

May 30, 2019

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 of Corporate Services & Board Secretary

Dear Ms. Blundon:

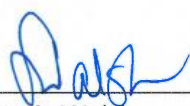
Re: Capacity Assistance Report for Corner Brook Pulp and Paper for Winter 2018–2019

Please find enclosed the original and nine copies of Newfoundland and Labrador Hydro's Capacity Assistance Report for Winter 2018–2019 outlining the dates, times, duration and system conditions, including generation available and calculation of system reserve, under which capacity assistance was requested from Corner Brook Pulp and Paper, the capacity assistance requested and provided, and the capacity and variable payments made.

We trust the foregoing is satisfactory. If you have any questions or comments, please contact the undersigned.

Yours truly,

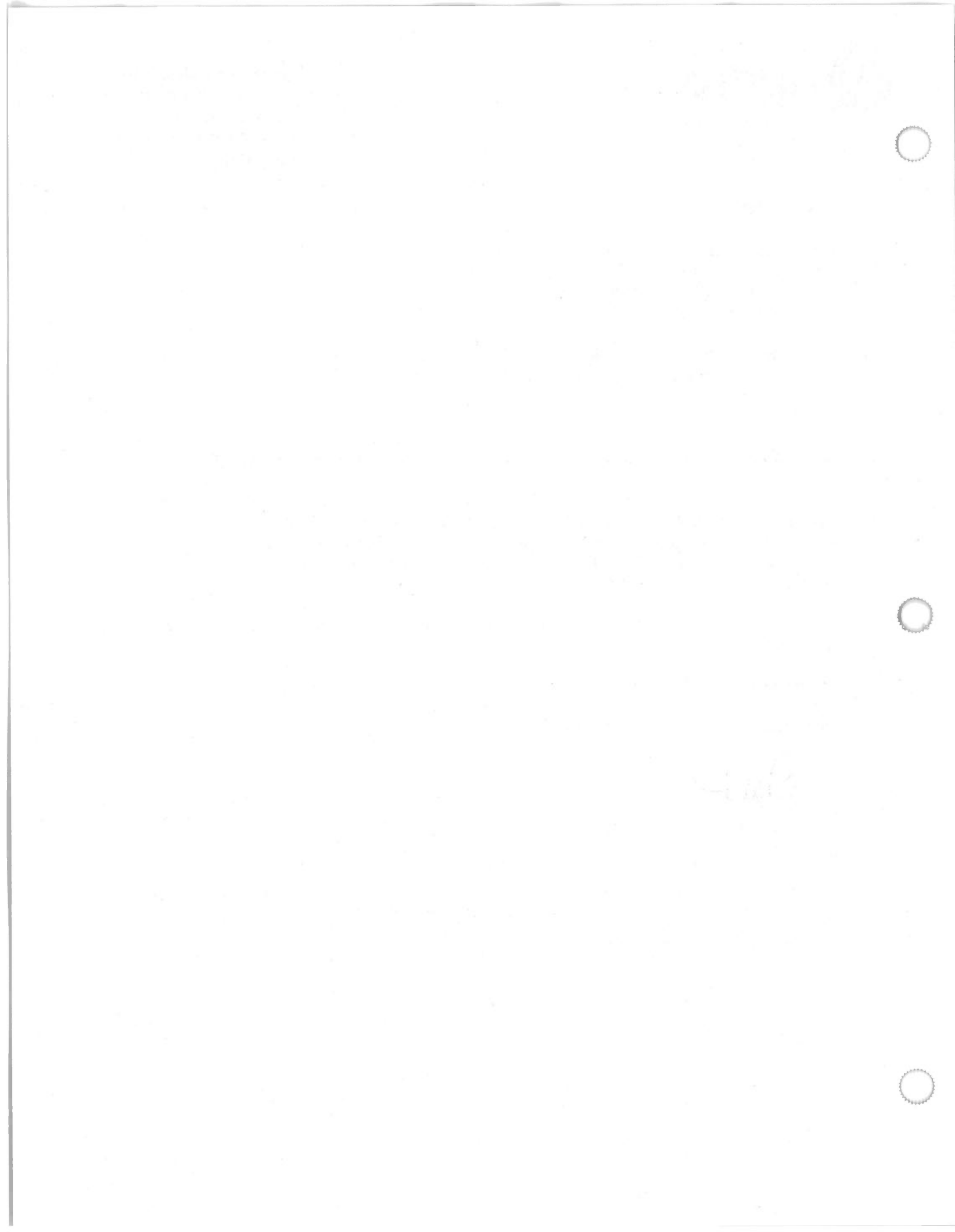
NEWFOUNDLAND AND LABRADOR HYDRO



Shirley A. Walsh
Senior Legal Counsel – Regulatory
SAW/las

cc: Gerard Hayes, Newfoundland Power
Paul Coxworthy, Stewart McKelvey
ecc: Denis Fleming, Cox & Palmer
Roberta Frampton Benefiel, Grand Riverkeeper® Labrador

Dennis Browne, Q.C, Browne Fitzgerald Morgan & Avis
Danny Dumaresque
Larry Bartlett, Teck Resources Ltd.





