

- 1 **Q. (Reference CA-NP-045c) Please provide the complete updated life-cycle cost**
2 **analysis of the LBK plant. Provide calculations with formulas intact.**
3 **a) Specifically, please provide the updated calculations corresponding to**
4 **Attachments A to E of the life-cycle cost analysis in Appendix A to the**
5 **Lookout Brook Hydro Plant Refurbishment report in Newfoundland**
6 **Power's 2024 CBA.**
7 **b) Please provide the details of the calculation of marginal energy cost,**
8 **marginal capacity cost (run of river) and marginal capacity cost (fully**
9 **dispatchable) for 2028.**
10 **c) Please provide a copy of Hydro's projections of marginal cost of energy**
11 **and marginal cost of capacity per kWh used in the analysis.**
12 **d) Provide one-way and break-even sensitivities for energy price, capacity**
13 **price and discount rate, and recalculate using the most recent**
14 **comparable Hydro inputs for the Avalon combustion turbine and Bay**
15 **d'Espoir Unit 8, identifying the source and conversion.**
16
17 **A. a)** Attachment A provides the requested information. Attachment B provides the
18 working file with formulas intact.
19
20 **b)** See Attachments A and B.
21
22 **c)** See Attachments A and B.
23
24 **d)** Tables 1 and 2 below provide the requested sensitivity analyses for sensitivities
25 on the cost of energy and capacity. The Company does not have a breakeven
26 analysis completed for discount rate. Newfoundland Power's discount rate for
27 capital project evaluation is set to the Company's incremental weighted average
28 cost of capital ("WACC") of 6.57% for the *2027 Capital Budget Application*.¹ To
29 be responsive to the Request for Information, Newfoundland Power has
30 completed an analysis of the results of incremental changes to WACC of
31 +/- 1.0% within a range of 4.57% to 8.57% as shown in Table 3 below.
32
33 Newfoundland Power has performed its analyses based upon its established and
34 longstanding methodology, and the most recently available financial inputs. It is
35 Newfoundland Power's understanding that the marginal cost data used in this
36 analysis, and provided by Hydro, is the most recently available and includes
37 applicable costs related to the Avalon Combustion Turbine and Bay d'Espoir Unit
38 8 projects. Utilizing other energy and capacity costs for the analysis, such as
39 those from the Avalon Combustion Turbine and Bay d'Espoir Unit 8 projects
40 would be unreasonable as they would not be the most recent marginal costs
41 available. Performing the analysis utilizing Hydro's weighted average cost of
42 capital as a discount rate would also be inappropriate due to differences in the

¹ The weighted average cost of capital is comprised of: (i) the Company's rate of return on equity of 8.60% and a capital structure consisting of 45% common equity approved by the Board in Order No. P.U. 3 (2025); and (ii) the interest rate of 4.913% in the Company's issue of First Mortgage Bonds approved by the Board in Order No. P.U. 26 (2025).

1 financial structure of the companies such as debt-to-equity ratio, cost of
2 borrowing, and tax treatment. As a result, Newfoundland Power is unable to
3 complete the sensitivity analysis using Hydro's inputs.

Table 1 Sensitivity: One-Way and Break-Even Sensitivity Analysis – Energy Lifecycle Cost of Plant = 6.25 ¢/kWh				
Energy	Replacement Cost Run-of-River (¢/kWh)	Benefit (¢/kWh)	Replacement Cost Fully Dispatchable (¢/kWh)	Benefit (¢/kWh)
-100%	7.55	1.30	9.38	3.13
-90%	8.07	1.82	9.90	3.65
-80%	8.59	2.34	10.41	4.16
-70%	9.11	2.86	10.93	4.68
-60%	9.63	3.38	11.45	5.20
-50%	10.14	3.89	11.97	5.72
-40%	10.66	4.41	12.49	6.24
-30%	11.18	4.93	13.00	6.75
-20%	11.70	5.45	13.52	7.27
-10%	12.22	5.97	14.04	7.79

4 The analysis shows that the capacity cost to replace the Lookout Brook Hydro
5 Plant exceeds the levelized lifecycle cost of the plant for both run of river and
6 fully dispatchable scenarios. There is no breakeven point resulting from the
7 analysis.²

² Only decreasing cost of energy was considered, as an increasing replacement cost of energy would increase the benefit to customers through continued operation of the plant.

