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January 10, 2020

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 December 2019

Enclosed please find one original and eight copies 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, July 26, 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/las

Encl.

cc: **Newfoundland Power**
Mr. Gerard M. Hayes

Consumer Advocate
Mr. Dennis M. Browne, Q.C, Browne Fitzgerald Morgan & Avis

Industrial Customer Group
Mr. Paul L. Coxworthy, Stewart McKelvey
Mr. Denis J. Fleming, Cox & Palmer

Praxair Canada Inc.
Ms. Sheryl E. Nisenbaum

Ms. C. Blundon
Public Utilities Board

2

ecc: **Board of Commissioners of Public Utilities**
Ms. Jacqui Glynn
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Consumer Advocate
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Teck Resources Limited
Mr. Shawn Kinsella



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

January 10, 2020

A report to the Board of Commissioners of Public Utilities



Contents

| | | |
|-----|-------------------------------------|---|
| 1.0 | Introduction | 1 |
| 2.0 | System Hydrology | 1 |
| 3.0 | Production by Plant..... | 3 |
| 4.0 | Thermal Production and Imports..... | 4 |
| 5.0 | Unit Deratings | 4 |

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 December 2019.

2.0 System Hydrology

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 | 2019 (GWh) | 2018 (GWh) | 20-Year Average (GWh) | Revised 2019 Minimum Storage Target (GWh) ¹ | Maximum Operating Level (GWh) | Maximum Operating Level (%) |
|-------------|---------------|---------------|-----------------------------|---|--|--------------------------------------|
| 31-Dec-2019 | 1,695 | 1,526 | 1,958 | 1,206 | 2,452 | 69% |

Reservoir inflows in December 2019 were approximately 45% above average for the month. 2019 inflows ended at 6% above average.

The aggregate reservoir storage level on December 31, 2019, was 1,695 GWh, 31% below the seasonal maximum operating level and 41% above the revised minimum storage level.² The current storage level

¹ 2019 minimum storage targets revised from August 31, 2019 to December 31, 2019 due to a change in the Labrador-Island Link (“LIL”) assumptions.

² 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 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 is shown in Figure 1 in relation to the 20-year average storage level for the end of December of 1,958
 2 GWh. At the end of December 2018, aggregate storage level was 1,526 GWh.
 3
 4 Hydro actively manages its resources to ensure its ability to reliably supply customers with least-cost
 5 energy. Imports will continue to be used to economically supplement or offset generation from the
 6 Holyrood TGS, to the extent that they are technically feasible. Standby units have not been used for
 7 water management purposes and Hydro does not currently foresee using production from standby
 8 generation to support reservoir levels.
 9
 10 Figure 1 plots the 2018 and 2019 storage levels, maximum operating level storage, and the 20-year
 11 average aggregate storage for comparison.³