**Capacity Assistance Report for
Corner Brook Pulp and Paper for
Winter 2018-2019**

May 30, 2019

A report to the Board of Commissioners of Public Utilities



Executive Summary

1 Newfoundland and Labrador Hydro (“Hydro”) currently has three capacity assistance agreements in
2 place with industrial customers; one with Corner Brook Pulp and Paper Limited (“CBPP”) and two with
3 Vale Newfoundland and Labrador Limited (“Vale”).

4

5 This report provides the following information regarding the capacity assistance agreement with CBPP
6 for winter 2018-2019:

7

- 8 • the capacity assistance requested and provided, including dates, times, and duration;
- 9 • the system conditions at the time of the capacity assistance request, including generation available
10 and calculation of system reserve; and
- 11 • payments made.

12

13 Details on the use of the capacity assistance agreement with Vale can be found in Hydro’s letter entitled
14 “Newfoundland and Labrador Hydro’s Capacity Assistance Agreements with Vale Newfoundland and
15 Labrador Limited” filed with the Board Of Commissioners of Public Utilities (the “Board”) on April 10,
16 2019, as per Board Order No. P.U. 44(2018).

17

18 A summary of the key terms and conditions of Hydro’s capacity assistance agreements with CBPP is
19 attached as Appendix A.

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Appendix B: Capacity Assistance Requests for Corner Brook Pulp and Paper

Attachment 1: Supply and Demand Reports

1.0 Introduction

1 Capacity assistance arrangements are used to minimize disruptions to customers in the event of a
2 contingency or to maintain sufficient levels of operating reserves for reliable operation of the electrical
3 system. This support is normally requested during times of high or peak customer demand, or instances
4 where there are issues with generation or regional transmission during the winter operating season.
5

6 Hydro's "Amended and Restated Capacity Assistance Agreement with Corner Brook Pulp and Paper
7 Limited" (the "Agreement") combines the previous capacity assistance agreements into one single
8 revised agreement which provides an additional 15 MW of winter capacity up to 105 MW to Hydro.¹ The
9 capacity assistance was tested and verified at 100.4 MW, and forms the basis for calculation of the
10 financial terms. The Agreement provides cost-effective flexibility for Hydro to deal with unanticipated
11 generation or load events and is necessary to ensure the continued provision of adequate and reliable
12 supply to Hydro's customers on the Island Interconnected System. The Agreement provides: (i)
13 operational flexibility for six months of the year instead of four months; (ii) improved response time
14 with a 10 minute notification period instead of 20 minutes; and (iii) increased security for long-term
15 planning due to the extended term. The Agreement, as per Board Order No. P.U. 34(2017), is effective
16 to the earlier of April 30, 2022, or the commissioning of the Muskrat Falls Generating Plant.
17

18 In accordance with Board direction, this report summarizes the details and costs associated with Hydro's
19 use of the Agreement from November 1, 2018 to April 30, 2019.

2.0 Capacity Assistance Requests Winter 2018–2019 – Corner Brook Pulp and Paper

20 The following summaries provide an overview of the system conditions and capacity assistance provided
21 during the capacity assistance requests. Additional details, including start and end times, are attached as
22 Appendix B. For details on system conditions, including actual peak demand values, please refer to
23 Attachment 1 for the Supply and Demand Status Reports applicable to each day, as submitted to the
24 Board daily.

¹ Approved by the Board in Board Order No. P.U. 40(2018), November 22, 2018.

2.1 December 6, 2018

On December 6, 2018, Holyrood Unit 1 was derated to 160 MW; Holyrood Unit 2 was unavailable due to a maintenance outage repair on the turbine hydraulic system; the Hardwoods Gas Turbine was unavailable to complete exhaust stack repairs; Upper Salmon Unit was unavailable due to frazil ice buildup on the trash racks; and the Labrador Island Link (“LIL”) was unavailable due to maintenance. The spinning reserve forecast was low for both morning and evening peaks. To maintain adequate spinning reserves during the morning peak Hydro and Newfoundland Power operated their standby generation. In addition, Hydro requested Newfoundland Power and Deer Lake Power maximize their hydraulic generation. CBPP provided 40 MW of capacity assistance from approximately 0730 hours to 1130 hours.