Table 2 Sensitivity: One-Way and Break-Even Sensitivity Analysis – Capacity Lifecycle Cost of Plant = 6.25 ¢/kWh				
Capacity	Replacement Cost Run-of-River (¢/kWh)	Benefit (¢/kWh)	Replacement Cost Fully Dispatchable (¢/kWh)	Benefit (¢/kWh)
-100%	5.18	(1.07)	5.18	(1.07)
-90%	5.94	(0.31)	6.12	(0.13)
-80%	6.69	0.44	7.06	0.81
-70%	7.45	1.20	7.99	1.74
-60%	8.20	1.95	8.93	2.68
-50%	8.96	2.71	9.87	3.62
-40%	9.71	3.46	10.81	4.56
-30%	10.47	4.22	11.75	5.50
-20%	11.22	4.97	12.68	6.43
-10%	11.98	5.73	13.62	7.37

1 The analysis shows that capacity costs would have to drop by approximately
 2 80% of their current value for the life cycle cost of the plant to exceed the
 3 marginal cost of capacity on the system. As such, the breakeven point of the
 4 sensitivity analysis is implied to be between -80% and -90%.³

³ Only decreasing cost of capacity was considered as increasing the replacement cost of capacity would increase the benefit to customers through continued operation of the plant. Simple linear regression of the dataset implies a breakeven point of approximately -86% under the run-of-river assumption and -89% under the fully dispatchable assumption.

Table 3 Sensitivity: One-Way and Break-Even Sensitivity Analysis – WACC					
WACC	Lifecycle Cost of Plant (¢/kWh)	Replacement Cost Run-of-River (¢/kWh)	Benefit (¢/kWh)	Replacement Cost Fully Dispatchable (¢/kWh)	Benefit (¢/kWh)
4.57%	5.76	13.61	7.86	15.58	9.82
5.57%	6.01	13.15	7.14	15.04	9.03
6.57% ⁴	6.25	12.73	6.48	14.56	8.31
7.57%	6.47	12.37	5.89	14.13	7.66
8.57%	6.69	12.04	5.36	13.76	7.07

1 Assuming a linear trend exists in the dataset above, a breakeven point is implied
2 to exist at 17% for the run of river assumption and 19% for the fully
3 dispatchable assumption.

⁴ A 6.57% WACC represents the base case assumption and is included for comparison.
(8.60% x 45%) + (4.913% x 55%) = 6.57%



ATTACHMENT A:

Lifecycle Cost Analysis of the Lookout Brook Hydroelectric Development

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1.0 INTRODUCTION

This lifecycle evaluation examines the future viability of generation at Newfoundland Power Inc.'s ("Newfoundland Power" or the "Company") Lookout Brook hydroelectric development (the "Lookout Brook Plant" or the "Plant"). The continued long-term operation of the Lookout Brook Plant is reliant on the completion of capital improvements in 2027 and beyond.

This evaluation compares the cost of continued operation of Lookout Brook Plant to the cost of replacement production. The analysis includes a study period of 50 years and expresses the results in terms of the levelized cost of energy.

2.0 LIFECYCLE COSTS

2.1 Capital Costs

Table A-1 on the following page provides all significant capital expenditures for Lookout Brook Plant over the next 50 years.

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Table A-1 Lookout Brook Plant Capital Expenditures (\$000s)	
Year	Expenditure
2027	685
2028	708
2029	3,763
2031	3,286
2032	8,714
2033	3,500
2035	1,500
2036	1,000
2047	2,000
2050	1,500
2054	1,000
2058	3,500
2061	4,750
2065	750
2075	1,500
Total	\$38,156

The estimated capital expenditure for Lookout Brook Plant is \$38,156,000 over the next 50 years. These capital expenditures include the expenditures proposed for 2027 and future capital expenditures.

Appendix A provides a comprehensive breakdown of capital costs.

2.2 Operating Costs

Annual operating costs for Lookout Brook Plant, including water rental fees, are estimated to be approximately \$300,666 per year. The operating cost represents both direct charges for operations and maintenance at the Plant, as well as indirect costs such as those related to managing the environment, safety, dam safety inspections, and staff training. The annual water

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rental fee is forecasted to be approximately \$103,353 for 2027. This fee, adjusted for inflation, will be paid annually to the Provincial Government based on the Plant's production.

Appendix B provides a summary of operating costs.

2.3 Cost of Spill During Construction

Spill is predicted to be approximately 8.0 GWh throughout the duration of project execution.

3.0 COST OF PLANT DOWNTIME**3.1 General**

If the refurbishment project does not proceed as proposed, there is a risk that the Lookout Brook Plant will be out of service for a prolonged period due to equipment failure and potential safety hazards. Taking the Lookout Brook Plant out of service will result in replacing its production with additional power from Newfoundland and Labrador Hydro ("Hydro"). The cost to replace the production from the Lookout Brook Plant consists of: (i) marginal energy costs; and (ii) the potential need to add generation capacity.

Table A-2 provides a breakdown of the normal production of the Lookout Brook Plant.

