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August 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 July 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

Shirley A. Walsh
Senior Legal Counsel, Regulatory
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Encl.

ecc:

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

August 17, 2022

A report to the Board of Commissioners of Public Utilities

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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 July 2022.

2.0 System Hydrology

Reservoir inflows in July 2022 were approximately 20% below the month's historical average. Inflows in 2022 are 132% 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 (%)
31-Jul-2022	2,368	1,773	1,996	1,332	2,519	94

The aggregate reservoir storage level on July 31, 2022 was 2,368 GWh, which is 6% below the seasonal maximum operating level and 178% above the minimum storage limit.[1,2] The current storage level is shown in Figure 1 in relation to the 20-year average storage level for the end of July 2022 of 1,996 GWh. At the end of July 2021, the aggregate storage level was 1,773 GWh.

Overall system inflows in July 2022 were below average as a result of the warm and dry weather across parts of the province this summer, particularly in Central Newfoundland where inflows to the Bay d'Espoir system were approximately 56% of average. At both Cat Arm and Hinds Lake, inflows were higher when compared to their historical averages at 159% and 117%, respectively. This was due to higher than normal amounts of rain to the west and north of the province throughout the month. Generation at Cat Arm Hydroelectric Generating Station continued to be prioritized in July 2022, with the plant being maximized on two occasions (July 8 and 24, 2022) in response to increased inflows resulting from rain events and associated increases in storage. No releases from the Cat Arm Reservoir occurred in either case, and energy exports to mitigate spill were not required in July 2022.[3]

Generation at the Upper Salmon Hydroelectric Generating Station was also prioritized starting in early July 2022 to help lower storage levels in both the Upper Salmon and Meelpaeg Reservoirs in preparation for a planned annual outage at the plant, which started on July 12, 2022. Due to elevated storage in Meelpaeg Reservoir, bypass of the Upper Salmon Hydroelectric Generating Station into Long Pond from the North Salmon Dam Spillway began on July 20, 2022 to keep Meelpaeg Reservoir below its maximum operating level. Bypassing continued at this location for the remainder of the month.

The Granite Canal Hydroelectric Generating Station continued with its planned annual outage until July 22, 2022. Releases at the Granite Canal Bypass Structure also continued until July 21, 2022 due to elevated storage in Victoria Reservoir and Granite Lake. The Granite Canal plant returned to service briefly on July 22, 2022; however, an additional unplanned outage then occurred with the plant

[1] 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.

[2] Inflows and storage at Victoria Reservoir continued to be calculated using manual water level measurements in July 2022 due to an ongoing issue with the automatic water level gauge throughout the month. Environment Canada was contacted to troubleshoot the issue, and the gauge was repaired during a site visit on August 11, 2022.

[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.

remaining offline until July 23, 2022. No additional releases from the Granite Canal Bypass Structure were required during this time.

