



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

May 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 April 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:

**Board of Commissioners of Public Utilities**  
Jacqui H. Glynn  
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  
Lindsay S.A. Hollett  
Regulatory Email

**Teck Resources Limited**  
Shawn Kinsella

**Island Industrial Customer Group**  
Paul L. Coxworthy, Stewart McKelvey  
Denis J. Fleming, Cox & Palmer  
Dean A. Porter, Poole Althouse

# Monthly Energy Supply Report for the Island Interconnected System for April 2024

May 17, 2024

A report to the Board of Commissioners of Public Utilities



## Contents

1.0	Introduction .....	1
2.0	System Hydrology .....	1
2.1	Ponding .....	4
2.2	Spill Activity.....	4
3.0	Production and Purchases .....	5
4.0	Thermal Production .....	5
5.0	Unit Deratings .....	6

## List of Appendices

Appendix A: Ponding and Spill Transactions

Appendix B: 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;
- 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 2024.<sup>1</sup>

## 2.0 System Hydrology

Reservoir inflows in April 2024 were 4% above the month’s historical average.<sup>2</sup> 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 (%)
30-Apr-2024	2,207	1,550	1,705	220	2,516	88

The aggregate reservoir storage level on April 30, 2024 was 2,207 GWh, which is 12% below the seasonal maximum operating level and 903% above the minimum storage limit.<sup>3</sup> Inflows to the reservoirs of the Bay d’Espoir Generation System (“Bay d’Espoir System”) were 84% of average during

<sup>1</sup> Effective April 2023, Hydro added Section 2.1 (Ponding), Section 2.2 (Spill Activity), and Appendix A (Ponding and Spill Transactions) within this report. “Newfoundland and Labrador Hydro – Streamlining of Quarterly Regulatory Report to Parties – Board’s Decision on Reporting,” Board of Commissioners of Public Utilities, May 11, 2023.

<sup>2</sup> Calculated in terms of energy (gigawatt hour [“GWh”]).

<sup>3</sup> 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 April 2024, while inflows to the Hinds Lake Reservoir were 127% of average, and inflows to the Cat Arm  
2 Reservoir were 235% of average. Weather conditions across the Island reservoirs in April 2024 were mild  
3 with periods of rain and freezing rain. This led to the melt of all remaining snow in the Bay d’Espoir  
4 System, and continued snowmelt at both Hinds Lake Hydroelectric Generating System (“Hinds Lake”)  
5 and Cat Arm Hydroelectric Generating System (“Cat Arm”). Heavy rain on the Northern Peninsula  
6 towards the end of the month also resulted in increased inflow to the Cat Arm Reservoir. A snow survey  
7 of the Hinds Lake and Cat Arm Reservoirs was completed on April 7, 2024. This survey found little  
8 remaining snow in the Hinds Lake watershed; however, remaining snow pack in Cat Arm was at the  
9 historical average for April. By the end of April, the spring freshet in the Bay d’Espoir and Hinds Lake  
10 watersheds had concluded and remains ongoing in the Cat Arm watershed.

11 Hinds Lake continued with its planned annual outage in April. The unit was returned to service on April  
12 16, 2024. Bay d’Espoir Unit 3 was offline on outage starting on April 14, 2024, due to a stator ground  
13 fault, with the unit returning to service on April 22, 2024. Bay d’Espoir Units 5 and 6 were taken offline  
14 on a brief planned outage on April 23, 2024, to perform spherical valve inspections, with both units  
15 returning to service later that day. Bay d’Espoir Units 5 and 6 were subsequently taken offline on  
16 planned annual outages starting April 28, 2024, with work still ongoing at the end of April. The Upper  
17 Salmon Hydroelectric Generating Station was taken offline on April 21, 2024, for a planned warranty  
18 inspection, with the unit returning to service on April 25, 2024. Finally, the Hinds Lake was taken offline  
19 on April 28, 2024, due to a brief planned outage on Transmission Line TL243, which required the plant to  
20 be offline. The plant returned to service later that 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.