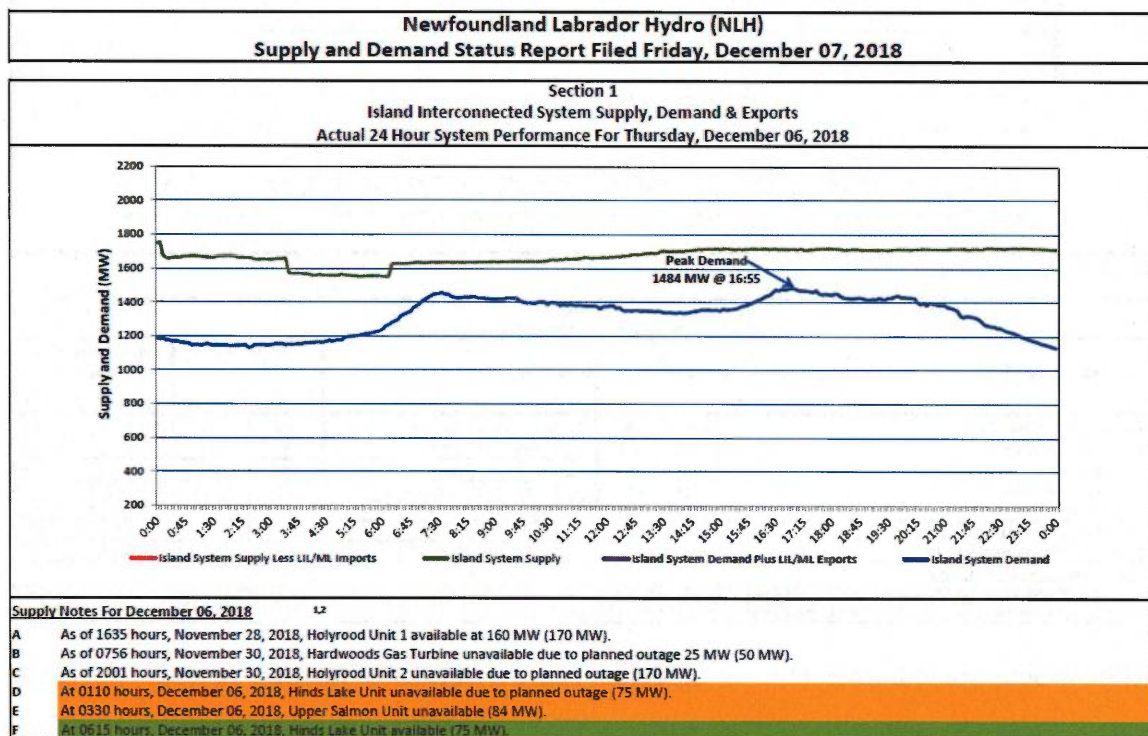


Figure 1: Supply and Demand Status Report for December 6, 2018

2.2 February 21, 2019

On February 21, 2019, the Hardwoods Gas Turbine was unavailable due to vibration issues. Although the LIL was available, power transfers were stopped due to the island maximum loading guidelines.² The spinning reserve forecast was low for both morning and evening peaks. To maintain adequate spinning

² The Newfoundland and Labrador System Operator has restricted the combination of LIL and Holyrood unit loading to adhere to its "maximum unit loading" limits.

1 reserves Hydro and Newfoundland Power operated their standby generation. In addition, Hydro
 2 requested Newfoundland Power and Deer Lake Power to maximize their hydraulic generation. CBPP
 3 provided 60 MW of capacity assistance from approximately 0750 hours to 1150 hours.

