

1 **Q. Please describe the nature of Newfoundland Power’s commercial and industrial**
 2 **load, the current existence of any interruptible loads (commercial or industrial), and**
 3 **the potential for additional interruptible load or demand response, for the**
 4 **commercial or industrial sector.**

6 **A. A. Newfoundland Power’s Commercial Load**

7 Newfoundland Power has 3 classes of General Service (i.e. commercial) customers: (i)
 8 Rate 2.1 (0-100 kW); (ii) Rate 2.3 (110 kVA – 1000 kVA); and Rate 2.4 (1000 kVA and
 9 over). General Service customers consumed approximately 2,250 GWh of electricity in
 10 2018. Rate 2.1 accounted for approximately 36% of weather adjusted energy sales for
 11 General Service customers in 2018, with Rate 2.3 accounting for approximately 45% of
 12 sales and Rate 2.4 accounting for approximately 19% of sales. Additional information on
 13 customer load by rate class is provided in response to Information Request PUB-NP-001.

15 Newfoundland Power’s General Service customers are segmented into various categories.
 16 Table 1 provides the number of customers and energy sales for each segment in 2018.¹

Table 1:
General Service Customers and Energy Sales by Segment
2018

Segment	Number of Customers	Energy Sales (GWh)
Office	4,930	444.7
Education	583	275.6
Other Commercial	4,254	266.0
Grocery/Restaurant	1,396	229.1
Retail	2,571	218.1
Communications/Utilities	3,882	149.7
Health Services	672	146.1
Manufacturing	1,078	133.5
Lodging/Hospitality	1,149	86.8
Non-Buildings	969	80.4
Fishing	419	75.4
Warehouse	480	68.3
Unspecified	1,554	54.9
Mining	87	20.8

¹ Table 1 reflects the segments being used by Dunsky Energy Consulting in completing the 2019 Conservation Potential Study.

1 Attachment A to this response provides annual electricity consumption by segment and
2 end use based upon Newfoundland Power's 2015 Conservation Potential Study.²
3

4 **B. Curtailable Service Option**

5 Customers on Rate 2.3 and 2.4 that can reduce their demand by between 300 kW and
6 5000 kW during the winter peak period, upon request by the Company, are eligible to
7 avail of the Curtailable Service Option (the "CSO").³ Customers who participate in the
8 CSO can receive a credit based on the load they are able to successfully curtail.

9 Attachment B to this response provides the description of the CSO contained in
10 Newfoundland Power's *Schedule of Rates, Rules and Regulations*.

11
12 There are currently 23 Newfoundland Power customers contracted on the CSO, providing
13 approximately 11.0 MW of curtailable load on the system. Table 2 displays the current
14 number of customers on the CSO by segment.

Table 2:
Curtailable Service Option Customers by Segment

Segment	Number of CSO Customers
Health Services	13
Communications/Utilities	5
Education	1
Manufacturing	1
Office	1
Grocery/Restaurant	1
Warehouse	1

15 More information on the cost and impact of the CSO can be found in Attachment C to
16 this response, which is a copy of Newfoundland Power's *2018 Curtailable Service*
17 *Option Report*, filed with the Board in April 2018.
18

19 **C. Potential for Additional Interruptible Load or Demand Response**

20 Newfoundland Power is currently conducting a new Conservation Potential Study, which
21 is expected to be completed by mid-2019. The Conservation Potential Study will identify
22 the potential for demand response measures for all customer sectors, including General
23 Service customers.

² The segments used by ICF Marbek in completing the 2015 Conservation Potential Study differ from those being used by Dunsy Energy Consulting in completing the 2019 Conservation Potential Study

³ The winter peak period is between 8:00am and 9:00pm daily during the calendar months of December, January, February and March.

1 Customers' ability to curtail their load is generally dependent upon the availability of
2 backup generation. The 2018 Commercial End Use Survey, conducted by Newfoundland
3 Power and Newfoundland and Labrador Hydro, showed that approximately 27% of Rate
4 2.3 and Rate 2.4 customers have some level of backup generation. Approximately 12%
5 of Rate 2.3 and Rate 2.4 customers indicated they have enough generation to cover at
6 least 40% of their load requirements.