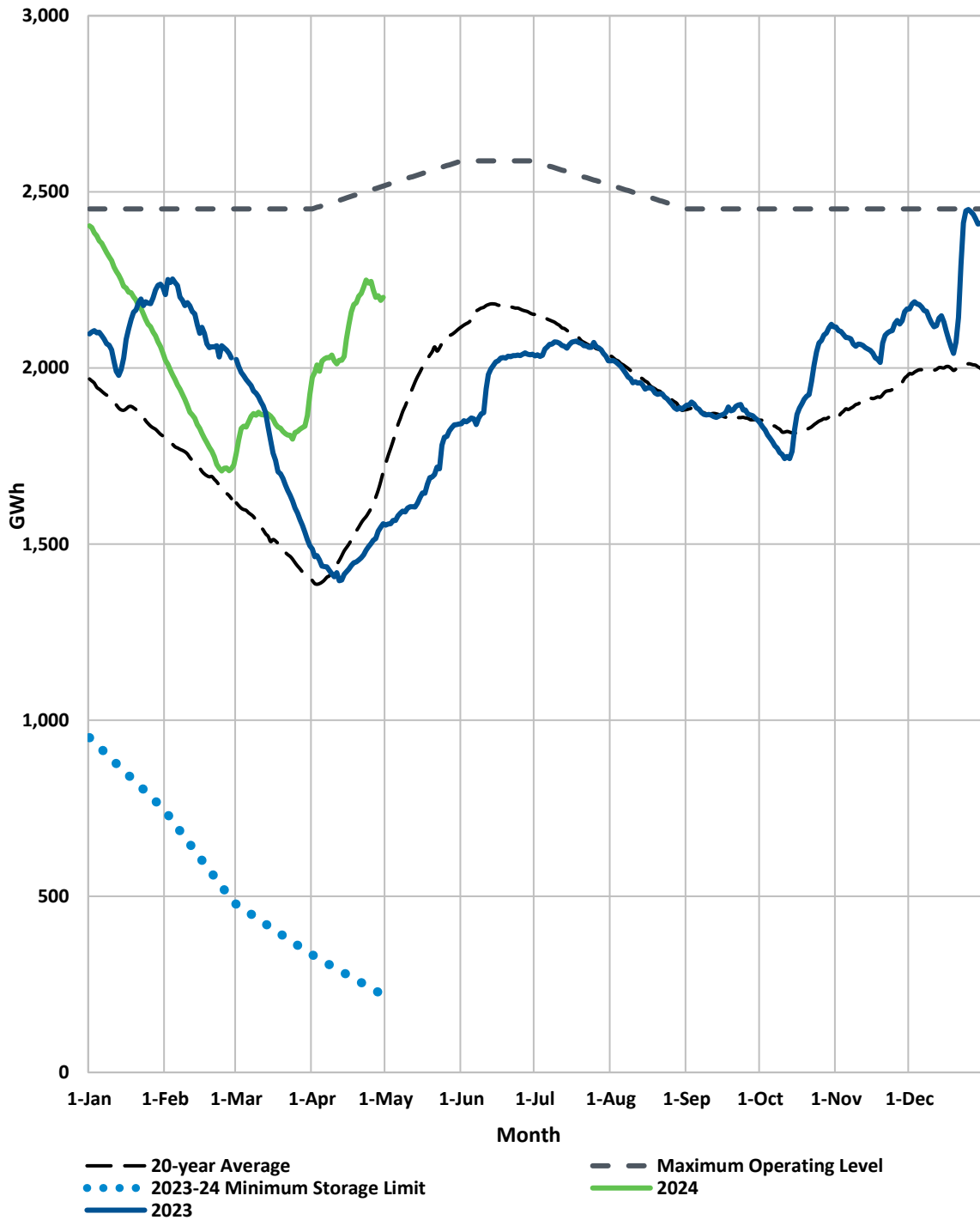


Figure 1: Total System Energy Storage<sup>4</sup>

<sup>4</sup> 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”).<sup>5</sup> 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. Ponding exports over the Maritime Link occurred during April 2024 and are summarized in Appendix A.

## 2.2 Spill Activity

Due to high water levels and inflows resulting from mild weather, snowmelt, and rain, spill was required at the Burnt Dam Spillway in April 2024. Releases were required from April 15, 2024 to April 17, 2024.

A summary of the amount spilled or bypassed in both MCM<sup>6</sup> and GWh in April 2024, as well as year-to-date (“YTD”) totals can be found in Table 2. Appendix A provides information regarding spill-avoidance export transactions undertaken during the month.<sup>7</sup> There were no opportunities to mitigate spill with energy exports in April 2024, as generation in impacted areas was maximized to the extent possible.