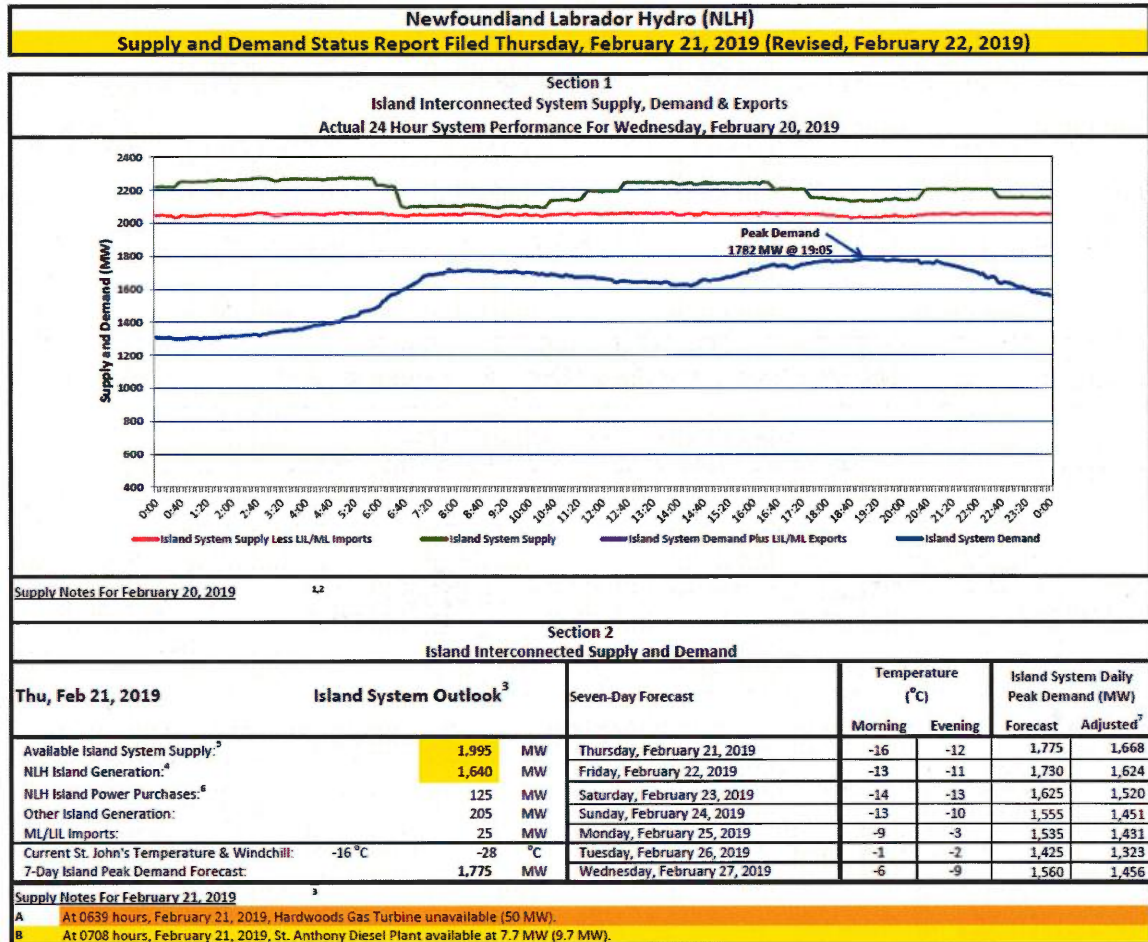


Figure 2: Supply and Demand Status Report for February 21, 2019 (Revised, February 22, 2019)

4 **2.3 April 30, 2019**

5 On April 30, 2019, Holyrood Unit 2 was unavailable due to mechanical issues; Holyrood Unit 3 was
 6 unavailable to complete the boiler and turbine annual maintenance; the Hardwoods Gas Turbine was
 7 derated to 25 MW due to vibration issues; the LIL was unavailable due to a trip that occurred on April
 8 29, 2019; and the St. Anthony Diesel Plant was derated for a planned outage on one diesel generation
 9 unit. CBPP provided 60 MW of capacity assistance from approximately 0700 hours to 1100 hours to
 10 support Island spinning reserves.

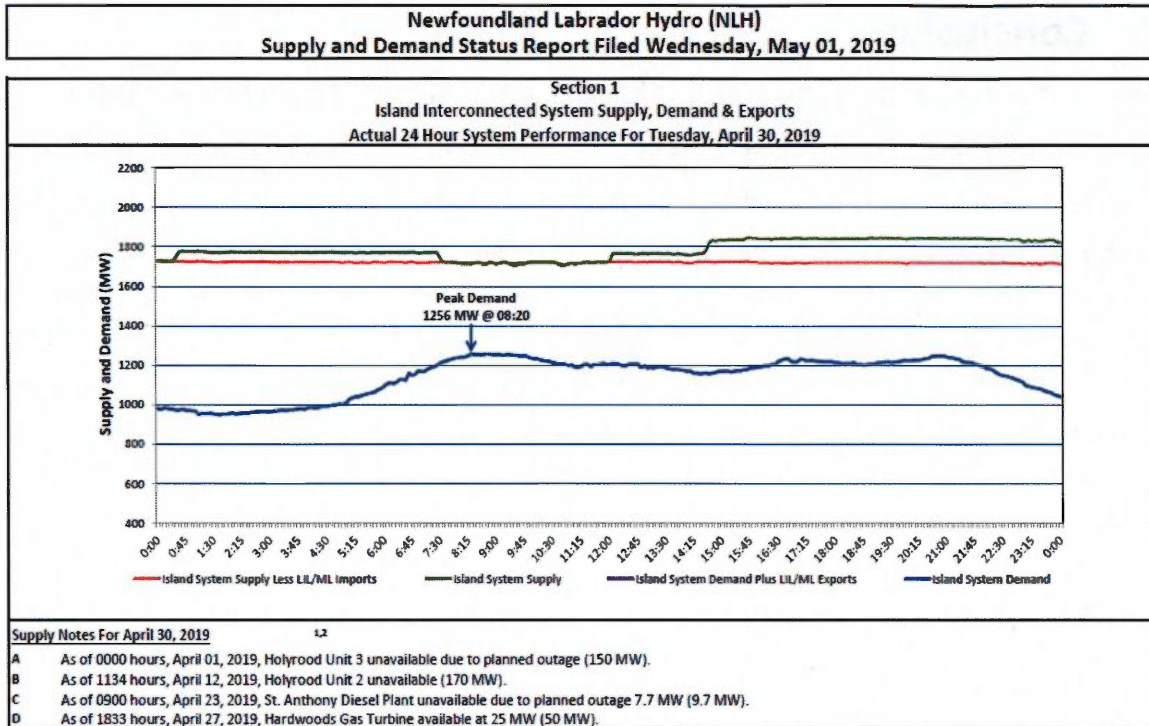


Figure 3: Supply and Demand Status Report for April 30, 2019

3.0 Capacity Assistance Summary

- 1 During the winter of 2018-2019 Hydro made three requests for capacity assistance. A summary of the
- 2 requests is provided in Table 1.

Table 1: Summary of Capacity Assistance Requests

Number of Requests for Assistance	Total Number of Hours of Assistance Provided	Total Capacity Assistance Provided (Equivalent kWh)
3	12	597,010

- 3 The overall cost of capacity assistance for the 2018-2019 winter season is provided in Table 2. Additional
- 4 details on the contract conditions, including rate structures, are included as Appendix A.