**2015 Commercial Electricity Consumption
by Segment and End Use**

Exhibit 8 Base Year Annual Electricity Consumption by Sub sector and End Use, All of NL (MWh/yr.)

Sub Sector	Space Heating	General Lighting	HVAC Fans & Pumps	Miscellaneous Equipment	Refrigeration	Secondary Lighting	Domestic Hot Water	Computer Equipment	Food Service Equipment	Other Plug Loads	Outdoor Lighting	Space Cooling	Street Lighting	Computer Servers	Elevator	Block Heaters	Grand Total
Large Office	94,614	53,893	46,186	2,666	1,067	15,973	5,999	24,326	1,067	7,386	4,524	10,209	-	4,319	1,033	-	273,262
Small Office	76,520	40,527	20,053	2,192	868	6,020	5,263	20,197	-	6,132	3,756	7,928	-	3,586	-	22	193,065
Large Non-food Retail	30,090	36,209	28,344	1,021	6,135	3,845	1,819	2,021	4,090	2,632	3,583	3,224	-	467	-	35	123,515
Small Non-food Retail	45,979	45,510	29,767	1,496	-	5,322	2,835	2,993	-	3,896	5,305	4,984	-	691	-	68	148,847
Food Retail	23,490	20,697	11,522	749	91,544	3,236	3,484	2,323	9,237	2,502	2,612	1,610	-	327	-	21	173,352
Large Accomodation	20,548	7,426	5,946	661	2,073	7,856	16,327	1,194	3,392	1,321	1,172	1,210	-	254	244	30	69,655
Small Accomodation	9,922	3,788	1,435	304	462	2,102	7,230	537	770	589	523	411	-	113	-	4	28,191
Healthcare	57,863	5,258	30,746	1,116	1,784	24,911	10,048	4,163	9,516	8,004	4,036	2,446	-	963	864	222	161,941
Schools	83,105	45,131	9,356	1,082	1,074	10,063	5,700	7,777	1,481	1,567	6,281	279	-	1,363	-	29	174,289
Universities and Colleges	12,738	40,181	35,767	1,923	3,877	5,076	1,269	10,028	2,908	4,881	3,289	1,341	-	714	739	15	124,745
Warehouse/Wholesale	28,325	20,567	4,753	1,358	8,433	4,089	2,136	1,869	-	4,518	2,385	114	-	621	-	48	79,216
Restaurants	13,061	2,564	3,573	268	18,173	8,146	20,519	447	36,502	598	474	1,007	-	124	-	12	105,467
Labrador Isolated C/I Buildings	580	6,909	1,132	-	3,416	1,608	149	1,051	496	677	739	-	-	-	-	305	17,062
Island Isolated C/I Buildings	-	649	106	-	321	151	-	99	47	64	69	-	-	-	-	-	1,505
Large Other Buildings	65,447	36,027	27,825	1,564	22,200	14,680	13,133	8,017	12,662	5,660	4,741	2,936	-	1,388	406	358	217,045
Small Other Buildings	56,786	33,165	21,646	1,450	18,691	10,949	9,525	7,223	9,684	5,022	4,365	2,711	-	1,240	227	238	182,923
Other Institutional	10,017	12,713	8,247	412	1,763	4,559	2,407	1,212	537	2,075	1,406	219	-	-	-	412	45,979
Non-Buildings	-	-	-	204,856	-	-	-	-	-	-	-	-	-	-	-	-	204,856
Street Lighting	-	-	-	-	-	-	-	-	-	-	-	-	37,127	-	-	-	37,127
Grand Total	629,085	411,214	286,405	223,118	181,881	128,587	107,844	95,476	92,387	57,527	49,260	40,630	37,127	16,170	3,514	1,817	2,362,042

Newfoundland Power Inc.
Curtailable Service Option

**NEWFOUNDLAND POWER INC.
CURTAILABLE SERVICE OPTION
(for Rates #2.3 and #2.4 only)**

Availability:

For Customers billed on Rate #2.3 or #2.4 that can reduce their demand ("Curtail") by between 300 kW (330 kVA) and 5000 kW (5500 kVA) upon request by the Company during the Winter Peak Period. The Winter Peak Period is between 8 a.m. and 9 p.m. daily during the calendar months of December, January, February and March. The ability of a Customer to Curtail must be demonstrated to the Company's satisfaction prior to the Customer's availing of this rate option.

