newfoundland labrador hydro

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November 17, 2021

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

Dear Ms. Blundon:

Re: Monthly Energy Supply Report for the Island Interconnected System for October 2021

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/kd

Encl.

ecc: **Board of Commissioners of Public Utilities**
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Monthly Energy Supply Report for the Island Interconnected System for October 2021

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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 October 2021.

2.0 System Hydrology

Reservoir inflows in October 2021 were approximately 99% of the month's historical average. Inflows in 2021 increased slightly to 89% 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	2021 (GWh)	2020 (GWh)	20-Year Average (GWh)	Minimum Storage Limit (GWh)	Maximum Operating Level (GWh)	Percentage of Maximum Operating Level (%)
31-Oct-2021	1,492	1,804	1,811	1,055	2,452	61

The aggregate reservoir storage level on October 31, 2021 was 1,492 GWh, which is 39% below the seasonal maximum operating level and 41% above the minimum storage limit.[1] The current storage level

[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 Holyrood Thermal Generating Station, 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.

is shown in Figure 1 in relation to the 20-year average storage level for the end of October of 1,811 GWh. At the end of October 2020, the aggregate storage level was 1,804 GWh.

Bypass of the Upper Salmon Plant that commenced on August 27, 2021 to support storage in the Long Pond Reservoir was reduced to minimum flow upon the return to service of the Upper Salmon Plant on October 21, 2021 and ceased completely on October 27, 2021. A total of 75 GWh was bypassed.

Figure 1 plots the 2020 and 2021 storage levels, minimum storage limits, maximum operating level storage, and the 20-year average aggregate storage for comparison.

