

- 1 **Q.** (Reference PUB-NP-009 and PUB-NP-011) It is stated " *The revised estimate of*
 2 *\$594,000 for three DCFC charging stations in 2023 reflects the Company's*
 3 *actual experience with the construction of charging stations since the 2021*
 4 *Plan was filed in December 2020. The original estimate provided in the 2021*
 5 *Plan was approximately \$150,000 per station. Actual costs have been*
 6 *approximately \$200,000 per charging station."*
- 7 a) Please confirm that the revised estimate for the charging stations is
 8 approximately 33% greater than the cost approved by the Board.
- 9 b) How does this cost increase impact the economics of the ECDM program
 10 including the estimated impact on rates?
- 11 c) What is the degree of accuracy of the estimated rate mitigation benefits
 12 stemming from the electrification program including the timing of such
 13 benefits?
- 14 d) Please re-evaluate the rate mitigation effect with the higher costs of
 15 charging stations and any other available information updates and use
 16 discounts rates of 6.5%, 7.5% and 8.5% in the NPV calculation. Please
 17 provide a spreadsheet of the calculations.
- 18 e) What impact does the increase in gasoline and diesel prices have on the
 19 economic analysis of the electrification program? Do higher gasoline and
 20 diesel prices accelerate EV adoption and increase the probability of free
 21 ridership?
- 22
- 23 A. a) It is confirmed the revised estimate for the charging station cost per site is
 24 approximately 33% more than originally forecast in the *Electrification,*
 25 *Conservation and Demand Management Plan: 2021-2025* (the "2021 Plan").
- 26
- 27 When forecasting the rate mitigating benefits of the 2021 Plan, Newfoundland
 28 Power adopted a conservative approach. The Company did not include the
 29 potential impact of its application for \$550,000 in funding from Natural
 30 Resources Canada for Phase 1 of the *EV Charging Network*, which was ultimately
 31 successful. While actual costs were approximately \$200,000 per charging
 32 station, the cost net of funding was approximately \$145,000 per charging
 33 station.¹
- 34
- 35 b) Cost increases related to the EV charging stations will have minimal impact on
 36 the forecast rate mitigating benefit of the electrification initiatives included in the
 37 2021 Plan.

¹ \$550,000 / 10 sites = \$55,000 per site. \$200,000 - \$55,000 = \$145,000.

1 Table 1 shows the forecast rate mitigating benefit of electrification initiatives
 2 based on: (i) the original charger cost estimate; and (ii) the updated charger
 3 cost.²

Table 1 Forecast Rate Impact from Electrification (cents per kWh)		
Year	Original Estimate	Updated Estimate
2021	(0.002)	(0.002)
2022	(0.006)	(0.007)
2023	(0.012)	(0.013)
2024	(0.016)	(0.018)
2025	(0.016)	(0.017)
2026	(0.005)	(0.006)
2027	0.033	0.031
2028	0.097	0.095
2029	0.171	0.170
2030	0.264	0.263
2031	0.382	0.381
2032	0.508	0.507
2033	0.724	0.724
2034	0.915	0.915

4 c) The forecast rate mitigating benefits of electrification initiatives included in the
 5 2021 Plan are based on: (i) estimates of electrification potential in the province
 6 as analyzed by Dunskey Energy Consulting (“Dunskey”); (ii) the latest marginal
 7 cost forecasts from Newfoundland and Labrador Hydro (“Hydro”); and (iii) the
 8 updated rate mitigation target of the Government of Newfoundland and
 9 Labrador.

10 These assumptions reflect the best available information of the effect
 11 electrification initiatives would have on customer rates. In Newfoundland
 12 Power’s view, the use of these assumptions provides for a reasonably accurate
 13 result. To account for potential variability in assumptions, Newfoundland Power
 14

² See the response to Request for Information TC-PUB-NP-005 (1st Revision) filed as part of the 2021
Electrification, Conservation and Demand Management Application.

- 1 completed various sensitivity analyses to confirm that planned electrification
 2 initiatives would be least cost for customers.³
 3
 4 d) Table 2 outlines the forecast rate mitigating benefit including updated costs for
 5 charging stations and discount rates of 6.5%, 7.5% and 8.5%.⁴

Table 2 Forecast Rate Mitigation Sensitivity Analysis (cents per kWh)			
Year	6.5% Discount Rate & WACC	7.5% Discount Rate & WACC	8.5% Discount Rate & WACC
2021	(0.002)	(0.002)	(0.002)
2022	(0.007)	(0.007)	(0.008)
2023	(0.014)	(0.015)	(0.015)
2024	(0.018)	(0.020)	(0.021)
2025	(0.018)	(0.020)	(0.021)
2026	(0.008)	(0.010)	(0.012)
2027	0.030	0.028	0.026
2028	0.094	0.092	0.090
2029	0.169	0.167	0.165
2030	0.262	0.260	0.259
2031	0.380	0.378	0.376
2032	0.506	0.504	0.502
2033	0.722	0.720	0.718
2034	0.914	0.911	0.909

- 6 When using the highest discount rate scenario requested, the cumulative NPV of
 7 the 2021 Plan is still over \$67 million with a rate mitigating benefit of
 8 approximately 0.9 cents per kWh by 2034.