Customers that reduce their demand in aggregate will be treated as a single Customer under this rate option. The aggregated Customer must provide a single point of contact for a request to Curtail.

Credit for Curtailing:

If the Customer Curtails as requested for the duration of a Winter, the Company shall credit to the Customer's account the Curtailment Credit during May billing immediately following that Winter. The Curtailment Credit shall be determined by one of the following options:

Option 1:

The Customer will contract to reduce demand by a specific amount during Curtailment periods (the "Contracted Demand Reduction"). The Curtailment Credit for Option 1 is determined as follows:

Curtailment Credit = Contracted Demand Reduction x \$29 per kVA

Option 2:

The Customer will contract to reduce demand to a Firm Demand level which the Customer's maximum demand must not exceed during a Curtailment period. The Curtailment Credit for Option 2 is determined as follows:

Maximum Demand Curtailed = (Maximum Winter Demand - Firm Demand)

Peak Period Load Factor =
$$\frac{\text{kWh usage during Peak Period}}{(\text{Maximum Demand during Peak Period} \times 1573 \text{ hours})}$$

Curtailment Credit = ((Maximum Demand Curtailed x 50%) + (Maximum Demand Curtailed x 50% x Peak Period Load Factor)) x \$29 per kVA

Limitations on Requests to Curtail:

Curtailment periods will:

1. Not exceed 6 hours duration for any one occurrence.
2. Not be requested to start within 2 hours of the expiration of a prior Curtailment period.
3. Not exceed 100 hours duration in total during a winter period.

The Company shall request the Customer to Curtail at least 1 hour prior to the commencement of the Curtailment period.

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Effective March 1, 2019

**NEWFOUNDLAND POWER INC.
CURTAILABLE SERVICE OPTION
(for Rates #2.3 and #2.4 only)**

Failure to Curtail:

Failure to Curtail under Option 1 occurs when a Customer does not reduce its demand by the Contracted Demand Reduction for the duration of a Curtailment period. Failure to Curtail under Option 2 occurs when a Customer does not reduce its demand to the Firm Demand level or below for the duration of a Curtailment period.

The Curtailment Credit will be reduced for failure to Curtail in a winter period as follows:

1. For the first 5 curtailment requests the Curtailment Credit will be reduced 25% for each failure to Curtail.
2. After the 5th curtailment 50% of the remaining Curtailment Credit, if any, will become vested ("Vested Curtailment Credit").
3. For all remaining curtailment requests the Curtailment Credit will be reduced by 12.5% for each additional failure to Curtail.

If a Customer fails to Curtail four times during a winter period, then:

1. The Customer shall only be entitled to the Vested Curtailable Credit, if any.
2. The Customer will no longer be entitled to service under the Curtailable Service Option.

Notwithstanding the previous paragraph, no Curtailment Credit will be provided if the number of failures to Curtail equals the number of Curtailment requests.

Termination/Modification:

The Company requires six months written notice of the Customer's intention to either discontinue Curtailable Service Option or to modify the Contracted Demand Reduction or Firm Demand level.

General:

Services billed on this Service Option will have approved load monitoring equipment installed. For a customer that Curtails by using its own generation in parallel with the Company's electrical system, all Company interconnection guidelines will apply, and the Company has the option of monitoring the output of the Customer's generation. All costs associated with equipment required to monitor the Customer's generation will be charged to the Customer's account.

2018 Curtailable Service Option Report
April 27, 2018

WHENEVER. WHEREVER.
We'll be there.



HAND DELIVERED

April 27, 2018

Board of Commissioners
of Public Utilities
P.O. Box 21040
120 Torbay Road
St. John's, NL A1A 5B2

Attention: G. Cheryl Blundon
Director of Corporate Services
and Board Secretary

Re: 2018 Curtailable Service Option Report

Ladies and Gentlemen:

Please find enclosed the original and 9 copies of Newfoundland Power Inc.'s 2018 Curtailable Service Option Report.

If you have any questions, please contact the undersigned at the direct number noted below.