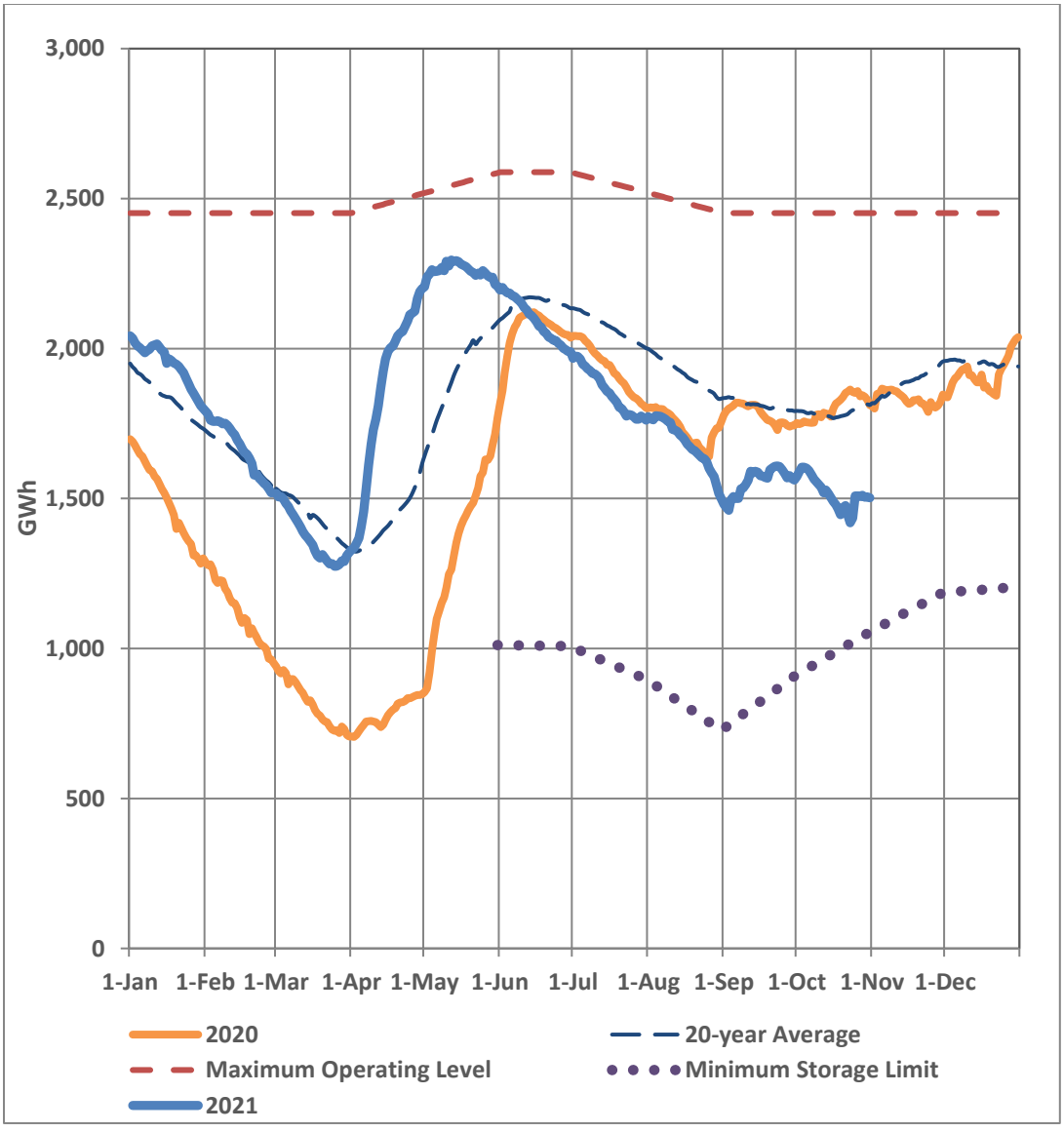

Figure 1: Total System Energy Storage

3.0 Production and Purchases

Appendix A provides a breakdown of power purchases, including imports, and production by plant during October 2021.

4.0 Thermal Production and Imports

Units 1 and 2 at the Holyrood Thermal Generating Station ("Holyrood TGS") were required to generate during October 2021 for system requirements. Holyrood TGS Unit 1 was operated for 6.0 hours, and Holyrood TGS Unit 2 was operated for 209.7 hours. Unit 3 was not operated during October 2021. Total energy production from Holyrood TGS during the month of October 2021 was 14.1 GWh.

Standby units were operated during the month to support system requirements. Standby units were operated for a total of 197.2 hours during the month. Total standby production during the month was 8.2 GWh. Standby generation was not required to support reservoir storage.

Testing activities continued on the Labrador-Island Link ("LIL") in October 2021, resulting in the delivery of 4.8 GWh of energy at Soldiers Pond. Imports totalling 3.9 GWh over the Maritime Link were used in October 2021 to offset the use of thermal generation.[2] Ponding activities did not occur in October 2021. The ponded balance at month end remained at -5.4 GWh. Total exports over the Maritime Link for the month of October 2021 were 0.6 GWh.[3,4]

5.0 Unit Deratings

Holyrood TGS Unit 1 was on a forced extension of the planned outage until October 20, 2021 to accommodate completion of the turbine major overhaul capital project, which was extended due to findings during the overhaul that resulted in additional work scope. From October 20, 2021 to October 25, 2021 the unit was in start-up mode, including commissioning the turbine valves. As part of the commissioning, the unit was synchronized on October 25, 2021 and overspeed testing was completed successfully. While putting the unit back online after overspeed testing, an issue with the cold reheat piping between the turbine and the boiler caused sudden excessive movement of the pipe and damaged several pipe hangers and potentially other sections of the pipe. For the remainder of the

[2] Total imports include the receipt of inadvertent energy from Nova Scotia Power Inc.
[3] Total exports include the provision of emergency and inadvertent energy to Nova Scotia Power Inc., provision of the Nova Scotia Block, and export activity conducted by Nalcor Energy Marketing including the export of spilled energy on Hydro's behalf.
[4] Physical delivery of the Nova Scotia Block will only occur when the LIL is online and able to transfer power.

month the unit was offline on a forced outage to investigate the cause of the event and assess the condition of the piping and attachments.