³ See the response to Request for Information PUB-NP-065 filed as part of the *2021 Electrification, Conservation and Demand Management Application*. These analyses accounted for changes in electricity rates, marginal costs and sales from electrification, with each scenario demonstrating a positive business case for electrification.

⁴ In each scenario, an updated Weighted Average Cost of Capital ("WACC") matching the discount rate is also applied.

1 See Attachment A to this response for the *pro forma* revenue requirement
2 analysis for the 2021 Plan under the requested scenarios. The Excel file used to
3 prepare Attachment A to this response can be found on Newfoundland Power's
4 stranded website at: <https://ftp.nfpower.nf.ca/>.

- 5
6 e) Dunsky found that residential customers are more likely to consider the upfront
7 cost of an EV rather than the total cost of ownership when making a purchase
8 decision.⁵ In a focus group completed by MQO Research in April 2022,
9 customers indicated that, while rising fuel prices and environmental benefits
10 were factors when considering purchasing an EV, the upfront cost to purchase
11 an EV and the availability of charging stations continue to be barriers to EV
12 adoption. Without actions to address these barriers, increases in fuel prices are
13 unlikely to accelerate EV adoption.

⁵ See the *2021 Electrification, Conservation and Demand Management Application, Volume 2, 2021 Plan, Schedule C*, page 136.

ATTACHMENT A:

Pro Forma Revenue Requirement Analysis

Newfoundland Power Inc.

**Pro Forma Revenue Requirement Analysis (6.5% Discount Rate)
2021 to 2034
(\$000s)**

Year	Investment		Pro Forma Revenue Requirement Impacts							Rate Mitgating Impact (cents/kWh)
	Capital Costs A	Program Costs B	Incremental Revenues C	Incremental System Costs D	Capital Cost Recovery E	Program Cost Recovery F	Net Revenues G	Cumulative NPV H		
2021	1,377	0	0	0	106	0	(106)	(100)	(0.002)	
2022	2,121	1,884	50	32	372	54	(407)	(459)	(0.007)	
2023	594	2,802	308	168	567	370	(797)	(1,119)	(0.014)	
2024	460	3,888	838	450	628	822	(1,062)	(1,944)	(0.018)	
2025	311	4,283	1,820	795	665	1,406	(1,046)	(2,707)	(0.018)	
2026	0	4,390	3,710	1,479	662	2,020	(451)	(3,016)	(0.008)	
2027	0	1,074	8,037	3,122	633	2,529	1,753	(1,888)	0.030	
2028	0	1,706	14,283	5,510	605	2,614	5,553	1,467	0.094	
2029	0	2,364	22,442	8,993	577	2,792	10,080	7,186	0.169	
2030	0	2,980	32,273	12,838	549	3,060	15,827	15,618	0.262	
2031	0	3,651	44,098	16,975	454	3,410	23,259	27,252	0.380	
2032	0	4,334	57,754	22,232	260	3,848	31,415	42,007	0.506	
2033	0	5,061	73,172	23,270	114	4,188	45,601	62,118	0.722	
2034	0	5,788	90,393	27,129	57	4,537	58,670	86,413	0.914	

Notes

- A Includes all EV charging infrastructure costs, including the costs associated with connecting the EV charging infrastructure to Newfoundland Power's distribution system. The 2021 amount is net of federal funding of \$550,000.
- B Includes all Electrification program costs associated with Newfoundland Power's customers including the costs to operate the EV charging stations.
- C Projected incremental revenues from additional energy sales as a result of the initiatives set out in the 2021 Plan. The revenue figures reflect annual increases in electricity rates of 2.25%.
- D Projected incremental system costs (energy and capacity costs) as a result of the initiatives set out in the 2021 Plan. The system cost figures primarily reflect the marginal cost information received from Hydro in January 2022.
- E Includes forecast depreciation, financing costs and associated income taxes related to the EV charging infrastructure investment. Based on an estimated 10 year service life, an incremental WACC of 6.5% and an income tax rate of 30%.
- F Includes forecast amortization, financing costs and associated income taxes related to electrification program costs. Based on an estimated amortization period of 10 years (equal to the estimated life of an electric vehicle), an incremental WACC of 6.5% and an income tax rate of 30%.
- G Calculated as C - D - E - F.
- H The NPV at the end of each period using an incremental WACC of 6.5%.

Newfoundland Power Inc.