Yours very truly,

A handwritten signature in blue ink, appearing to read "Gerard M. Hayes".

Gerard M. Hayes
Senior Counsel

Enclosures

2018 Curtailable Service Option Report

April 27, 2018

1. PURPOSE OF REPORT

This report summarizes the annual costs of maintaining Newfoundland Power Inc.'s ("Newfoundland Power" or the "Company") Curtailable Service Option (the "Option") and the Option statistics for the 2017-2018 winter season, including the impact of curtailment on the demand of customers availing of the Option ("Option participants").

This report is submitted in accordance with Order No. P.U. 7 (1996-97), which states:

"The Applicant shall follow the directions given in Items (4) and (5) of Order No. P.U. 4 (1994-95) and provide the updated statistics, thirty days after each 'winter season' for the Board's information and evaluation."

Items (4) and (5) of Order No. P.U. 4 (1994-95) are as follows:

(4) "Accounts will be established to accumulate all costs associated with the curtailable service option for purpose of evaluation at the next rate hearing.

(5) Statistics are to be compiled for the purpose of determining the impact on peak load conditions during the period in which curtailment occurred."

In Order No. P.U. 47 (2014), the Board of Commissioners of Public Utilities of Newfoundland and Labrador (the "Board") approved interim revisions to Newfoundland and Labrador Hydro's ("Hydro") Utility rate to reflect a curtailable load credit (the "Curtailable Credit") in the computation of billing demand for Newfoundland Power for the period December 1st, 2014 to March 31st, 2015.

In Order No. P.U. 9 (2016), the Board ordered continued use of the Curtailable Credit, on an interim basis, effective December 1st, 2015.

On December 1st, 2016, the Board issued Order No. P.U. 49 (2016). In the Order, the Board approved use of the Curtailable Credit on a final basis.

The Curtailable Credit ensures that curtailments are requested from Newfoundland Power customers only to meet system load requirements. Previously, curtailments pursuant to the Option were also requested to reduce the demand requirements of the Company during peak load conditions.

2. COSTS OF THE CURTAILABLE SERVICE OPTION

The operating costs incurred by Newfoundland Power in offering the Option include labour costs, telephone line and modem rental costs and the cost of curtailment credits paid to Option participants.

Table 1 compares the costs for the current period (April 2017 to March 2018) with the costs for the previous 12 months.

Table 1
Curtable Service Option
Operating Costs

	April 2017 to March 2018	April 2016 to March 2017
Labour	\$5,606	\$5,540
Telephone Line and Modem Rentals	\$3,624 ¹	\$5,364
Curtailment Credits	\$378,633	\$424,674
Total Operating Costs	\$387,863	\$435,578
Customers	22	23

The total curtailment credits of \$378,633 for the current period compare to a total of \$424,674 for the same period during the previous year. The credit total for the 2017-2018 winter season is lower than the previous season's total primarily due to lower contracted load curtailment.²

3. CURTAILABLE SERVICE OPTION STATISTICS

Impact of Curtailment Request

There were no curtailment requests during the 2017-2018 winter season, apart from the Curtailment Test, which was completed on the morning of December 6th, 2017 from 9:00 a.m. to 10:30 a.m.³