Holyrood TGS Unit 2 remained on annual maintenance outage until October 17, 2021 when the unit began start-up. The unit was placed online on October 20, 2021 with a scheduled derating to 150 MW pending completion of online safety valve testing. On October 27, 2021 the unit was taken offline due to an oil leak on a turbine bearing that caused smoke in the power house. The unit was returned to service on October 30, 2021 with the scheduled derate to 150 MW pending safety valve testing. The safety valve testing was successfully completed on November 1, 2021.[5]

Holyrood TGS Unit 3 was on a forced outage for the entire month of October 2021 as a result of the September 11, 2021 boiler tube failure.

The Hardwoods Gas Turbine was available at full capacity for the entire month of October 2021[6] with the exception of a planned unit outage from October 23, 2021 to October 31, 2021 to complete corrective and preventative maintenance. There was also an unplanned unit derating on October 12, 2021 due to a fuel leak found on End A. The leak was repaired on the same day.

The Stephenville Gas Turbine was available at full capacity for the entire month of October 2021 with the exception of periodic planned outages from October 13, 2021 to October 18, 2021 to complete corrective and preventative maintenance.[7]

The Holyrood Gas Turbine was available at full capacity for the entire month of October 2021.[8]

[5] Unit 2 subsequently tripped on November 12, 2021 due to an issue with its transformer. The unit remains offline and more details will be provided in the November Monthly Energy Supply Report.
[6] 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.
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Appendix A

Production and Purchases

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Table A-1: Generation and Purchases[1]

	October 1–31, 2021 (GWh)	YTD[2] October 31, 2021 (GWh)
Hydro Generation (Hydro)		
Bay d'Espoir Plant		
Unit 1	41.2	363.8
Unit 2	41.0	355.4
Unit 3	30.3	294.6
Unit 4	20.1	140.6
Unit 5	0.0	132.4
Unit 6	6.3	119.5
Unit 7	79.9	708.5
Subtotal Bay d'Espoir Plant	218.8	2,114.8
Upper Salmon Plant	19.1	362.9
Granite Canal Plant	24.6	191.1
Hinds Lake Plant	32.8	291.9
Cat Arm Plant		
Unit 1	39.0	336.7
Unit 2	44.3	351.3
Subtotal Cat Arm Plant	83.3	688.0
Paradise River	2.8	17.0
Star Lake Plant	11.1	109.0
Rattle Brook Plant	1.9	11.3
Nalcor Exploits Plants	47.5	482.2
Mini Hydro	0.0	0.0
Total Hydro Generation (Hydro)	**441.9**	**4,268.2**
Thermal Generation (Hydro)		
Holyrood TGS		
Unit 1	0.2	206.8
Unit 2	13.9	256.1
Unit 3	0.0	112.8
Subtotal Holyrood TGS Units	14.1	575.7
Holyrood Gas Turbine and Diesels	6.7	15.5
Hardwoods Gas Turbine	1.1	2.7
Stephenville Gas Turbine	0.4	0.8
Other Thermal	0.0	0.1
Total Thermal Generation (Hydro)	**22.3**	**594.7**
Purchases		
Requested Newfoundland Power and Vale	0.1	0.1
CBPP[3]		
Capacity Assistance	0.0	0.0
Firm Energy Power Purchase Agreement	0.0	0.0
Secondary	2.7	20.6
Co-Generation	4.3	42.8
Subtotal CBPP	7.0	63.4
Wind Purchases	13.8	150.4
Maritime Link Imports[4]	3.9	5.2
New World Dairy	0.3	2.9
LIL Imports[5]	4.8	409.7
Total Purchases	**30.0**	**631.6**
Total[6]	**494.2**	**5,494.6**

[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.