



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

August 1, 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: Ms. Cheryl Blundon
Director Corporate Services & Board Secretary

Re: Monthly Energy Supply Report for the Island Interconnected System for June 2022 – Revision 1

Enclosed please find Revision 1 of Newfoundland and Labrador Hydro's ("Hydro") Monthly Energy Supply Report for the Island Interconnected System. The revised report reflects corrections to Section 2.0 System Hydrology (June 2022 reservoir inflows, year to date 2022 inflows, total system energy storage at the end of June 2022, percentage above the minimum storage limit at the end of June 2022 and total increase in system energy storage in June 2022). These changes are related to an accuracy issue associated with the automatic gauge at the Victoria Control Structure. Questionable reservoir measurements occurred in mid-July and prompted further investigation. Hydro is continuing to conduct manual measurements until the issue is resolved.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

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

Encl.

ecc:

Board of Commissioners of Public Utilities
Jacqui H. Glynn
PUB Official Email

Praxair Canada Inc.
Sheryl E. Nisenbaum
Peter Strong

Teck Resources Limited
Shawn Kinsella

Consumer Advocate
Dennis M. Browne, QC, Browne Fitzgerald Morgan Avis & Wadden
Stephen F. Fitzgerald, Browne Fitzgerald Morgan Avis & Wadden
Sarah G. Fitzgerald, Browne Fitzgerald Morgan Avis & Wadden
Bernice Bailey, Browne Fitzgerald Morgan Avis & Wadden
Bernard M. Coffey, QC

Newfoundland Power Inc.
Dominic J. Foley
Lindsay S.A. Hollett
Regulatory Email

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

Revision History

Revision	Date	Location	Reason
1	1-Aug-2022	Sec. 2.0, page 1, line 11	Correction to percentage above monthly historical average of reservoir inflows for June 2022
1	1-Aug-2022	Sec. 2.0, page 1, line 12	Correction to percentage above year-to-date historical average reservoir inflows.
1	1-Aug-2022	Sec. 2.0, page 1, Table 1	Correction to end of June 2022 total system storage.
1	1-Aug-2022	Sec. 2.0, page 1, line 14	Correction to end of June 2022 total system storage.
1	1-Aug-2022	Sec. 2.0, page 1, line 15	Correction to percentage above minimum storage limit.
1	1-Aug-2022	Sec. 2.0, page 2, line 5	Correction to increase in total energy in storage at the end of June 2022.
1	1-Aug-2022	Sec. 2.0, page 3, Figure 1	Figure updated with revised total system energy storage values from June 25–30, 2022.



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

Original Submission: July 18, 2022

Revision 1: August 1, 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 June 2022.

2.0 System Hydrology¹

Reservoir inflows in June 2022 were approximately 8% above the month’s historical average. Inflows in 2022 are 146% 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)	Percentage of Maximum Operating Level (%)
30-June-2022	2,540	1,944	2,132	1,351	2,588	99

The aggregate reservoir storage level on June 30, 2022 was 2,540 GWh, which is 1% below the seasonal maximum operating level and 188% above the minimum storage limit.² The current storage level is

¹ Reservoir inflows and system storage are adjusted to address an identified issue with the automated gauge at Victoria Control Structure. The revised data reflects manual water level measurements.

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.

1 shown in Figure 1 in relation to the 20-year average storage level for the end of June 2022 of
2 2,132 GWh. At the end of June 2021, the aggregate storage level was 1,944 GWh.

3 Inflows in June 2022 continued to be above average due to continued snowmelt in the Cat Arm
4 watershed and multiple rainfall events throughout the Bay d’Espoir system and at Hinds Lake. This
5 resulted in total energy in storage increasing by approximately 7 GWh by month end. Spilling continued
6 at Cat Arm throughout much of the month finally ending on June 28, 2022.

7 Generation at Hinds Lake continued to be prioritized early in the month while inflows and reservoir
8 storage remained high. Cat Arm generation continued to be prioritized throughout much of the month
9 while spilling continued at this location. Beginning March 24, 2022 and continuing through June, Hydro
10 engaged Energy Marketing to export energy on its behalf to aid in the mitigation of spill pursuant to the
11 Pilot Agreement for the Optimization of Hydraulic Resources.³ Energy Marketing was able to export
12 3.0 GWh of energy on Hydro’s behalf in June. Energy exports to mitigate spill ended once spilling at Cat
13 Arm ended on June 28, 2022.

14 The Granite Canal Hydroelectric Generating Station planned annual outage began on June 19, 2022.
15 Releases at the Granite Canal Bypass Structure began on June 23, 2022 and continued for the remainder
16 of the month because of high storage levels in Victoria Reservoir, Burnt Pond, and Granite Lake
17 following 80 mm of rainfall on June 19–20, 2022 and up to 40 mm of rainfall on June 24–25, 2022.

