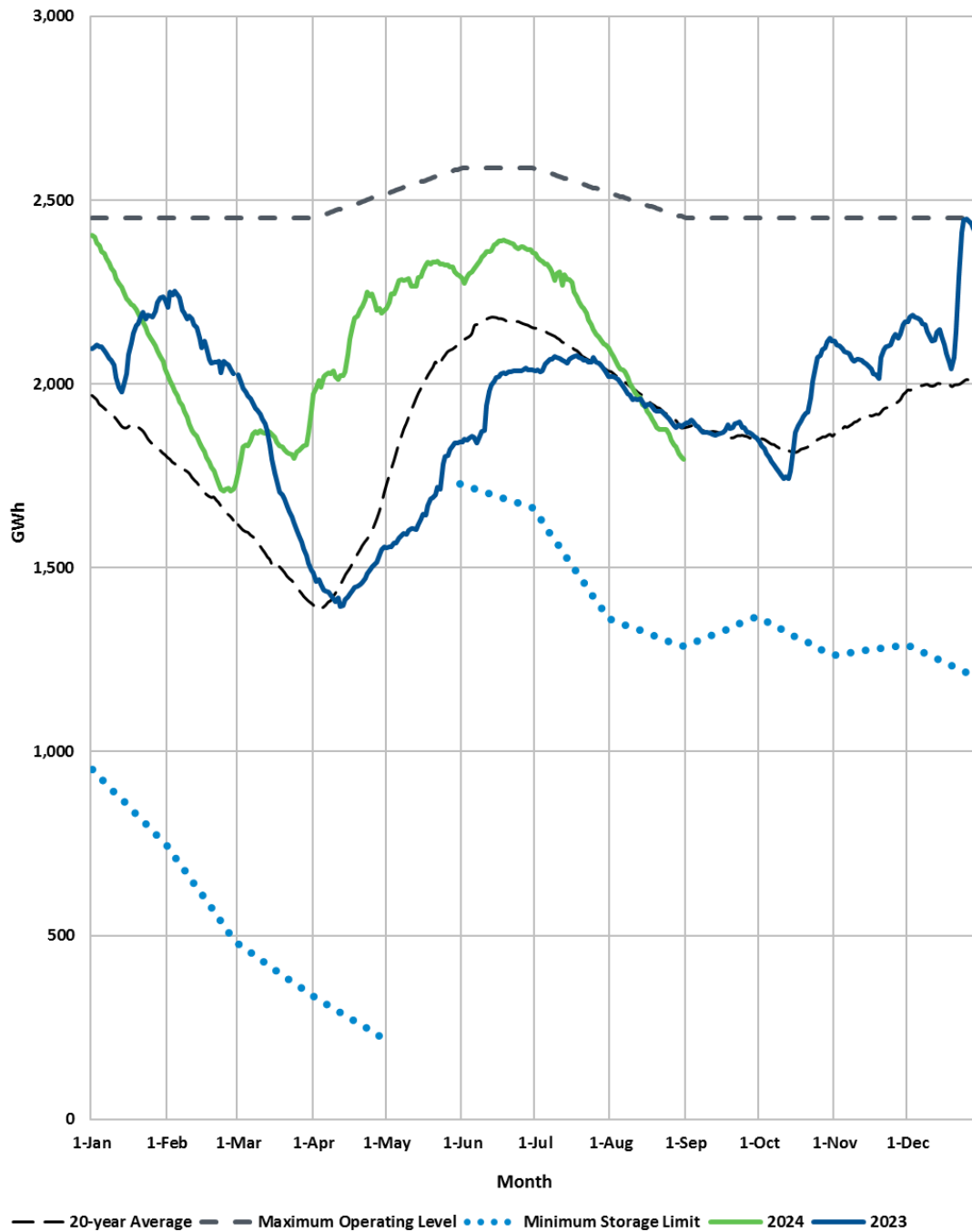


Figure 1: Total System Energy Storage⁴

⁴ Data points in Figure 1 represent storage at the beginning of each day. Table 1 reports the end-of-day storage values, which results in a small difference between the storage data presented in Table 1 and Figure 1.

