newfoundland labrador hydro
a nalcor energy company

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January 10, 2018

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: Energy Supply Report – Monthly Report – December 2017

Enclosed please find one (1) original and twelve (12) copies of Newfoundland and Labrador Hydro's 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 de-rating.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Michael S. Ladha
Legal Counsel & Assistant Corporate Secretary
MSL/skc

cc: Gerard Hayes – Newfoundland Power
Paul Coxworthy – Stewart McKelvey Stirling Scales
Dennis Browne, Q.C. – Consumer Advocate
Sheryl Nisenbaum – Praxair Canada Inc.

ecc: Larry Bartlett – Teck Resources Limited
Dennis Fleming – Cox & Palmer

A Report to the Board of Commissioners of Public Utilities

Monthly Energy Supply Report for the Island Interconnected System

December 2017

January 10, 2018

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 (the Board) requested Newfoundland and Labrador Hydro (Hydro) file a bi-weekly 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 de-rating.

In July 2016, the Board indicated that a monthly report would henceforth be sufficient. This report covers data for December 2017.

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

Storage Level	2017 (GWh)	2016 (GWh)	20 Year Average (GWh)	2016 Minimum Storage (GWh)[1]	Maximum Operating Level (GWh)	Percent of Seasonal Maximum Operating Level
31 Dec 2017	1239	2125	1993	1142	2452	51%

Inflows to date in 2017 have been 17% below average. The trend of drier than average conditions continued through December and inflows into the reservoir system for the month were approximately 32% below average. Nine months in 2017 were below average and the

[1] 2018 Minimum Storage Targets will be completed in January 2018.

months of February, July and October received less than 50% of the average inflows for those months. May received substantially above average inflow (25% above average), but some of those inflows could not be contained in the reservoirs and were therefore spilled.

The aggregate reservoir storage level on December 31 was 1239 GWh, 49% below the seasonal maximum operating level (MOL) and 8.5% above the minimum storage level. This storage level compares with the 20-year average storage at the end of December of 1993 GWh. At the end of December 2016, aggregate storage was 2125 GWh. Note that this included the contribution of approximately 300 GWh associated with Hurricane Matthew.

Thermal generation above minimum continued through the month of December with available Holyrood units being run at their normal operating limits. Hydro increased thermal generation at the Holyrood Thermal Generating Station in early November to reduce the hydroelectric generation required to assist with maintenance of reservoir levels. The change was initiated based on observed low water levels in the reservoirs, review of the inflows in comparison to historic dry periods, and results of Vista DSS modelling. Stand-by units were not used for water management purposes.

Figure 1 plots the 2016 and 2017 storage levels with the maximum operating level storage and minimum storage targets and the 20-year average aggregate storage for comparison.

