Newfoundland and Labrador Hydro
Hydro Place. 500 Columbus Drive
P.O. Box 12400. St. John's. NL
Canada A1B 4K7
t. 709.737.1400 I f. 709.737.1800
nlhydro.com

January 16, 2025

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 December 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/mc

Encl.

ecc:

Board of Commissioners of Public Utilities
Jacqui H. Glynn
Katie R. Philpott
Board General

Consumer Advocate
Dennis M. Browne, KC, Browne Fitzgerald Morgan & Avis
Stephen F. Fitzgerald, KC, Browne Fitzgerald Morgan & Avis
Sarah G. Fitzgerald, Browne Fitzgerald Morgan & Avis
Bernice Bailey, Browne Fitzgerald Morgan & Avis

Linde Canada Inc.
Sheryl E. Nisenbaum
Peter Strong

Newfoundland Power Inc.
Dominic J. Foley
Regulatory Email

Teck Resources Limited
Shawn Kinsella

Island Industrial Customer Group
Paul L. Coxworthy, Stewart McKelvey
Denis J. Fleming, Cox & Palmer
Glen G. Seaborn, Poole Althouse

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

January 16, 2025

A report to the Board of Commissioners of Public Utilities

newfoundland labrador hydro

Contents

List of Appendices

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;

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 December 2024.

Ownership of the Water Management function resides within Hydro in the Resource and Production Planning department, and is at all times guided by Hydro's operating instructions and environmental standards. This group works in consultation with Energy Marketing to optimize the use of Hydro's hydrologic resources through import/exports and to ensure that the security of supply for domestic load for Hydro's customers remains paramount in all decisions, ensuring the delivery of least-cost, reliable service in an environmentally responsible manner.

2.0 System Hydrology

Reservoir inflows in December 2024 were 4% above the month's historical average.[1] 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	2024 (GWh)	2023 (GWh)	20-Year Average (GWh)	Minimum Storage Limit (GWh)	Maximum Operating Level (GWh)	Maximum Operating Level (%)
31-December-2024	1884	2,406	1,991	1,197	2,452	77

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

The aggregate reservoir storage level on December 31, 2024, was 1,884 GWh, which is 23% below the seasonal maximum operating level and 57% above the minimum storage limit.[2] Total system energy decreased by 23 GWh resulting in a total system energy storage 107 GWh below the 20-year average. Inflows to the reservoirs of the Bay d'Espoir System were 4% above average in December 2024. Inflows to the Hinds Lake Reservoir were 6% above average and inflows to the Cat Arm Reservoir were 13% above average.

Table 2 summarizes the unit outages experienced during December 2024.

Table 2: **December 2024 Unit Outage Summary**

Unit Name	Date offline	Return to Service	Outage Reason	Notes
Granite Canal Unit	December 5	December 6	Forced outage	Outage due to a generator oil level alarm.
Paradise River Unit	December 5	December 7	Forced outage	Outage due to a control system lockout.
Hinds Lake Unit	December 6	December 7	Forced outage	Line loss on L43 resulted in unit trip.
Hinds Lake Unit	December 11	December 11	Planned outage	n/a
Upper Salmon Unit	December 18	December 18	Planned outage	n/a
Granite Canal Unit	December 22	December 22	Forced outage	Load imbalance across system resulted in generation at granite forced offline.

Figure 1 plots the 2023 and 2024 storage levels, minimum storage limits, maximum operating level storage, and 20-year average aggregate storage for comparison. In addition to the 2023–2024 limits, Hydro has established the minimum storage limits to April 30, 2025. The 2024–2025 limits were developed considering maximized delivery of power from Muskrat Falls, supplemented by available

[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 ("Muskrat Falls") 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.

Recapture Energy from the Churchill Falls Hydroelectric Generating Station over the LIL, utilizing the transmission limits associated with the >58.0 Hz under frequency load shedding scheme.[3]