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

³ Exporting when system load is low allowed for sustained generation from Island hydraulic facilities and the utilization of water (energy) that would otherwise have been spilled, while not increasing the risk of spill elsewhere in the system.

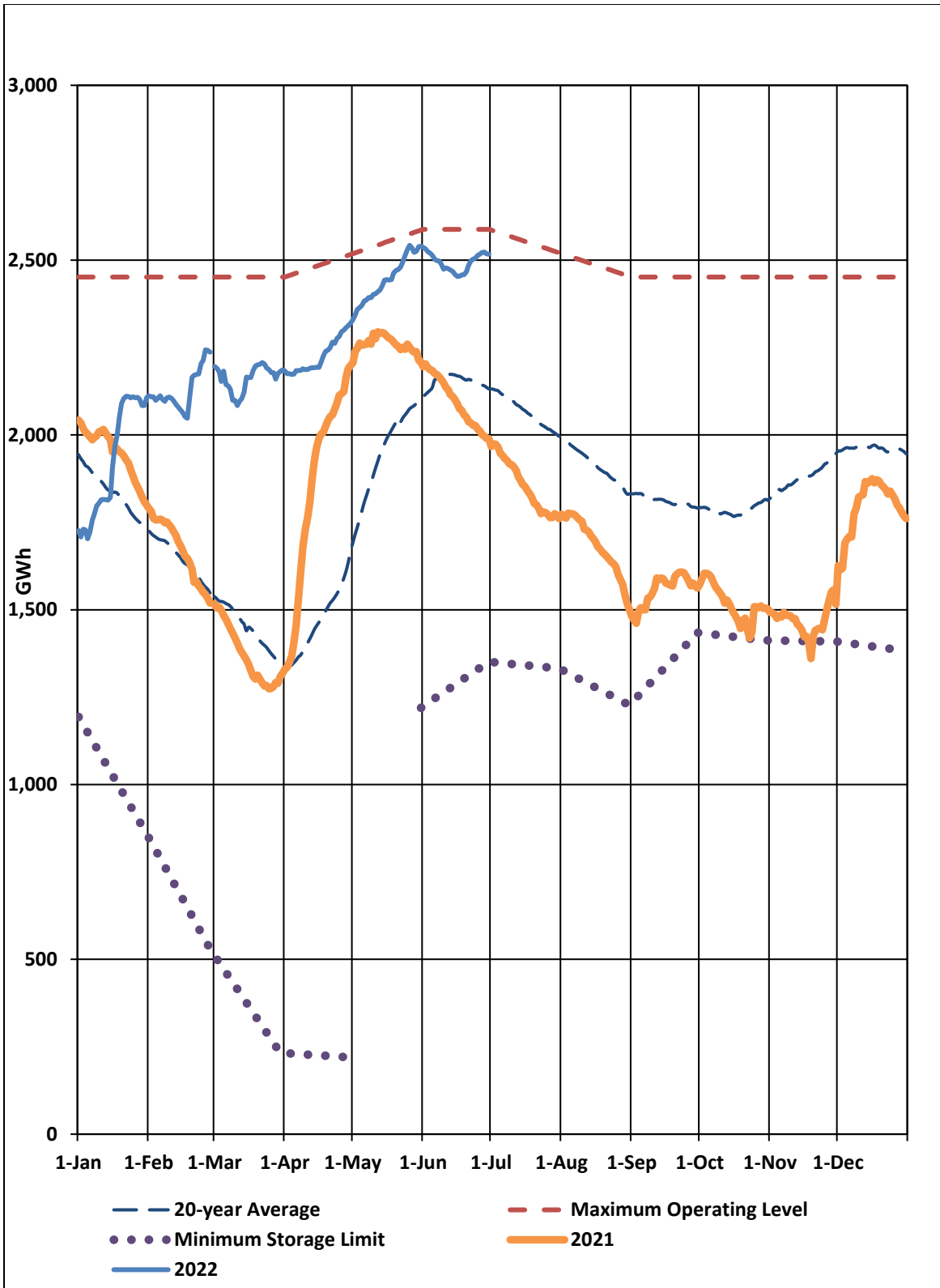


Figure 1: Total System Energy Storage

3.0 Production and Purchases

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

4.0 Thermal Production and Imports

No units at the Holyrood Thermal Generating Station (“Holyrood TGS”) were required to generate during June 2022 for system requirements. Unit 3 was operated in synchronous condenser operational mode for 273 hours. Total energy production from the Holyrood TGS during the month of June 2022 was 0.0 GWh.

Standby units were operated for a total of 46.5 hours during the month to support system requirements. Total standby production during the month was 0.3 GWh. Standby generation was not required to support reservoir storage.

