



Hydro Place, 500 Columbus Drive.
P.O. Box 12400, St. John's, NL
Canada A1B 4K7
t. 709.737.1400 f. 709.737.1800
www.nlh.nl.ca

September 11, 2019

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 August 2019 – Revision 1

Enclosed please find one original and eight copies of Revision 1 of Newfoundland and Labrador Hydro's Monthly Energy Supply Report for the Island Interconnected System as directed by the Board of Commissioners of Public Utilities in correspondence dated February 8, 2016 and with schedule modifications on July 26, 2016 and July 29, 2016.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

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

Encl.

cc: Gerard M. Hayes, Newfoundland Power
Paul L. Coxworthy, Stewart McKelvey
ecc: Dean A. Porter, Poole Althouse
Shawn Kinsella, Tech Resources

Dennis M. Browne, Q.C., Browne Fitzgerald Morgan & Avis
Denis J. Fleming, Cox & Palmer
Sheryl E. Nisenbaum, Praxair Canada Inc.



Monthly Energy Supply Report for the Island Interconnected System for August 2019

September 10, 2019

Revision 1: September 11, 2019

A report to the Board of Commissioners of Public Utilities



Revision History

Revision	Date	Location	Change
1	11-Sep-2019	sec. 2.0, at p. 1/24	Changed value from 1,317 GWh to 1,336 GWh
1	11-Sep-2019	sec. 2.0, at p. 1/26	Changed value from 94 GWh to 113 GWh

Contents

1.0	Introduction	1
2.0	System Hydrology	1
3.0	Production by Plant.....	3
4.0	Thermal Production and Imports.....	5
5.0	Unit Deratings	5

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 covers data for August 2019.

2.0 System Hydrology

In contemplation of continued delays in the availability of the Labrador-Island Link (“LIL”) to deliver energy to the Island Interconnected System, Hydro conducted sensitivity analysis on its minimum storage limits through summer 2019. This sensitivity analysis included assumptions aligned with those proposed by the Liberty Consulting Group (“Liberty”) in its *Review of Newfoundland and Labrador Hydro’s Reliability and Resource Adequacy Study*, filed with the Board of Commissioners of Public Utilities (“Board”) on August 19, 2019. System energy analysis was conducted assuming no energy deliveries to the Island Interconnected System from the LIL throughout winter 2020. The results of this analysis indicated that Hydro needs to produce and/or procure additional energy to ensure its ability to reliably supply customers through the winter in the event of the critical dry sequence¹. Hydro revised the minimum storage targets for the remainder of 2019 on this basis. This will help ensure that if the LIL continues to be delayed beyond this winter, Hydro will have sufficient storage to reliably serve its customers. The revised minimum storage limits are illustrated in Figure 1.

As of August 31, 2019, the total system energy in storage is 1,336 GWh; 56 GWh below the revised minimum storage limit of 1,392 GWh. Had the minimum storage limits not been revised at this time, total system energy in storage would have been 113 GWh above the minimum storage limit of 1,223 GWh.

¹ Hydro’s long-term critical dry sequence is defined as January 1959 to March 1962 (39 months).

1 Table 1 summarizes the aggregate storage position of Hydro’s reservoirs at the end of the reporting
 2 period.

Table 1: System Hydrology Storage Levels

Date	2019 (GWh)	2018 (GWh)	20-Year Average (GWh)	Revised 2019 Minimum Storage Target (GWh) ²	Maximum Operating Level (GWh)	Maximum Operating Level (%)
31-Aug-2019	1,336	1,573	1,876	1,392	2,452	54%

3 Reservoir inflows in August 2019 were approximately 9% of average. To date, 2019 inflows have been
 4 2% above average.

5
 6 The aggregate reservoir storage level on August 31, 2019 was 1,336 GWh, 46% below the seasonal
 7 maximum operating level and 4% below the revised minimum storage level.³ The current storage level
 8 compares with the 20-year average storage level for the end of August of 1,876 GWh. At the end of
 9 August 2018, aggregate storage level was 1,573 GWh.

10
 11 Given current energy storage and the revised minimum storage limits, Hydro engaged Nalcor Energy
 12 Marketing (“NEM”) to import energy on its behalf. Further mitigation efforts include early return to
 13 service and maximization of generation at the Holyrood Thermal Generating Station (“Holyrood TGS”)
 14 Units. A combination of these efforts will help slow the decline of total system energy. These efforts will
 15 continue until system energy levels improve and Hydro has determined they are no longer required. At
 16 this point, Hydro does not foresee using production from standby generation to support reservoir levels.