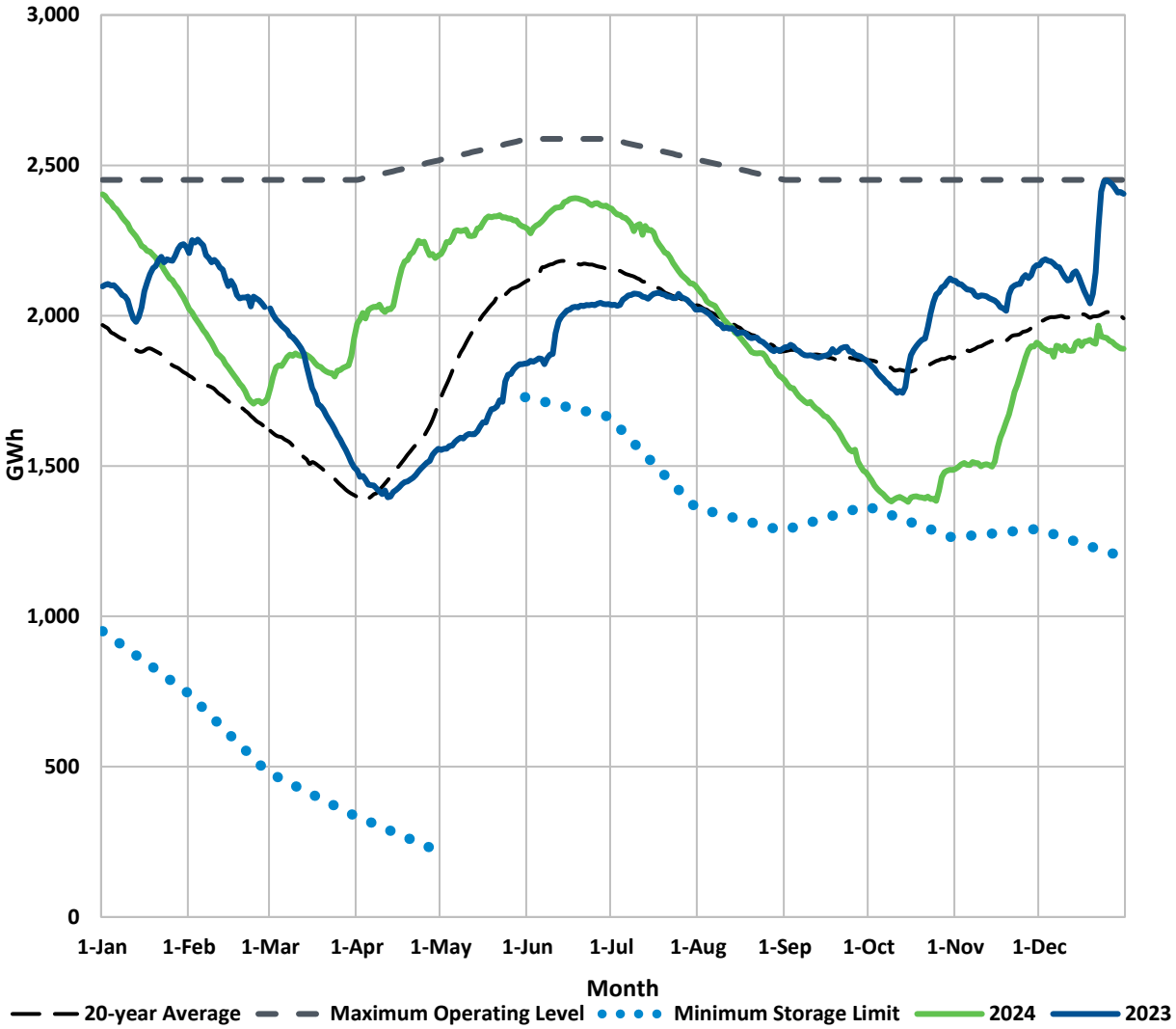

Figure 1: Total System Energy Storage[4]

[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 Muskrat Falls energy instead of thermal energy from the Holyrood TGS.

[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 December 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 December 2024. A summary of the year-to-date ("YTD") total volumes spilled or bypassed in both MCM[7] and GWh can be found in Table 3.

Table 3: Spill Activity

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

[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), and again in Board Order No. P.U. 29(2024).
[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").

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 December 2024.[8] There was no energy repaid from CBPP to Energy Marketing under the Temporary Energy Exchange Agreement in December 2024. There was no emergency energy supplied to Nova Scotia over the Maritime Link during December 2024.

4.0 Thermal Production

Unit 2 and 3 at the Holyrood TGS were online for system requirements during December 2024. Total energy production from the Holyrood TGS was 104.1 GWh during the month. Standby generation was not used to support reservoir storage. The operating hours for the Holyrood TGS, Holyrood Combustion Turbine ("CT"), and the Hardwoods and Stephenville Gas Turbines ("GT") are summarized in Table 4.