Table 2: Summary of Capacity Assistance Costs

Fixed Charge (\$)	Variable Charge (\$)	Total (\$)
2,861,400	166,400	3,027,800

4.0 Conclusion

- 1 Hydro made three capacity assistance requests from CBPP in winter 2018-2019 to help ensure reliable
- 2 service for its customers. The Agreement expires on April 30, 2022, or the date of commissioning of the
- 3 Muskrat Falls Generating Plant, whichever is earlier. CBPP has demonstrated their ability to provide
- 4 100.4 MW of capacity assistance for the 2018-2019 winter period.



Appendix A

Summary of Capacity Assistance Agreements



Table A-1: Summary of Capacity Assistance Agreements for Corner Brook Pulp and Paper

Contracted Capacity	Rate Structure	Conditions
Up to 105 MW in the following increments: <ul style="list-style-type: none"> • 20 MW • 40 MW • 60 MW • 90 MW • 105 MW 	<p><u>Fixed</u> \$4.75 per kW per month for each of November through April for a total of \$2,992,500.</p> <p><u>Variable</u> A minimum of \$0.20 per kW per hour to a maximum of \$0.26 per hour for the maximum assistance provided as determined on the following sliding scale:</p> <ol style="list-style-type: none"> 1) 0 to 7.5 GWh/Winter Period – 90% of GTVC;¹ 2) Greater than 7.5/Winter Period – 80% of GTVC For requests above 90 MW there is a \$0.06/kWh premium using the same sliding scale as above 	<ul style="list-style-type: none"> • Notification Period – 10 minutes • Interruption Period – 4 hours (minimum) to 6 hours (maximum) • Maximum number of curtailments – 2 per day, 60 per winter • Total Assistance Period – 250 hours per winter • Penalties – Three Strike Clause • Expiry – April 30, 2022 or the date of commissioning of the Muskrat Falls Generating Plant, whichever is earlier • Test – Tested annually

¹ GTVC = the previous month's Gas Turbine Variable Cost as provided on CBPP's monthly invoice and expressed as a cost per KWh.

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Appendix B

Capacity Assistance Requests for Corner Brook Pulp and Paper

Table B-1: Capacity Assistance Requests for Corner Brook Pulp and Paper

Date	Start Time	End Time	Duration (hh.mm)	System Generation Available (MW)	System Available Reserve (MW)	System Spinning Reserve (MW)	Maximum Capacity Assistance Requested (MW)	Maximum Capacity Assistance Provided (MW)
December 6, 2018	07:30	11:30	4.00	1635	288	148	40.0	48.9
February 21, 2019	07:50	11:50	4.00	2007	386	211	60.0	61.2
April 30, 2019	07:00	11:00	4.00	1769	510	234	60.0	64.2



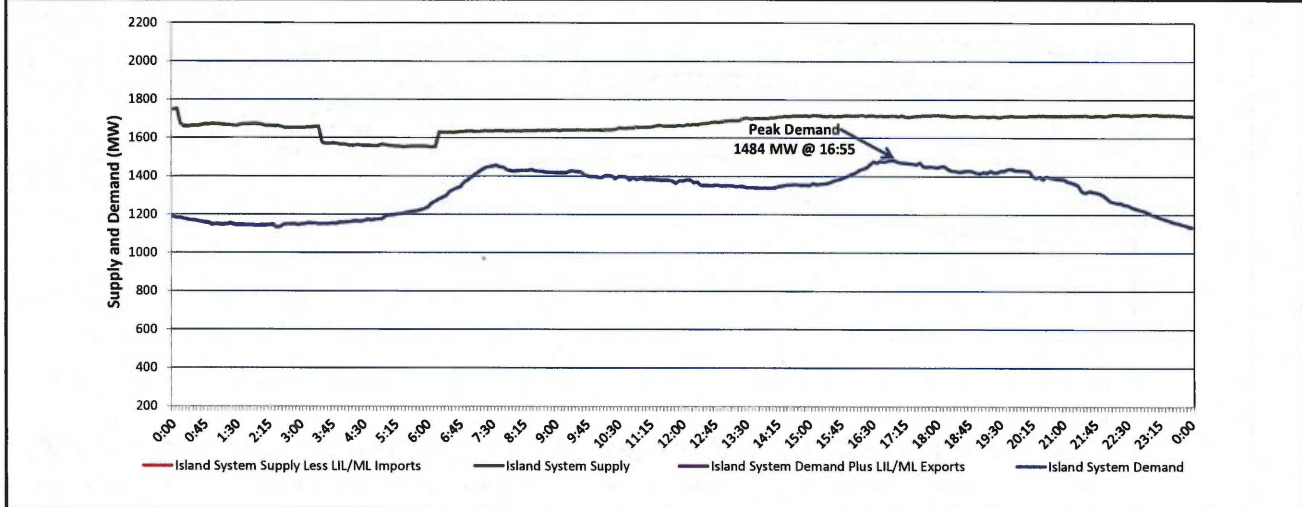
Attachment 1

Supply and Demand Reports



**Newfoundland Labrador Hydro (NLH)
 Supply and Demand Status Report Filed Friday, December 07, 2018**

**Section 1
 Island Interconnected System Supply, Demand & Exports
 Actual 24 Hour System Performance For Thursday, December 06, 2018**