17
 18 Figure 1 plots the 2018 and 2019 storage levels, maximum operating level storage, and the 20-year
 19 average aggregate storage for comparison.⁴

² 2019 minimum storage targets revised from August 31, 2019 to December 31, 2019 due to a change in the LIL assumptions.

³ Minimum storage targets 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 target is designed to show 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 TGS, and now-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.

⁴ 2019 minimum storage targets revised from August 31, 2019 to December 31, 2019 due to a change in the LIL assumptions.

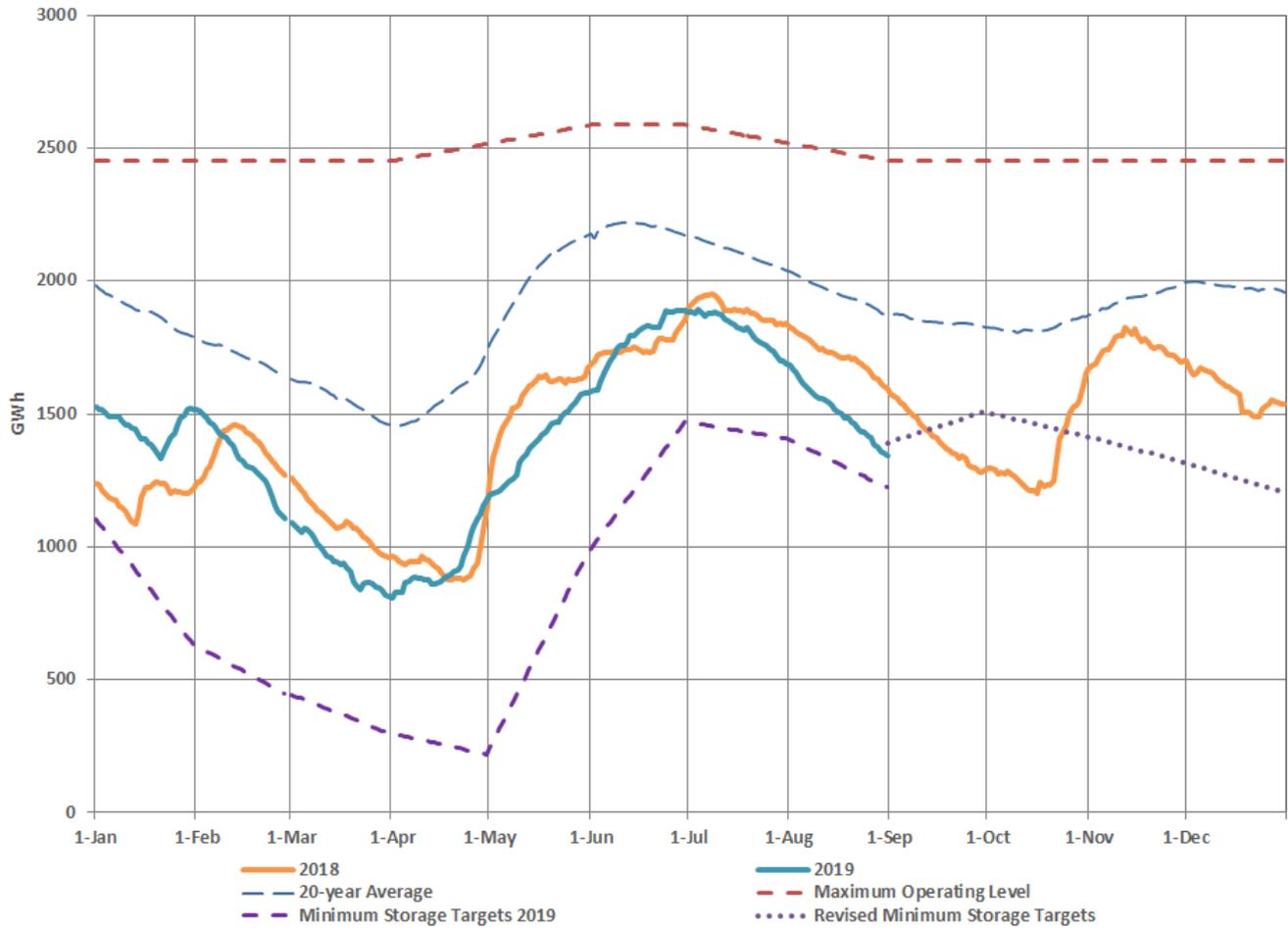


Figure 1: Total System Energy Storage for August 31, 2019

1 3.0 Production by Plant

- 2 Production during August 2019 by plant and unit, both hydraulic and thermal, is provided in Table 2.
- 3 Quantities imported are also provided in Table 2.