**Pro Forma Revenue Requirement Analysis (7.5% Discount Rate)
2021 to 2034
(\$000s)**

Year	Investment		Pro Forma Revenue Requirement Impacts							Rate Mitgating Impact (cents/kWh)
	Capital Costs A	Program Costs B	Incremental Revenues C	Incremental System Costs D	Capital Cost Recovery E	Program Cost Recovery F	Net Revenues G	Cumulative NPV H		
2021	1,377	0	0	0	111	0	(111)	(103)	(0.002)	
2022	2,121	1,884	50	32	388	60	(430)	(475)	(0.007)	
2023	594	2,802	308	168	590	393	(843)	(1,153)	(0.015)	
2024	460	3,888	838	450	652	866	(1,130)	(1,999)	(0.020)	
2025	311	4,283	1,820	795	689	1,474	(1,138)	(2,792)	(0.020)	
2026	0	4,390	3,710	1,479	684	2,111	(564)	(3,157)	(0.010)	
2027	0	1,074	8,037	3,122	651	2,629	1,636	(2,171)	0.028	
2028	0	1,706	14,283	5,510	619	2,711	5,442	880	0.092	
2029	0	2,364	22,442	8,993	588	2,889	9,972	6,081	0.167	
2030	0	2,980	32,273	12,838	556	3,161	15,718	13,708	0.260	
2031	0	3,651	44,098	16,975	458	3,518	23,146	24,154	0.378	
2032	0	4,334	57,754	22,232	262	3,965	31,295	37,294	0.504	
2033	0	5,061	73,172	23,270	115	4,317	45,471	55,053	0.720	
2034	0	5,788	90,393	27,129	57	4,681	58,525	76,316	0.911	

Notes

- A Includes all EV charging infrastructure costs, including the costs associated with connecting the EV charging infrastructure to Newfoundland Power's distribution system. The 2021 amount is net of federal funding of \$550,000.
- B Includes all Electrification program costs associated with Newfoundland Power's customers including the costs to operate the EV charging stations.
- C Projected incremental revenues from additional energy sales as a result of the initiatives set out in the 2021 Plan. The revenue figures reflect annual increases in electricity rates of 2.25%.
- D Projected incremental system costs (energy and capacity costs) as a result of the initiatives set out in the 2021 Plan. The system cost figures primarily reflect the marginal cost information received from Hydro in January 2022.
- E Includes forecast depreciation, financing costs and associated income taxes related to the EV charging infrastructure investment. Based on an estimated 10 year service life, an incremental WACC of 7.5% and an income tax rate of 30%.
- F Includes forecast amortization, financing costs and associated income taxes related to electrification program costs. Based on an estimated amortization period of 10 years (equal to the estimated life of an electric vehicle), an incremental WACC of 7.5% and an income tax rate of 30%.
- G Calculated as C - D - E - F.
- H The NPV at the end of each period using an incremental WACC of 7.5%.

Newfoundland Power Inc.

**Pro Forma Revenue Requirement Analysis (8.5% Discount Rate)
2021 to 2034
(\$000s)**

Year	Investment		Pro Forma Revenue Requirement Impacts						Rate Mitgating Impact (cents/kWh)
	Capital Costs A	Program Costs B	Incremental Revenues C	Incremental System Costs D	Capital Cost Recovery E	Program Cost Recovery F	Net Revenues G	Cumulative NPV H	
2021	1,377	0	0	0	115	0	(115)	(106)	(0.002)
2022	2,121	1,884	50	32	403	67	(452)	(490)	(0.008)
2023	594	2,802	308	168	613	415	(888)	(1,185)	(0.015)
2024	460	3,888	838	450	676	909	(1,197)	(2,049)	(0.021)
2025	311	4,283	1,820	795	713	1,541	(1,229)	(2,866)	(0.021)
2026	0	4,390	3,710	1,479	705	2,201	(675)	(3,280)	(0.012)
2027	0	1,074	8,037	3,122	669	2,727	1,519	(2,422)	0.026
2028	0	1,706	14,283	5,510	634	2,807	5,332	355	0.090
2029	0	2,364	22,442	8,993	599	2,986	9,864	5,088	0.165
2030	0	2,980	32,273	12,838	564	3,261	15,610	11,992	0.259
2031	0	3,651	44,098	16,975	463	3,625	23,035	21,382	0.376
2032	0	4,334	57,754	22,232	264	4,081	31,178	33,096	0.502
2033	0	5,061	73,172	23,270	116	4,444	45,343	48,796	0.718
2034	0	5,788	90,393	27,129	57	4,824	58,383	67,429	0.909

Notes

- A Includes all EV charging infrastructure costs, including the costs associated with connecting the EV charging infrastructure to Newfoundland Power's distribution system. The 2021 amount is net of federal funding of \$550,000.
- B Includes all Electrification program costs associated with Newfoundland Power's customers including the costs to operate the EV charging stations.
- C Projected incremental revenues from additional energy sales as a result of the initiatives set out in the 2021 Plan. The revenue figures reflect annual increases in electricity rates of 2.25%.
- D Projected incremental system costs (energy and capacity costs) as a result of the initiatives set out in the 2021 Plan. The system cost figures primarily reflect the marginal cost information received from Hydro in January 2022.
- E Includes forecast depreciation, financing costs and associated income taxes related to the EV charging infrastructure investment. Based on an estimated 10 year service life, an incremental WACC of 8.5% and an income tax rate of 30%.
- F Includes forecast amortization, financing costs and associated income taxes related to electrification program costs. Based on an estimated amortization period of 10 years (equal to the estimated life of an electric vehicle), an incremental WACC of 8.5% and an income tax rate of 30%.
- G Calculated as C - D - E - F.
- H The NPV at the end of each period using an incremental WACC of 8.5%.