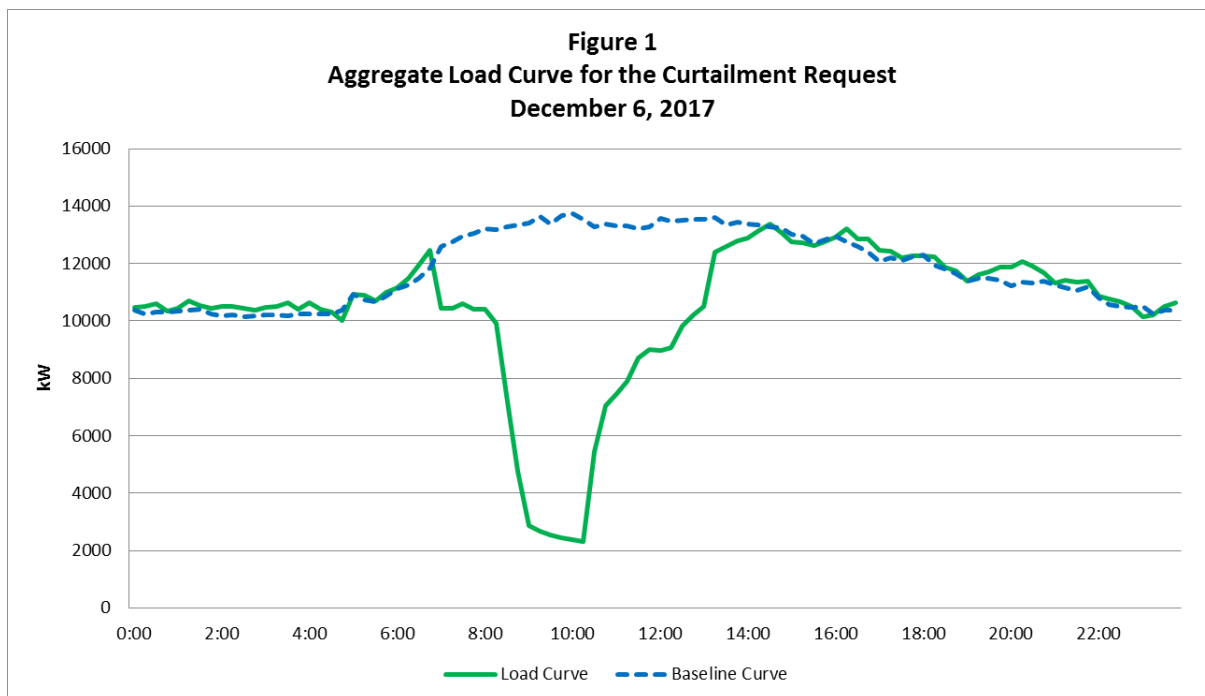
¹ The majority of load recorders have been changed from telephone line to modem communication, which has reduced the annual cost.

² There were 22 Option participants in 2017-2018, compared to 23 participants in the previous year. Changes to Curtailment Credits year over year are attributable to variation in demand and consumption, and the mix of Option participants achieving full or partial credit.

³ In accordance with Hydro's Utility rate, the Curtable Credit is required to be verified annually. The verification test involves curtailing Option participants' load, at a minimum of the load on which the Curtable Credit is based, for a period of one hour (the "Curtailment Test").

During the request, the average load curtailed was 11.0 MW, and 21 of the 22 Option participants were successful in their curtailment.⁴

Figure 1 illustrates the impact of the curtailment request on the demand of customers availing of the Option on December 6th, 2017.



⁴ Curtailment is measured based on a comparison of the aggregate customer load curve for the curtailment event day to a *baseline curve*. A baseline curve is an estimate of what the customer aggregate load would have been had there been no curtailment. The difference between the baseline curve and the aggregate curve for the event day determines the impact of the curtailment. A baseline curve is the average of the aggregate load curves for the most recent 3 days of the same day type (i.e. weekday vs. weekend). Prior to averaging, the load data for each of the most recent 3 days are weather-adjusted (for temperature and wind) to match the weather on the day of curtailment event. The weather adjustment is based on a statistical regression analysis of the aggregate load data for the related winter season. When necessary, one of the three most recent days may be excluded if the load shape is considered abnormal, or if a following day(s) is considered more comparable.

2017-2018 Winter Season Curtailment Service Option Statistics

The Option participant statistics for the 2017-2018 winter season Curtailment Test are as follows:

Number of Curtailment Requests	1
Number of Curtailment Days	1
Number of Customers Available to Curtail	22
Number of Customer Curtailment Failures	1
Number of Successful Customer Curtailments	21
% of Successful Curtailments	95.5%
Requested Hours of Curtailment	1.5
Avoided Load due to Curtailment	11.0 MW

4. SUMMARY

The cost of offering the Option for the period April 2017 to March 2018 was \$387,863, of which \$378,633 was paid to Option participants in curtailment credits. The balance consists of internal labour and other costs associated with administration of the Option.

During the 2017-2018 winter season, a total of 22 customers participated in the Option. There was one curtailment request (the Curtailment Test), resulting in approximately 1.5 hours of curtailment.

The average load curtailed under the Option during the 2017-2018 winter season was 11.0 MW.