Supply Notes For December 06, 2018 ^{1,2}

A As of 1635 hours, November 28, 2018, Holyrood Unit 1 available at 160 MW (170 MW).
 B As of 0756 hours, November 30, 2018, Hardwoods Gas Turbine unavailable due to planned outage 25 MW (50 MW).
 C As of 2001 hours, November 30, 2018, Holyrood Unit 2 unavailable due to planned outage (170 MW).
 D At 0110 hours, December 06, 2018, Hinds Lake Unit unavailable due to planned outage (75 MW).
 E At 0330 hours, December 06, 2018, Upper Salmon Unit unavailable (84 MW).
 F At 0615 hours, December 06, 2018, Hinds Lake Unit available (75 MW).

**Section 2
 Island Interconnected Supply and Demand**

Fri, Dec 07, 2018	Island System Outlook ³	Seven-Day Forecast	Temperature (°C)		Island System Daily Peak Demand (MW)	
			Morning	Evening	Forecast	Adjusted ⁷
Available Island System Supply: ⁵	1,700 MW	Friday, December 07, 2018	-2	-4	1,470	1,367
NLH Island Generation: ⁴	1,380 MW	Saturday, December 08, 2018	-5	-1	1,420	1,318
NLH Island Power Purchases: ⁶	125 MW	Sunday, December 09, 2018	-5	-3	1,445	1,342
Other Island Generation:	195 MW	Monday, December 10, 2018	-5	-4	1,450	1,347
ML/LIL Imports:	- MW	Tuesday, December 11, 2018	-2	-6	1,500	1,397
Current St. John's Temperature & Windchill:	-2 °C -10 °C	Wednesday, December 12, 2018	-6	-4	1,460	1,357
7-Day Island Peak Demand Forecast:	1,540 MW	Thursday, December 13, 2018	-7	-10	1,540	1,436

Supply Notes For December 07, 2018 ³

Notes:

1. Generation outages for running and corrective maintenance are included. These are not unusual for power system operations. They generally do not impact customer supply. The power system operators schedule outages to system equipment whenever possible to coincide with periods when customer demands are low and sufficient supply reserves are available. However, from time to time equipment outages are necessary and reserves may be impacted.
2. Due to the Island system having no synchronous connections to the larger North American grid, when there is a sudden loss of large generating units there may be a requirement for some customer's load to be interrupted for short periods to bring generation output equal to customer demand. This automatic action of power system protection, referred to as under frequency load shedding (UFLS), is necessary to ensure the integrity and reliability of system equipment. Under frequency events have typically occurred 5 to 8 times per year on the Island Interconnected System and the resultant customer load interruptions are generally less than 30 minutes. With the activation of the Maritime Link frequency controller during the winter of 2018, UFLS events have occurred less frequently.
3. As of 0800 Hours.
4. Gross output including station service at Holyrood (24.5 MW) and improved NLH hydraulic output due to water levels (35 MW).
5. Gross output from all Island sources (including Note 4).
6. NLH Island Power Purchases include: CBPP Co-Gen, Nalcor Exploits, Rattle Brook, Star Lake, Wind Generation and capacity assistance (when applicable).
7. Adjusted for curtailable load, market activities and the impact of voltage reduction when applicable.

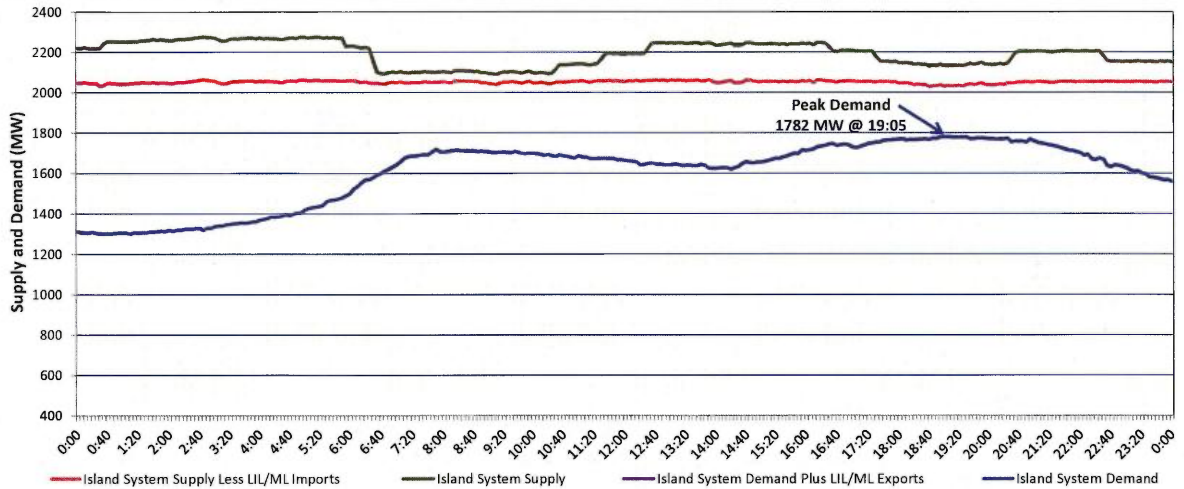
**Section 3
 Island Peak Demand Information
 Previous Day Actual Peak and Current Day Forecast Peak**