**Table 2: Spill Activity<sup>8</sup>**

	Granite Canal Bypass		Upper Salmon Bypass		Burnt Dam Spillway	
	MCM	GWh	MCM	GWh	MCM	GWh
30-Apr-2024	-	-	-	-	8.2	5.4
<b>YTD Total</b>	<b>5.9</b>	<b>0.6</b>	<b>3.9</b>	<b>0.5</b>	<b>21.0</b>	<b>13.8</b>

<sup>5</sup> 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).

<sup>6</sup> Million cubic metres (“MCM”).

<sup>7</sup> 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.

<sup>8</sup> Numbers may not add due to rounding.

### 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 April 2024. Deliveries made in April 2024, under the power purchase agreement with Corner Brook Pulp and Paper Limited (“CBPP”), are also outlined in Appendix B.<sup>9</sup> There was no energy repaid from CBPP to Energy Marketing under the Temporary Energy Exchange Agreement in April 2024. A total of 0.06 GWh<sup>10</sup> of emergency energy<sup>11</sup> was supplied to Nova Scotia over the Maritime Link during April 2024.

### 4.0 Thermal Production

Units 1 and 3 at the Holyrood Thermal Generating Station (“Holyrood TGS”) were online for system generation requirements during April 2024. Unit 2 was online for commissioning purposes upon the unit’s return to service. Total energy production from the Holyrood TGS was 68.5 GWh during the month. The operating hours for the Holyrood TGS and the Hardwoods, Stephenville, and Holyrood Gas Turbines are summarized in Table 3. Standby generation was not required to support reservoir storage.

**Table 3: Holyrood TGS and Gas Turbines Operating Hours**

	Operating Hours	Synch Condense Hours	Available Hours
<b>Holyrood TGS</b>			
Unit 1	274.2	0	274.2
Unit 2 <sup>12</sup>	65.6	0	65.6
Unit 3	720.0	0	720.0
<b>Gas Turbines</b>			
Hardwoods	7.4	699.7	707.1
Stephenville	0	0	0
Holyrood	13.7	0	559.9

<sup>9</sup> On February 1, 2024, Hydro entered into a six-month power purchase agreement with CBPP as per a directive from the Government of Newfoundland and Labrador on January 22, 2024, in Order in Council No. OC2024-013. The power purchase agreement with CBPP provides Hydro with 80 GWh of non-firm energy from February 1, 2024, through July 31, 2024, inclusive.

<sup>10</sup> 58 MWh measured at Bottom Brook Converter Station.

<sup>11</sup> Under the Interconnection Operators Agreement between Hydro and Nova Scotia Power.

<sup>12</sup> Operating and available hours noted for Holyrood TGS Unit 2 are hours spent operating under testing/monitoring conditions. The unit was not released for normal operation in April. Additional details can be found in Section 5.0.



## 5.0 Unit Deratings

At the beginning of April 2024, Holyrood TGS Unit 1 was online and derated to 160 MW.<sup>13</sup> On April 8, 2024, a leak developed in the west cooling water pump discharge piping that required the shut down of this pump. A decision was made to correct this leak during the upcoming annual outage. The unit remained online and derated to 90 MW until April 12, 2024, when it was taken offline for the planned annual outage.

Unit 2 at the Holyrood TGS was returned to service on April 22, 2024, to begin online commissioning of the new controls system and the new last stage blades that had been installed on the turbine. The unit was kept online at 40 MW overnight to allow the completion of overspeed testing on April 23, 2024. Commissioning continued offline and the unit was returned to service at 45 MW on April 24, 2024; later increased to 70 MW on April 25, 2024, for approximately 22 hours. The unit was then shut down for additional offline commissioning. The next run-up to complete commissioning is expected to occur in May 2024.

Unit 3 at the Holyrood TGS was online and operating with full capability for the entire month of April 2024, with the exception of April 19, 2024–April 20, 2024, when the unit was derated to 90 MW due to a failure of the east fuel oil pump. The pump was replaced, and the unit was returned to full capability on April 20, 2024.

The Hardwoods Gas Turbine was available for the entire month of April 2024 with the exception of a planned outage in the Hardwoods Terminal Station on April 29, 2024, and April 30, 2024, which also made the gas turbine unavailable.

The Holyrood Gas Turbine was available for the full month of April 2024 with the exception of a planned outage from April 22, 2024 to May 3, 2024, to complete preventative maintenance activities.