2.1 Ponding

In Order No. P.U. 49(2018), the Board approved Hydro’s application for approval of a Pilot Agreement for the Optimization of Hydraulic Resources (“Pilot Agreement”).⁵ The intent of the Pilot Agreement is to optimize Hydro’s hydraulic resources through the strategic use of its storage capabilities, taking advantage of the variability of energy pricing in external markets over time.

Appendix A provides information regarding imported and exported energy transactions under the Pilot Agreement during the month. No ponding exports or imports over the Maritime Link occurred during August 2024.

2.2 Spill Activity

Appendix A provides information regarding spill-avoidance export transactions undertaken.⁶ There were no releases of water required at any locations on the Island Interconnected System in August 2024. A summary of the year-to-date (“YTD”) total volumes spilled or bypassed in both MCM⁷ and GWh can be found in Table 2.

Table 2: Spill Activity⁸

	Granite Canal Bypass		Upper Salmon Bypass		Burnt Dam Spillway	
	MCM	GWh	MCM	GWh	MCM	GWh
31-Aug-2024	-	-	-	-	-	-
YTD Total	5.9	0.6	3.9	0.5	21.0	13.8

3.0 Production and Purchases

Appendix B provides a breakdown of power purchases, including the import and export activity over the LIL and Maritime Link and production by plant during August 2024. No energy was repaid from Corner Brook Pulp and Paper Limited (“CBPP”) to Energy Marketing under the Temporary Energy Exchange

⁵ The Third Amended and Restated Pilot Agreement for the Optimization of Hydraulic Resources was approved as per Board Order No. P.U. 35(2022), and was extended as per Board Order No. P.U. 30(2023).

⁶ Pursuant to the Pilot Agreement, exporting when system load is low allows for increased generation from Island hydraulic facilities and the utilization of water (energy) that would have otherwise been spilled, while not increasing the risk of spill elsewhere in the system.

⁷ Million cubic metres (“MCM”).

⁸ Numbers may not add due to rounding.

1 Agreement in August 2024. A total of 0.7 GWh of emergency energy^{9,10} was supplied to Nova Scotia over
 2 the Maritime Link during August 2024.

3 **4.0 Thermal Production**

4 There were no units online at the Holyrood TGS during August 2024. Total energy production from Gas
 5 Turbines was 3.9 GWh during the month. The operating hours for the Holyrood TGS and the Hardwoods,
 6 Stephenville, and Holyrood Combustion Turbines are summarized in Table 3. Standby generation was
 7 not required to support reservoir storage. Operation of standby generation was required due to
 8 transmission operating limits on lines TL201 and TL217, as well as testing requirements.

Table 3: Holyrood TGS and Combustion Turbines Operating Hours

	Operating Hours	Synch Condense Hours	Available Hours
Holyrood TGS			
Unit 1	0	0	0
Unit 2	0	0	296.4
Unit 3	0	562.3	562.3
Combustion Turbines			
Hardwoods Gas Turbine	42.9	701.1	744.0
Stephenville Gas Turbine	0	0	0
Holyrood Combustion Turbine	75.0	0	744.0

9 **5.0 Unit Deratings**

10 Holyrood TGS Unit 1 was taken offline for the planned annual outage on April 12, 2024 and remained on
 11 a planned outage for the entire month of August.

12 Holyrood TGS Unit 2 remained available but on standby until August 13, 2024, as it was not required to
 13 support system generation requirements. On August 13, 2024, the unit was placed on planned annual
 14 outage and remained on a planned outage for the remainder of August.

15 Holyrood TGS Unit 3 was taken offline for the planned annual outage on May 26, 2024. The unit
 16 remained on a planned outage for the entire month of August 2024. On August 8, 2024, the Unit 3
 17 synchronous condenser was put online and operated for the remainder of August. Outage work on the

⁹ Under the Interconnection Operators Agreement between Hydro and Nova Scotia Power.

¹⁰ 670 MWh, measured at Bottom Brook Terminal Station.

1 boiler and other components not required for the synchronous condenser operation continued in
2 parallel.

3 The Hardwoods Gas Turbine was available for the entire month of August 2024. The unit was de-rated
4 to 50% capacity for a period of 4 hours on August 8, 2024 when end B failed to start. This was found to
5 be due to a failed igniter lead which was replaced, restoring the unit to full capacity.