Thu, Dec 06, 2018	Actual Island Peak Demand ⁸	16:55	1,484 MW
Fri, Dec 07, 2018	Forecast Island Peak Demand		1,470 MW

Notes: 8. Island Demand / LIL / ML Exports (where applicable) is supplied by NLH generation and purchases, plus generation owned and operated by Newfoundland Power and Corner Brook Pulp & Paper (Deer Lake Power, DLP).

Newfoundland Labrador Hydro (NLH)
Supply and Demand Status Report Filed Thursday, February 21, 2019 (Revised, February 22, 2019)

Section 1
Island Interconnected System Supply, Demand & Exports
Actual 24 Hour System Performance For Wednesday, February 20, 2019



Supply Notes For February 20, 2019 ^{1,2}

Section 2
Island Interconnected Supply and Demand

Thu, Feb 21, 2019	Island System Outlook ³	Seven-Day Forecast	Temperature (°C)		Island System Daily Peak Demand (MW)	
			Morning	Evening	Forecast	Adjusted ⁷
Available Island System Supply: ⁵	1,995 MW	Thursday, February 21, 2019	-16	-12	1,775	1,668
NLH Island Generation: ⁴	1,640 MW	Friday, February 22, 2019	-13	-11	1,730	1,624
NLH Island Power Purchases: ⁶	125 MW	Saturday, February 23, 2019	-14	-13	1,625	1,520
Other Island Generation:	205 MW	Sunday, February 24, 2019	-13	-10	1,555	1,451
ML/LIL Imports:	25 MW	Monday, February 25, 2019	-9	-3	1,535	1,431
Current St. John's Temperature & Windchill: -16 °C	-28 °C	Tuesday, February 26, 2019	-1	-2	1,425	1,323
7-Day Island Peak Demand Forecast:	1,775 MW	Wednesday, February 27, 2019	-6	-9	1,560	1,456

Supply Notes For February 21, 2019 ³

- A At 0639 hours, February 21, 2019, Hardwoods Gas Turbine unavailable (50 MW).
- B At 0708 hours, February 21, 2019, St. Anthony Diesel Plant available at 7.7 MW (9.7 MW).

- Notes:
1. Generation outages for running and corrective maintenance are included. These are not unusual for power system operations. They generally do not impact customer supply. The power system operators schedule outages to system equipment whenever possible to coincide with periods when customer demands are low and sufficient supply reserves are available. However, from time to time equipment outages are necessary and reserves may be impacted.
 2. Due to the Island system having no synchronous connections to the larger North American grid, when there is a sudden loss of large generating units there may be a requirement for some customer's load to be interrupted for short periods to bring generation output equal to customer demand. This automatic action of power system protection, referred to as under frequency load shedding (UFLS), is necessary to ensure the integrity and reliability of system equipment. Under frequency events have typically occurred 5 to 8 times per year on the Island Interconnected System and the resultant customer load interruptions are generally less than 30 minutes. With the activation of the Maritime Link frequency controller during the winter of 2018, UFLS events have occurred less frequently.
 3. As of 0800 Hours.
 4. Gross output including station service at Holyrood (24.5 MW) and improved NLH hydraulic output due to water levels (35 MW).
 5. Gross output from all Island sources (including Note 4).
 6. NLH Island Power Purchases include: CBPP Co-Gen, Nalcor Exploits, Rattle Brook, Star Lake, Wind Generation and capacity assistance (when applicable).
 7. Adjusted for curtailable load, market activities and the impact of voltage reduction when applicable.

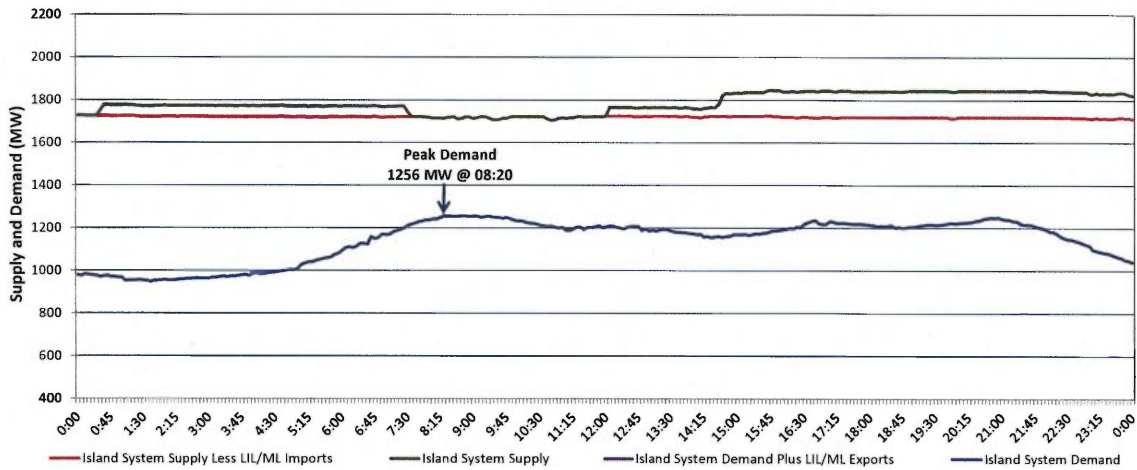
Section 3
Island Peak Demand Information
Previous Day Actual Peak and Current Day Forecast Peak