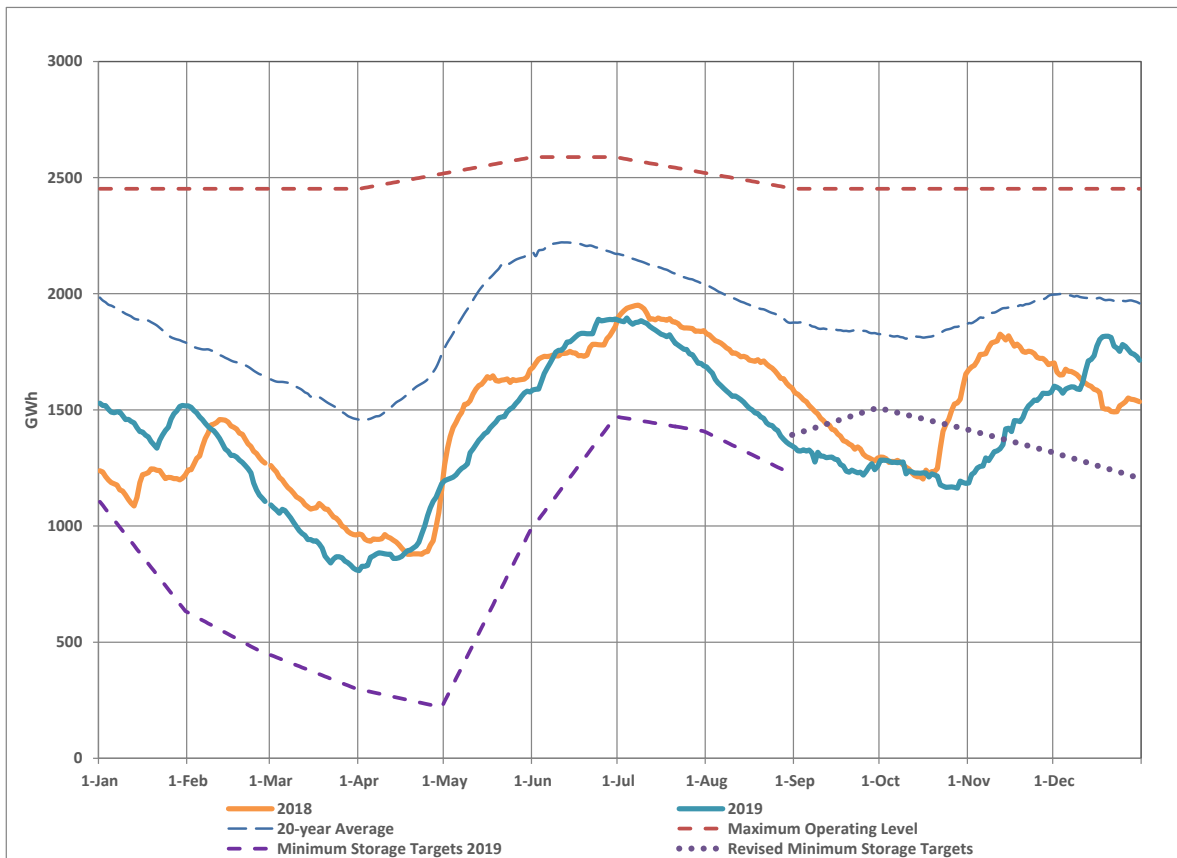


Figure 1: Total System Energy Storage for 2019

³ 2019 minimum storage targets revised from August 31, 2019 to December 31, 2019, due to a change in the LIL assumptions.

1 3.0 Production by Plant

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

Table 2: Generation Production from December 1 to 31, 2019⁴

| | Generation (GWh) | Year to Date (GWh) |
|---|------------------|--------------------|
| Hydro Generation (Hydro) | | |
| Bay d'Espoir Plant | | |
| Unit 1 | 43.4 | 421.5 |
| Unit 2 | 42.9 | 421.0 |
| Unit 3 | 43.4 | 301.1 |
| Unit 4 | 27.7 | 243.9 |
| Unit 5 | 32.2 | 241.6 |
| Unit 6 | 27.2 | 256.0 |
| Unit 7 | 97.6 | 636.4 |
| Subtotal Bay d'Espoir Plant | 314.4 | 2,521.4 |
| Upper Salmon Plant | 39.1 | 529.6 |
| Granite Canal Plant | 23.1 | 256.7 |
| Hinds Lake Plant | 39.1 | 324.8 |
| Cat Arm Plant | | |
| Unit 1 | 37.3 | 420.8 |
| Unit 2 | 39.8 | 451.1 |
| Subtotal Cat Arm Plant | 77.2 | 871.9 |
| Paradise River | 4.4 | 31.2 |
| Star Lake Plant | 12.8 | 125.7 |
| Rattle Brook Plant | 1.3 | 14.2 |
| Nalcor Exploits Plants | 58.5 | 574.0 |
| Mini Hydro | 0.0 | 2.1 |
| Total Hydro Generation | 570.0 | 5,251.6 |
| Thermal Generation (Hydro) | | |
| Holyrood TGS | | |
| Unit 1 | 59.6 | 456.1 |
| Unit 2 | 58.6 | 487.1 |
| Unit 3 | 57.7 | 385.9 |
| Subtotal Holyrood TGS Units | 175.9 | 1,329.1 |
| Holyrood Gas Turbine and Diesels | 0.0 | 8.9 |
| Hardwoods Gas Turbine | 0.0 | 1.2 |
| Stephenville Gas Turbine | 0.0 | 1.1 |
| Other Thermal | 0.1 | 0.7 |
| Total Thermal Generation | 176.0 | 1,341.0 |
| Purchases | | |
| Requested Newfoundland Power and Vale | 0.0 | 0.1 |
| Corner Brook Pulp and Paper | | |
| Capacity Assistance | 0.0 | 0.5 |
| Firm Energy PPA | 0.0 | 14.9 |
| Secondary | 8.2 | 41.0 |
| Co-Generation | 3.2 | 55.2 |
| Subtotal Corner Brook Pulp and Paper | 11.4 | 111.6 |
| Wind Purchases | 17.9 | 181.9 |
| Maritime Link Imports ⁵ | 2.6 | 244.5 |
| New World Dairy | 0.1 | 3.0 |
| Labrador-Island Link Imports ⁶ | 0.0 | 214.6 |
| Total Purchases | 32.0 | 755.7 |
| Total⁷ | 778.0 | 7,348.3 |