6 The Holyrood Combustion Turbine was available for the full month of August 2024.

7 The Stephenville Gas Turbine remained unavailable during August 2024 due to damage to the generator
8 resulting from the failure of a generator cooling fan. After inspection and testing at the original
9 equipment manufacturer (“OEM”) facility in the United States in December 2023, the rotor was
10 returned to the site in February 2024 and reinstalled in the unit on March 5, 2024. The exciter was
11 received back from OEM’s facility on May 10, 2024. The contractor mobilized to the site on May 6, 2024,
12 and began reassembly activities. Assembly of the unit and auxiliary equipment continues with the
13 commencement of mechanical and electrical testing during the week of September 9, 2024. It is
14 expected that the unit will be returned to service during the week of September 23, 2024.

Appendix A

Ponding and Spill Transactions



Table A-1: Pondering Transactions¹

Date	Pondering Imports (MWh)	Pondering Exports (MWh)	Pondering Imports Purchased by Hydro (MWh)	Transfer of Pond Balance to Spill Avoidance (MWh)	Energy Losses to Export (MWh)	Cumulative Pondered Energy (MWh)
Opening Balance						(4,774)
Total ²		-	-	-	-	

¹ Numbers may not add due to rounding.

² Total transactions for August 2024.

Table A-2: Avoided Spill Energy³

Date	Avoided Spill Exports (MWh)	Energy Losses to Export (MWh)	Transfer of Pond Balance to Spill Avoidance (MWh)	YTD Avoided Spill Energy (MWh)
Opening Balance	-	-	-	170
Total ⁴	-	-	-	170

³ Numbers may not add due to rounding.

⁴ Total transactions for August 2024.

Appendix B

Production and Purchases



Table B-1: Generation and Purchases (GWh)¹

	August 2024	YTD Aug 2024
Hydro Generation (Hydro)		
Bay d'Espoir		
Unit 1	41.3	249.9
Unit 2	42.2	267.0
Unit 3	22.1	245.9
Unit 4	6.6	149.7
Unit 5	19.6	159.8
Unit 6	4.0	132.0
Unit 7	43.4	513.9
Subtotal Bay d'Espoir	<u>179.2</u>	<u>1,718.2</u>
Upper Salmon	43.9	360.8
Granite Canal	17.4	155.7
Hinds Lake	25.9	271.9
Cat Arm		
Unit 1	22.4	291.9
Unit 2	26.0	298.5
Subtotal Cat Arm	<u>48.3</u>	<u>590.3</u>
Paradise River	0.3	19.3
Star Lake	12.5	94.8
Rattle Brook	0.7	9.2
Nalcor Exploits	42.8	408.7
Mini Hydro	0.0	0.0
Total Hydro Generation (Hydro)	<u>371.0</u>	<u>3,628.8</u>
Thermal Generation (Hydro)		
Holyrood TGS		
Unit 1	0.0	180.1
Unit 2	0.0	17.0
Unit 3	0.0	204.7
Subtotal Holyrood TGS Units	<u>0.0</u>	<u>401.8</u>
Holyrood Gas Turbine and Diesels	3.5	9.5
Hardwoods Gas Turbine	0.4	0.8
Stephenville Gas Turbine	0.0	0.0
Other Thermal	0.0	0.1
Total Thermal Generation (Hydro)	<u>3.9</u>	<u>412.1</u>
Purchases		
Requested Newfoundland Power and Vale CBPP	0.0	0.0
Capacity Assistance	0.0	0.5
Power Purchase Agreement	0.0	80.0
Secondary	0.0	3.4
Co-Generation	3.7	20.3
Subtotal CBPP	<u>3.7</u>	<u>104.2</u>
Wind Purchases	12.4	117.0
Maritime Link Imports ²	0.0	0.0
New World Dairy	0.0	0.1
Labrador Island Link Delivery to IIS ^{3,4}	0.0	393.4
Total Purchases	<u>16.2</u>	<u>614.7</u>
Total⁵	<u>391.1</u>	<u>4,655.7</u>

¹ Gross generation.

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

³ There were no LIL deliveries to the Island Interconnected System in August 2024. LIL imports were 1.6 GWh during the month, and this amount was also exported over the Maritime Link.

⁴ Net energy delivered to the Island Interconnected System is less than the total energy delivery to Hydro under the Muskrat Falls Power Purchase Agreement because of transmission losses on the LIL.

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