Testing activities continued on the Labrador-Island Link (“LIL”) in June 2022, resulting in the delivery of 62 GWh of energy at Soldiers Pond. Total metered energy over the Maritime Link to Nova Scotia for the month of June 2022 was 65.8 GWh.^{4,5} Energy Marketing exported 50.5 GWh⁶ associated with the delivery of the Nova Scotia Block and Supplemental Energy⁷ and 7.5 GWh of bulk surplus energy⁸. Exports of 5.1 GWh occurred over the Maritime Link associated with ponding activities, resulting in a month-end ponded balance of -5.1 GWh. In addition, 1.9 GWh was repaid to Energy Marketing by Corner Brook Pulp and Paper Limited as per the Temporary Energy Exchange Agreement. This energy was also exported over the Maritime Link.

⁴ 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.

⁵ Physical delivery of the Nova Scotia Block will only occur when the LIL is online and able to transfer power.

⁶ Due to power system operations, metered quantities may not match commercially transacted volumes.

⁷ Nova Scotia Block and Supplemental Energy quantities are reflected at the point of commercial transaction.

⁸ Bulk surplus energy includes Muskrat Falls energy and energy repaid to Energy Marketing by Corner Brook Pulp and Paper Limited that is sold to external markets.

5.0 Unit Deratings

Holyrood TGS Unit 1 was available at full capability until June 13, 2022 but the unit was offline because it was not required by the Newfoundland and Labrador System Operator (“NLSO”) to support system loading. On June 13, 2022, Unit 1 was placed on planned annual maintenance outage with a scheduled return to service date of August 27, 2022. The unit remained on planned outage for the remainder of June.

Holyrood TGS Unit 2⁹ was offline with full capability for the entire month of June 2022 because it was not required by the NLSO to support system loading.

Holyrood TGS Unit 3 was operating in synchronous condenser mode at the beginning of June 2022. Annual outage work on Unit 3 assets not required for synchronous condenser operation, including the boiler, progressed in parallel. On June 12, 2022, the synchronous condenser was taken offline and the unit was placed on planned annual outage with a scheduled return to service date of August 27, 2022. It remained on planned outage for the remainder of June.

The Hardwoods Gas Turbine was available at full capacity for the entire month of June 2022 with the exception of a planned outage on June 17, 2022 to complete corrective maintenance on a main lube oil cooler fan.¹⁰

The Holyrood Gas Turbine was available at full capacity for the entire month of June 2022.

The Stephenville Gas Turbine was available at full capacity for the entire month of June 2022, with the exception of a planned outage from May 29–June 4, 2022 to complete preventative and corrective maintenance activities.

⁹ 150 MW, as noted in the “Monthly Energy Supply Report for the Island Interconnected System for January 2022,” Newfoundland and Labrador Hydro, February 17, 2022, s. 5.0, p. 4.

¹⁰ 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.



Appendix A

Production and Purchases

Table A-1: Generation and Purchases¹

	June 1–30, 2022 (GWh)	YTD ² June 30, 2022 (GWh)
Hydro Generation (Hydro)		
Bay d'Espoir		
Unit 1	39.0	220.1
Unit 2	39.7	224.0
Unit 3	30.8	214.6
Unit 4	12.8	144.9
Unit 5	12.7	146.2
Unit 6	0.0	156.1
Unit 7	38.3	478.4
Subtotal Bay d'Espoir	173.3	1,584.3
Upper Salmon	35.9	289.1
Granite Canal	13.7	119.9
Hinds Lake	31.1	244.7
Cat Arm		
Unit 1	39.2	165.2
Unit 2	40.7	181.7
Subtotal Cat Arm	79.9	346.9
Paradise River	1.7	20.5
Star Lake	11.8	68.7
Rattle Brook	2.0	9.0
Nalcor Exploits	46.8	314.3
Mini Hydro	0.0	0.0
Total Hydro Generation (Hydro)	396.3	2,997.4
Thermal Generation (Hydro)		
Holyrood TGS		
Unit 1	0.0	194.3
Unit 2	0.0	210.5
Unit 3	0.0	139.2
Subtotal Holyrood TGS Units	0.0	544.0
Holyrood Gas Turbine and Diesels	0.0	0.8
Hardwoods Gas Turbine	0.1	0.6
Stephenville Gas Turbine	0.1	0.4
Other Thermal	0.0	0.4
Total Thermal Generation (Hydro)	0.3	546.2
Purchases		
Requested Newfoundland Power and Vale CBPP ³	0.0	0.0
Capacity Assistance	0.0	0.0
Firm Energy Power Purchase Agreement	0.0	0.0
Secondary	4.1	23.2
Co-Generation	2.7	26.0
Subtotal CBPP	6.8	49.3
Wind Purchases	11.7	93.0
Maritime Link Imports ⁴	0.1	0.4
New World Dairy	0.3	1.6
LIL Imports ⁵	62.0	618.3
Total Purchases	80.9	762.6
Total⁶	477.5	4,306.2

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.