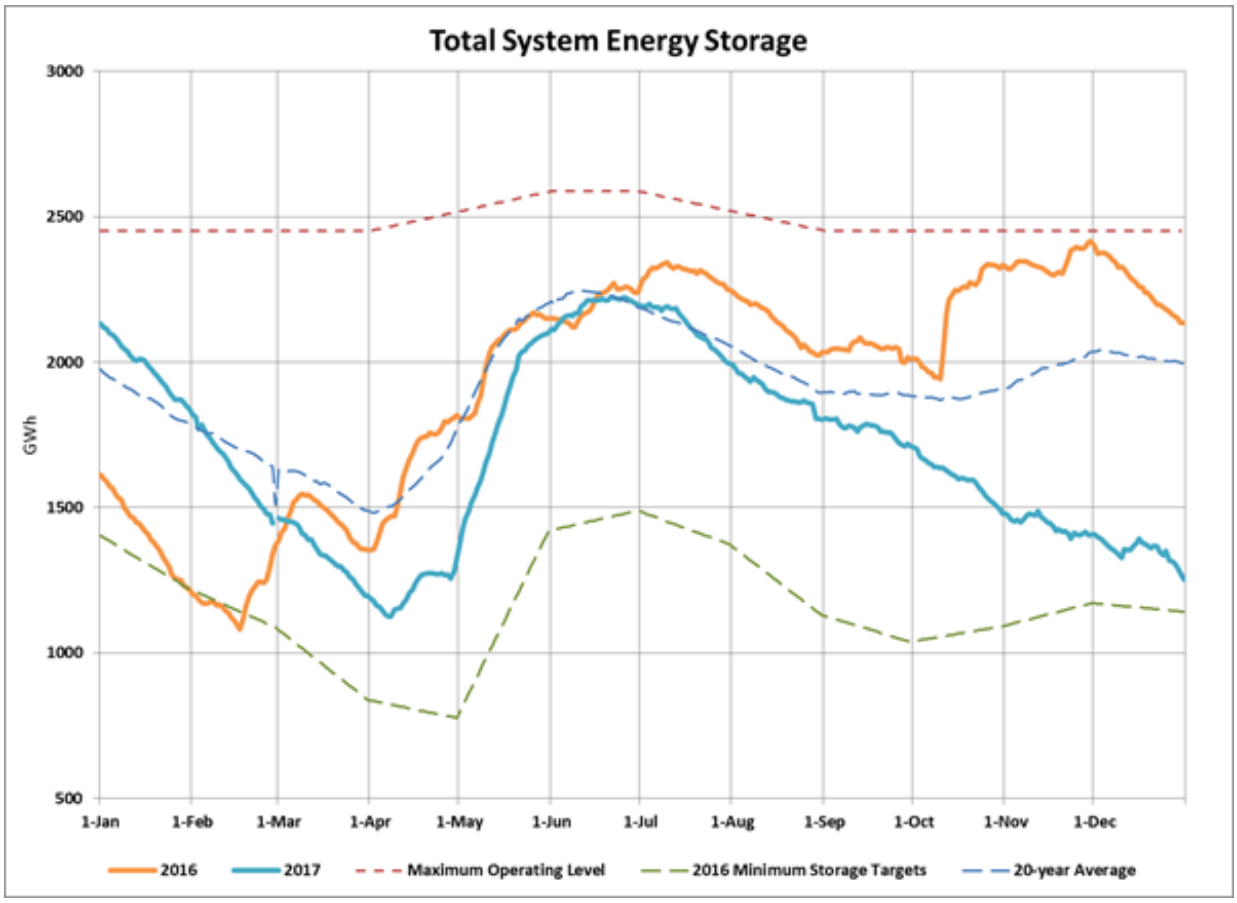

Figure 1 Total System Energy Storage - December 31, 2017

3.0 Production by Plant

Production during December by plant and unit, both hydraulic and thermal, is provided in Table 2.

Table 2 Generation Production
(December 1 to December 31, 2017)

		Generation, GWh	Year to Date, GWh
Newfoundland and Labrador Hydro			
Hydro Generation			
Bay d'Espoir Plant	*Unit 1*	*31.4*	365.2
	Unit 2	*33.8*	225.4
	Unit 3	*37.0*	346.5
	Unit 4	*24.8*	199.8
	Unit 5	*24.1*	277.5
	Unit 6	*30.7*	219.6
	Unit 7	*90.4*	*880.4*
Total Bay d'Espoir Plant		272.2	2514.4
Upper Salmon Plant		47.6	572.9
Granite Canal Plant		23.7	232.1
Hinds Lake Plant		17.0	335.6
Cat Arm Plant	*Unit 1*	*42.0*	408.8
	Unit 2	*42.6*	*424.2*
Total Cat Arm Plant		84.6	833.0
Paradise River		4.2	28.4
Star Lake Plant		7.8	138.0
Rattle Brook Plant		0.9	14.2
Nalcor Exploits Plants		28.4	519.2
Mini Hydro		0.2	3.6
Total Hydro		486.5	5191.6
Newfoundland and Labrador Hydro			
Thermal Generation			
Holyrood	*Unit 1*	*89.0*	608.6
	Unit 2	*104.0*	534.8
	Unit 3	*85.3*	*626.5*
	Total	278.4	1770.0
Holyrood CT and Diesels		10.2	65.4
Hardwoods GT		0.9	4.0
Stephenville GT		0.2	1.3
Other Thermal		0.0	0.5
Total Thermal		289.7	1841.3
Purchases			
Requested NP and Vale		0.4	1.5
CBPP Secondary		1.2	14.1
CBPP Cogen		7.7	70.4
Wind Purchases		18.4	186.4
Maritime Link Imports[2]		0.1	0.1
Total Purchases		27.7	272.5
Total		803.8	7305.4

[1] *Gross generation.*

[2] *Purchases as result of testing activity.*

4.0 Thermal Production in Support of Hydrology

During December, operation of three Holyrood units was required to meet Hydro's customer and system reliability requirements. Thermal generation at Holyrood above minimum unit production during December offset hydraulic generation and helped conserve water storage in Hydro's reservoirs. Unit 1 operated for 656 hours, Unit 2 operated for 744 hours, and Unit 3 operated for 727 hours. Total Holyrood generation was approximately 275 GWh.

Stand-by units were operated for a total of 174 hours during the month for reliability. No stand-by generation was used specifically for water management. Total stand-by thermal generation was approximately 11 GWh.

5.0 Unit De-ratings

Holyrood Unit 1 was returned to service on December 4 after completion of a maintenance outage to perform an air heater wash and additional maintenance work to restore capacity. A load test completed on December 5 confirmed a capacity of 150 MW[2] with the unit load limited by high furnace pressure.

Holyrood Unit 2 was limited to 160 MW for the month of December due to high furnace pressure. On December 19 the unit experienced a 14-hour deration to 70 MW as a result of a trip of one forced draft fan on the unit. The cause of the fan trip was corrected and the fan returned to service later that day in time for the evening peak, with the unit again capable of 160 MW.

[2] Hydro continues to work towards restoring full load on Unit 1 and Unit 2. Further analysis and planning is required. Hydro has set up an engineering team to work with the boiler service provider and other industry experts to identify and implement the appropriate actions. Additional outage work will be required to achieve full load capability, and Hydro will weigh the benefits and risks of completing an outage in the coming winter, as additional solutions to restore capacity are determined.

Holyrood Unit 3 was available for full load of 150 MW until December 11 to 13, when the unit was de-rated to 130 MW to replace a fuel pump. After the pump was replaced, a load test was completed to 135 MW, limited due to air heater fouling. The capability of the unit decreased from 135 MW to 105 MW between December 13 and 30 due to ongoing fouling of the air heaters. An air heater wash was completed on December 31, which improved the available load to 131 MW, still limited by air heater fouling.

The Hardwoods gas turbine was derated to 25 MW from December 29 to January 6 due to a bellows failure. Hardwoods is now available at 50 MW following the bellows repair.

The Stephenville gas turbine was tested to full capacity and returned to service on December 1. Following the return to service, the unit experienced start up issues as a result of power turbine bearing vibration on December 27. Thus, with the bellows failure at Hardwoods, the bellows was then removed from End A of Stephenville gas turbine and installed on Hardwoods End A to return it to service. The procurement process has begun to purchase a spare bellows for Stephenville under the 2018 capital spares project for gas turbines as planned and approved by the Board. Return to service for this unit is dependent on delivery of the new and refurbished bellows planned for 2018.