The Stephenville Gas Turbine remained unavailable during April 2024 due to damage to the generator resulting from the failure of a generator cooling fan. After inspection and testing at the original equipment manufacturer (“OEM”) facility in the United States in December 2023, the rotor was returned to the site in February 2024 and reinstalled in the unit on March 5, 2024. The exciter was

---

<sup>13</sup> Work is planned for the 2024 annual outage to restore full capability of the unit for the next operating season.

- 1 received back from OEM's facility on May 10, 2024. The contractor mobilized to the site on May 6, 2024,
- 2 to begin reassembly of the unit. It is expected that the unit will return to service mid-to- late July 2024.

# Appendix A

## Ponding and Spill Transactions



Table A-1: Ponding Transactions<sup>1</sup>

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 Pondered Energy (MWh)
<b>Opening Balance</b>						-
17-Apr-2024		118			12	(130)
<b>Total<sup>2</sup></b>	-	<b>118</b>	-	-	<b>12</b>	

Table A-2: Avoided Spill Energy<sup>1</sup>

Date	Avoided Spill Exports (MWh)	Energy Losses to Export (MWh)	Transfer of Pond Balance to Spill Avoidance (MWh)	YTD Avoided Spill Energy (MWh)
<b>Opening Balance</b>				
<b>Total<sup>2</sup></b>	-	-	-	

<sup>1</sup> Numbers may not add due to rounding.

<sup>2</sup> As of April 30, 2024.

# Appendix B

## Production and Purchases



**Table B-1: Generation and Purchases (GWh)<sup>1</sup>**

	April 2024	YTD April 2024
<b>Hydro Generation (Hydro)</b>		
Bay d'Espoir		
Unit 1	39.2	162.1
Unit 2	39.0	161.3
Unit 3	19.5	124.9
Unit 4	12.8	84.0
Unit 5	11.1	83.7
Unit 6	22.0	98.9
Unit 7	62.0	302.4
Subtotal Bay d'Espoir	<u>205.7</u>	<u>1,017.4</u>
Upper Salmon	49.0	207.6
Granite Canal	26.1	94.2
Hinds Lake	21.6	142.2
Cat Arm		
Unit 1	44.7	178.9
Unit 2	44.8	179.3
Subtotal Cat Arm	<u>89.5</u>	<u>358.3</u>
Paradise River	4.6	12.1
Star Lake	10.6	47.1
Rattle Brook	2.2	4.3
Nalcor Exploits	53.9	207.7
Mini Hydro	0.0	0.0
<b>Total Hydro Generation (Hydro)</b>	<b><u>463.2</u></b>	<b><u>2,090.8</u></b>
<b>Thermal Generation (Hydro)</b>		
Holyrood TGS		
Unit 1	19.5	180.1
Unit 2	3.5	3.5
Unit 3	45.5	184.8
Subtotal Holyrood TGS Units	<u>68.5</u>	<u>368.3</u>
Holyrood Gas Turbine and Diesels	0.8	4.9
Hardwoods Gas Turbine	0.1	0.3
Stephenville Gas Turbine	0.0	0.0
Other Thermal	0.0	0.0
<b>Total Thermal Generation (Hydro)</b>	<b><u>69.5</u></b>	<b><u>373.5</u></b>
<b>Purchases</b>		
Requested Newfoundland Power and Vale CBPP	0.0	0.0
Capacity Assistance	0.0	0.5
Power Purchase Agreement	28.7	62.4
Secondary	0.0	1.7
Co-Generation	0.0	10.6
Subtotal CBPP	<u>28.7</u>	<u>75.3</u>
Wind Purchases	18.9	72.4
Maritime Link Imports <sup>2</sup>	0.0	0.0
New World Dairy	0.0	0.1
Labrador Island Link Delivery to IIS <sup>3,4</sup>	16.4	324.2
<b>Total Purchases</b>	<b><u>64.0</u></b>	<b><u>472.1</u></b>
<b>Total<sup>5</sup></b>	<b><u>596.6</u></b>	<b><u>2,936.4</u></b>

<sup>1</sup> Gross generation.

<sup>2</sup> Includes energy flows as a result of purchases and inadvertent energy.

<sup>3</sup> LIL deliveries to the Island Interconnected System are calculated by total LIL imports of 144.0 GWh less Maritime Link Exports of 127.7 GWh.

<sup>4</sup> 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.

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