Table 4: **Holyrood TGS and Combustion Turbines Operating Hours**

	Operating Hours	Synch Condense Hours	Available Hours
Holyrood TGS			
Unit 1	0	0	0
Unit 2	740.5	0	740.5
Unit 3	744	0	744
Combustion Turbines			
Hardwoods GT	1.6	740.7	744
Stephenville GT	5.8	229.5	741.7
Holyrood CT	0	0	744

5.0 Unit Deratings

Holyrood TGS Unit 1 was taken offline for a planned annual outage on April 12, 2024. It remained on planned outage until the planned return to service date of October 19, 2024. Since that date, including the entire month of December, the unit was on a forced extension of the planned outage, as work to restore the last stage blades and complete other work including damage found to the rotor journals continued. The anticipated return to service for Unit 1 is mid-January 2025.

[8] On October 1, 2024, Hydro entered into a second six-month power purchase agreement with Corner Brook Pulp and Paper Limited ("CBPP") as directed by the Government of Newfoundland and Labrador. The power purchase agreement with CBPP provides Hydro with 80 GWh of non-firm energy from October 1, 2024, through March 31, 2025, inclusive.

Holyrood TGS Unit 2 was online and available for full load from December 1 until December 19, 2024 when the unit was taken offline for a planned maintenance outage to replace worn generator brushes. The unit was returned to service on schedule later that same day. The unit was available for full load for the remainder of December 2024.

Holyrood TGS Unit 3 was online and fully available from December 1 until December 19, 2024. On December 19, 2024, a cooling water leak developed on the East Forced Draft Fan, which made the fan unavailable, consequently limiting the capability of Unit 3 to 50 MW. On December 21, 2024, the repairs were complete and the unit was again available for full load. Unit 3 remained fully available for the rest of December 2024.

The Holyrood CT and Stephenville GT were available for the entire month of December 2024.

The Hardwoods GT was available for the entire month of December 2024, with the exception of a short planned outage to complete switching required to complete terminal station maintenance on December 13, 2024.

Appendix A

Ponding and Spill Transactions

Table A-1: Ponding Transactions

Date	Ponding Imports (MWh)	Ponding Exports (MWh)	Ponding Imports Purchased by Hydro (MWh)	Transfer of Pond Balance to Spill Avoidance (MWh)	Energy Losses to Export (MWh)	Cumulative Ponded Energy (MWh)
Opening Balance						**(4,774)**
Total[1]		-	-	-	-	

Table A-2: Avoided Spill Energy

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[2]	-	-	-	**170**

[1] Total transactions for December 2024.
[2] Total transactions for December 2024.

Appendix B

Production and Purchases

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

	December 2024	YTD Dec 2024
Hydro Generation (Hydro)		
Bay d'Espoir		
Unit 1	43.0	404.7
Unit 2	36.4	367.4
Unit 3	37.1	366.1
Unit 4	23.1	186.9
Unit 5	23.9	220.3
Unit 6	27.3	192.0
Unit 7	91.8	733.7
Subtotal Bay d'Espoir	282.7	2,471.1
Upper Salmon	45.5	515.3
Granite Canal	22.5	239.5
Hinds Lake	31.3	352.9
Cat Arm		
Unit 1	37.8	398.3
Unit 2	38.2	407.0
Subtotal Cat Arm	75.9	805.3
Paradise River	4.7	32.9
Star Lake	12.4	131.7
Rattle Brook	1.3	13.6
Nalcor Exploits	53.2	578.8
Mini Hydro	0.0	0.1
Total Hydro Generation (Hydro)	**529.6**	**5,141.1**
Thermal Generation (Hydro)		
Holyrood TGS		
Unit 1	0.0	180.1
Unit 2	52.4	158.4
Unit 3	51.6	364.8
Subtotal Holyrood TGS Units	104.0	703.3
Holyrood Gas Turbine and Diesels	0.0	9.5
Hardwoods Gas Turbine	0.0	0.9
Stephenville Gas Turbine	0.1	0.4
Other Thermal	0.0	0.2
Total Thermal Generation (Hydro)	**104.1**	**714.3**
Purchases		
Requested Newfoundland Power and Vale	0.0	0.0
CBPP		
Capacity Assistance	0.0	0.5
Power Purchase Agreement	22.4	128.2
Secondary	0.0	3.4
Co-Generation	0.0	22.1
Subtotal CBPP	22.4	154.1
Wind Purchases	15.7	171.8
Maritime Link Imports[2]	0.0	2.3
New World Dairy	0.0	0.1
Labrador Island Link Delivery to IIS[3,4]	100.6	739.6
Total Purchases	**138.8**	**1,068.0**
Total[5]	**772.5**	**6,923.4**

[1] Gross generation.

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

[3] LIL deliveries to the Integrated Island System are calculated as LIL imports of 380.6 GWh less Maritime Link exports of 280.0 GWh for 100.6 GWh delivered.

[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.