Wed, Feb 20, 2019	Actual Island Peak Demand ⁸	19:05	1,782 MW
Thu, Feb 21, 2019	Forecast Island Peak Demand		1,775 MW

Notes: ⁸ Island Demand / LIL / ML Exports (where applicable) is supplied by NLH generation and purchases, plus generation owned and operated by Newfoundland Power and Corner Brook Pulp & Paper (Deer Lake Power, DLP).

**Newfoundland Labrador Hydro (NLH)
 Supply and Demand Status Report Filed Wednesday, May 01, 2019**

**Section 1
 Island Interconnected System Supply, Demand & Exports
 Actual 24 Hour System Performance For Tuesday, April 30, 2019**



Supply Notes For April 30, 2019

- 1,2
- A As of 0000 hours, April 01, 2019, Holyrood Unit 3 unavailable due to planned outage (150 MW).
 - B As of 1134 hours, April 12, 2019, Holyrood Unit 2 unavailable (170 MW).
 - C As of 0900 hours, April 23, 2019, St. Anthony Diesel Plant unavailable due to planned outage 7.7 MW (9.7 MW).
 - D As of 1833 hours, April 27, 2019, Hardwoods Gas Turbine available at 25 MW (50 MW).

**Section 2
 Island Interconnected Supply and Demand**

Wed, May 01, 2019	Island System Outlook ³	Seven-Day Forecast	Temperature (°C)		Island System Daily Peak Demand (MW)	
			Morning	Evening	Forecast	Adjusted ⁷
Available Island System Supply: ⁵	1,700 MW	Wednesday, May 01, 2019	0	3	1,275	1,275
NLH Island Generation: ⁴	1,340 MW	Thursday, May 02, 2019	1	2	1,240	1,240
NLH Island Power Purchases: ⁶	150 MW	Friday, May 03, 2019	2	2	1,230	1,230
Other Island Generation:	210 MW	Saturday, May 04, 2019	2	2	1,115	1,115
ML/LIL Imports:	- MW	Sunday, May 05, 2019	2	3	1,035	1,035
Current St. John's Temperature & Windchill:	-1 °C	Monday, May 06, 2019	3	4	1,075	1,075
7-Day Island Peak Demand Forecast:	1,275 MW	Tuesday, May 07, 2019	6	2	1,030	1,030

Supply Notes For May 01, 2019

- 3
- Notes:
1. Generation outages for running and corrective maintenance are included. These are not unusual for power system operations. They generally do not impact customer supply. The power system operators schedule outages to system equipment whenever possible to coincide with periods when customer demands are low and sufficient supply reserves are available. However, from time to time equipment outages are necessary and reserves may be impacted.
 2. Due to the Island system having no synchronous connections to the larger North American grid, when there is a sudden loss of large generating units there may be a requirement for some customer's load to be interrupted for short periods to bring generation output equal to customer demand. This automatic action of power system protection, referred to as under frequency load shedding (UFLS), is necessary to ensure the integrity and reliability of system equipment. Under frequency events have typically occurred 5 to 8 times per year on the Island Interconnected System and the resultant customer load interruptions are generally less than 30 minutes. With the activation of the Maritime Link frequency controller during the winter of 2018, UFLS events have occurred less frequently.
 3. As of 0800 Hours.
 4. Gross output including station service at Holyrood (24.5 MW) and improved NLH hydraulic output due to water levels (35 MW).
 5. Gross output from all Island sources (including Note 4).
 6. NLH Island Power Purchases include: CBPP Co-Gen, Nalcor Exploits, Rattle Brook, Star Lake, Wind Generation and capacity assistance (when applicable).
 7. Adjusted for curtailable load, market activities and the impact of voltage reduction when applicable.

**Section 3
 Island Peak Demand Information
 Previous Day Actual Peak and Current Day Forecast Peak**

Tue, Apr 30, 2019	Actual Island Peak Demand ⁸	08:20	1,256 MW
Wed, May 01, 2019	Forecast Island Peak Demand		1,275 MW

- Notes: 8. Island Demand / LIL / ML Exports (where applicable) is supplied by NLH generation and purchases, plus generation owned and operated by Newfoundland Power and Corner Brook Pulp & Paper (Deer Lake Power, DLP).