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

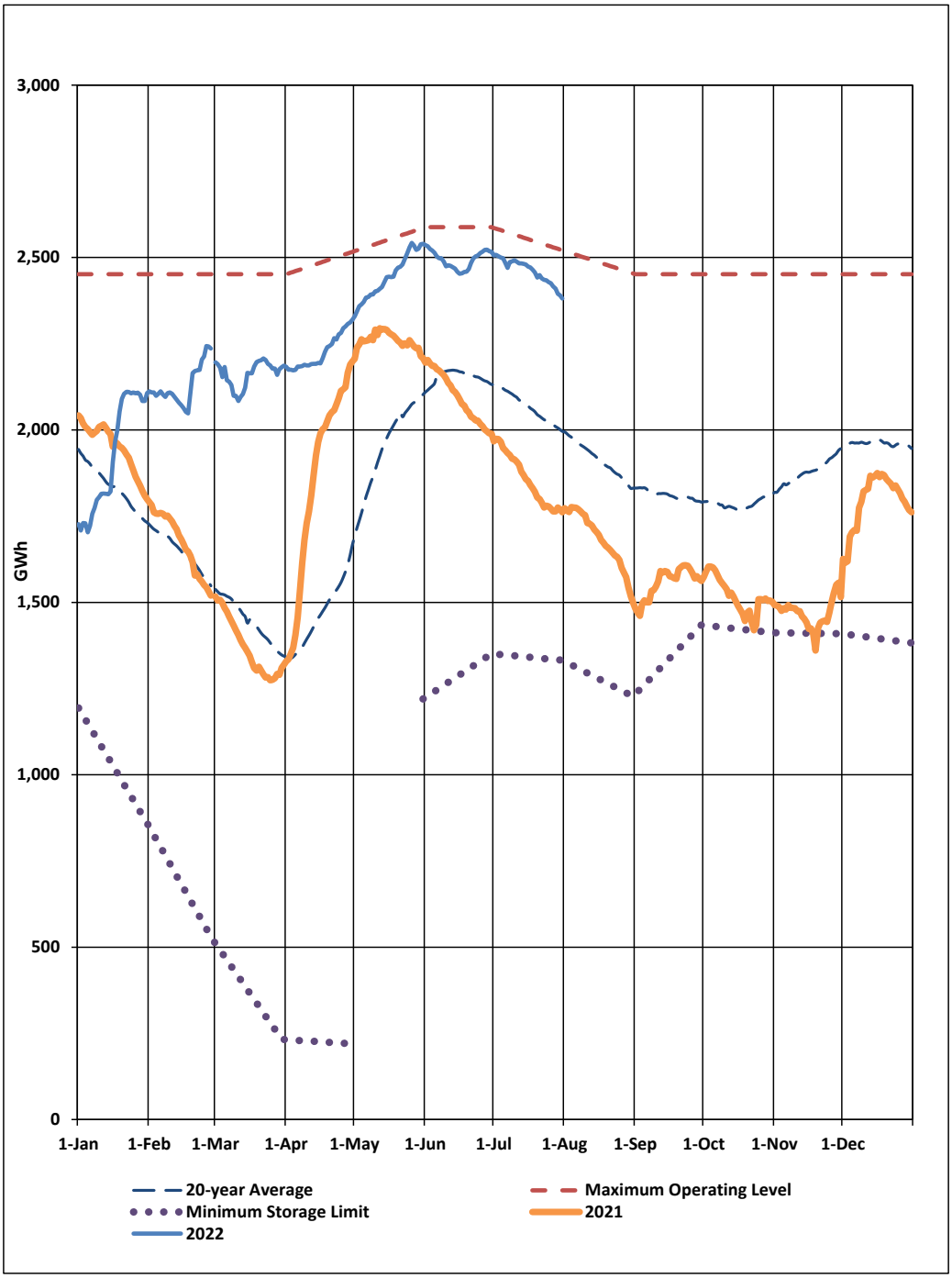

Figure 1: Total System Energy Storage

3.0 Production and Purchases

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

4.0 Thermal Production and Imports

No units at the Holyrood Thermal Generating Station ("Holyrood TGS") were required to generate during July 2022 for system requirements. Total energy production from the Holyrood TGS during the month of July 2022 was 0 GWh.

Standby units were operated for a total of 2.6 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. The Hardwoods Gas Turbine was also operated in synchronous condenser mode for the entire month of July 2022.

Testing activities continued on the Labrador-Island Link ("LIL") in July 2022, resulting in the delivery of 115 GWh of energy at Soldiers Pond. Total metered energy over the Maritime Link to Nova Scotia for the month of July 2022 was 102.5 GWh.[4,5] Energy Marketing exported 79.5 GWh[6] associated with the delivery of the Nova Scotia Block and Supplemental Energy[7] and 25.8 GWh of bulk surplus energy.[8] No imports or exports associated with ponding occurred over the Maritime Link in July 2022, and the ponded balance remained at -5.1 GWh throughout the month. Additionally, no energy was repaid to Energy Marketing by Corner Brook Pulp and Paper Limited as per the Temporary Energy Exchange Agreement during July 2022.

5.0 Unit Deratings

Holyrood TGS Unit 1 continued its position under planned annual maintenance for the entire month of July 2022. The scheduled return to service date is August 27, 2022.

[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.

Holyrood TGS Unit 2 was offline for the entire month of July 2022 because it was not required by the Newfoundland and Labrador System Operator to support system loading. Unit 2 is currently derated to 150 MW due to transformer capacity limitations.

Holyrood TGS Unit 3, including synchronous condenser operation, continued its position under planned annual outage for July 2022, with a scheduled return to service date of August 27, 2022.

The Hardwoods, Holyrood, and Stephenville Gas Turbines were available at full capacity for the entire month of July 2022.

Appendix A

Production and Purchases

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Table A-1: Generation and Purchases[1]

	July 1–31, 2022 (GWh)	YTD[2] July 31, 2022 (GWh)
Hydro Generation (Hydro)		
Bay d'Espoir		
Unit 1	39.6	259.8
Unit 2	38.9	262.9
Unit 3	25.2	239.9
Unit 4	5.2	150.1
Unit 5	2.1	148.3
Unit 6	0.0	156.1
Unit 7	42.3	520.6
Subtotal Bay d'Espoir	153.4	1,737.7
Upper Salmon	17.6	306.7
Granite Canal	5.0	124.9
Hinds Lake	20.4	265.0
Cat Arm		
Unit 1	32.7	197.9
Unit 2	33.8	215.5
Subtotal Cat Arm	66.5	413.4
Paradise River	1.1	21.6
Star Lake	12.2	81.0
Rattle Brook	1.4	10.4
Nalcor Exploits	48.9	363.2
Mini Hydro	0.0	0.0
Total Hydro Generation (Hydro)	**326.5**	**3,323.8**
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	0.1	0.9
Hardwoods Gas Turbine	0.1	0.7
Stephenville Gas Turbine	0.0	0.5
Other Thermal	0.0	0.4
Total Thermal Generation (Hydro)	**0.3**	**546.5**
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	2.7	25.9
Co-Generation	4.2	30.3
Subtotal CBPP	6.9	56.2
Wind Purchases	12.4	105.4
Maritime Link Imports[4]	0.0	0.4
New World Dairy	0.3	1.9
LIL Imports[5]	115.0	733.4
Total Purchases	**134.6**	**897.1**
Total[6]	**461.3**	**4,767.5**

[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.