⁴ Gross generation.

⁵ Includes energy flows as a result of purchases and inadvertent energy.

⁶ Includes purchases as a result of testing activity.

⁷ Actuals reflect rounded values to the nearest tenth of a GWh. Differences between total vs. addition of individual components due to rounding.

4.0 Thermal Production and Imports

Units 1, 2, and 3 at the Holyrood TGS were required to generate during December 2019 to reliably meet Hydro's customer demand requirements. Units 1, 2, and 3 each operated for the entire month. Total Holyrood TGS generation was 175.9 GWh.

Standby units were operated for a total of 4.8 hours during the month; therefore total standby generation was 0.04 GWh.⁸

Imports on the Maritime Link were used in December 2019 to offset the use of thermal units and for ponding purposes, with the latter increasing the ponded balance to 3.1 GWh. Total imported energy over the Maritime Link was 2.6 GWh. There was no energy imported over the LIL in December 2019 due to the continued planned outage.

5.0 Unit Deratings

Holyrood TGS Unit 1 was online throughout December 2019. On December 29, 2019, the unit was derated to 55 MW for 30 minutes to allow for repair of the west air heater drive coupling. Otherwise, the unit was available and capable of operating at full load through December 2019.

Holyrood TGS Unit 2 was online throughout December 2019. On December 14, 2019, the unit was placed on a planned derating to 75 MW for approximately 27 hours to enable replacement of the west boiler feed pump motor, resolving an issue related to an increasing vibration trend. Otherwise the unit was available and capable of operating at full load through December 2019.

Holyrood TGS Unit 3 was online throughout December 2019. On December 9, 2019, the unit was derated to 50 MW for approximately four hours when the west forced draft fan tripped due to a faulty vibration probe. From December 12 to 14, 2019 the unit was derated to 130 MW due to deteriorating performance of the primary fuel oil pump. On December 14, 2019 the standby pump was started restoring the unit to full capability.

⁸ Table 2 indicates total standby generation from the Holyrood Gas Turbine and Diesels, Hardwoods Gas Turbine, and Stephenville Gas Turbine at 0.0 GWh. This is due to the convention of rounding the figures in that table to one decimal point.

- 1 The Stephenville Gas Turbine remained derated to 25 MW through the month of December 2019. While
2 Hydro had expected that this unit would be returned to full capacity by November 18, 2019, the
3 overhauled engine could not be commissioned on site and had to be returned to the overhaul facility for
4 disassembly and rebuild. The spare engine, which was undergoing refurbishment, has been successfully
5 tested at the overhaul facility and is on route and expected to be on site January 14, 2020. Hydro
6 anticipates the Stephenville Gas Turbine will be returned to its full capacity by the end of January 2020.⁹
7
- 8 The Hardwoods Gas Turbine remained available at full capacity for the entire month of December 2019.

⁹ Additional information will be provided in Hydro's January 17, 2020, Winter Readiness Planning Update.