Monthly Energy Supply Report for the Island Interconnected System for August 2019
(Revision 1 – September 11, 2019)

Table 2: Generation Production from August 1 to 31, 2019⁵

	<u>Generation (GWh)</u>	<u>Year to Date (GWh)</u>
Hydro Generation (Hydro)		
Bay d'Espoir Plant		
Unit 1	39.7	323.9
Unit 2	39.6	323.5
Unit 3	15.0	180.4
Unit 4	26.6	175.4
Unit 5	34.8	165.5
Unit 6	20.7	173.5
Unit 7	0.0	430.0
Subtotal Bay d'Espoir Plant	176.4	1,772.2
Upper Salmon Plant	51.2	400.9
Granite Canal Plant	23.9	170.9
Hinds Lake Plant	27.6	277.4
Cat Arm Plant		
Unit 1	27.4	295.7
Unit 2	25.3	304.9
Subtotal Cat Arm Plant	52.7	600.6
Paradise River	0.9	19.2
Star Lake Plant	0.0	80.0
Rattle Brook Plant	0.1	9.1
Nalcor Exploits Plants	45.3	414.6
Mini Hydro	0.0	2.2
Total Hydro Generation	378.1	3,747.0
Thermal Generation (Hydro)		
Holyrood TGS		
Unit 1	0.0	316.7
Unit 2	0.0	246.5
Unit 3	0.0	171.6
Subtotal Holyrood TGS Units	0.0	734.8
Holyrood Gas Turbine and Diesels	0.6	7.5
Hardwoods Gas Turbine	0.4	0.9
Stephenville Gas Turbine	0.0	1.1
Other Thermal	0.0	0.4
Total Thermal Generation	1.0	744.6
Purchases		
Requested Newfoundland Power and Vale	0.0	0.1
Corner Brook Pulp and Paper Secondary	2.7	26.1
Corner Brook Pulp and Paper Co-Generation	4.6	41.1
Wind Purchases	8.3	112.3
Maritime Link Imports ⁶	2.0	104.6
New World Dairy	0.3	2.1
Labrador-Island Link Imports ⁷	0.0	214.6
Total Purchases	17.8	501.0
Total⁸	396.8	4,992.7

⁵ Gross generation.

⁶ Includes energy flows as a result of purchases and inadvertent energy.

⁷ Includes purchases as a result of testing activity.

⁸ Actuals reflect rounded values to the nearest tenth of a GWh. Differences between total and addition of individual components due to rounding.

4.0 Thermal Production and Imports

Holyrood TGS Unit 3 was operated in synchronous condenser mode for 721 hours during the month of August for system requirements. Holyrood TGS Unit 1 and Unit 2 were not operated during August 2019. Total Holyrood TGS generation was 0 GWh.

Standby units were operated for a total of 54.7 hours during the month. Total standby generation was 0.9 GWh. No standby generation was specifically required to support reservoir storage.

Imports on the Maritime Link were used in August to slow the decline of total system storage and for ponding. Total imported energy over the Maritime Link was 2.0 GWh. There was no energy imported over the LIL in August 2019.

5.0 Unit Deratings

Holyrood TGS Unit 1 remained on planned annual outage for the month of August 2019. Holyrood TGS Unit 2 remained on planned annual outage until August 31, 2019, when start-up activities commenced. Holyrood TGS Unit 3 remained online in synchronous condenser mode for the month of August 2019. On August 12, 2019 an issue with a disconnect in the switchyard forced the synchronous condenser offline. The disconnect was repaired and the synchronous condenser was placed back online on August 13, 2019. The total plant outage at the Holyrood TGS was completed on schedule on August 23, 2019.

The Stephenville Gas Turbine remained derated to 25 MW during the month of August 2019. It is now expected that this unit will be returned to full capacity at the end of October 2019.

The Hardwoods Gas Turbine remained available at full capacity (50 MW) for the month of August 2019.