Table A-2 Normal Production from the Lookout Brook Plant		
Marginal Cost Period	Normal Production (GWh)	Production (%)
Non-Winter Period (All hours)	20.80	66
Winter Period		
On-Peak	5.04	16
Off-Peak	5.67	18
Annual Production	31.51	100

3.2 Marginal Energy Cost

The Island Interconnected System is connected to the North American power grid through the Labrador Island Link ("LIL") and the Maritime Link. An updated marginal cost study (the "Marginal Cost Update") completed by Hydro in 2025 provides estimates of the marginal energy

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cost as the opportunity cost of selling energy to other jurisdictions.¹ The marginal energy cost estimates vary by time of day and by season. To recognize these time-varying characteristics, the costs are summarized by winter on-peak, winter off-peak and non-winter peak periods.

Appendix C provides the forecast marginal energy costs for the period 2026 to 2045.

3.3 Cost of Replacement Capacity

The Marginal Cost Update provides estimates of the marginal cost of generation capacity for the Island Interconnected System in terms of cost per MWh and cost per kW of peak demand.

The Plant can provide 5.60 MW of capacity during the winter. Removing the Plant from service would reduce the capacity available to supply customers and increase the need for new generation sources. The cost of replacement capacity is dependent on the extent to which this capacity is available to meet peak load conditions. This is impacted by the amount of storage, the timing of rainfall, how the plants are dispatched, the volume of requests by Hydro to maximize generation and the potential that the plants are out of service when required to meet increased customer demand.

To assess the cost of replacement capacity, Newfoundland Power completed an evaluation under two assumptions: (i) assuming the Plant's production reflects a run-of-river hydro plant; and (ii) evaluating the Plant as a fully dispatchable plant.

A run-of-river plant has little storage and provides minimum flexibility for the Company to schedule production for periods of greatest value.² The capacity from a run-of-river plant is dependent on the extent to which timing of the river flow will correspond to periods when the cost of capacity is the greatest. Evaluation of a run-of-river plant is completed by applying the production for each marginal cost time to the appropriate marginal generation capacity cost.

Fully dispatchable generation, on the other hand, has sufficient storage to allow it to produce at its full rated capacity for all potential periods of need. This would be similar to a gas turbine, which can be dispatched at any time to provide its rated capacity to support customer demand. The capacity of a fully dispatchable plant is primarily reflective of its rated capacity and the likelihood it is not available for service.

Newfoundland Power's hydro generation facilities operate between being run-of-river and fully dispatchable generation plants.

4.0 LIFECYCLE ANALYSIS RESULTS

An analysis has been completed comparing the lifecycle costs of the Lookout Brook Plant to the cost of replacement production over a 50-year study period. The Marginal Cost Update covers the period from 2026 to 2045. As a result, there is no forecast of marginal costs beyond this

¹ The most recent marginal cost study results are found in Hydro's Marginal Cost Update, dated December 2025 the marginal cost study covers the period from 2026 to 2045.

² As examples, periods of greatest value for production include during generation shortages and peak demand periods.

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period. For the purposes of the 50-year study period, the Company has used the GDP Deflator to escalate marginal cost for the remaining years of the 50-year study period.

The costs are presented on a levelized cost approach. The levelized cost expresses the costs and benefits in terms of a ¢/kWh of production.

Table A-3 compares the estimated levelized costs of the Plant's production and the cost of replacement production.³

Table A-3 Lifecycle Analysis Results		
	50 Year Levelized Value	Net benefit
Lifecycle Cost of the Development ⁴	6.25 ¢/kWh	
Cost of Replacement Production (Run-of-River) ⁵		
Energy Costs	5.18 ¢/kWh	
Capacity Costs	<u>7.55 ¢/kWh</u>	
Total	12.73 ¢/kWh	6.48 ¢/kWh
Cost of Replacement Production (Fully Dispatchable)		
Energy Cost	5.18 ¢/kWh	
Capacity Cost	<u>9.38 ¢/kWh</u>	
Total	14.56 ¢/kWh	8.31 ¢/kWh

The cost to replace Lookout Brook Plant production will exceed the Plant's cost by between 6.48 ¢/kWh and 8.31 ¢/kWh

This evaluation compares the cost of continued operation of the Lookout Brook Plant to the cost of replacing the Plant's production.

³ In preparing this analysis, a typographical error was discovered in the workbook, resulting in a different NPV result from that filed in the response to Request for Information CA-NP-045. The difference in the net benefit is approximately 0.02 ¢/kWh.

⁴ 50 Year Levelized Value (Life Cycle Cost of Development) = (Net Present Value of Future Plant Operating Costs and Capital Investment utilizing Working Average Cost of Capital as the Discount Rate over 50 Years / 50 Years) / Normal Annual Production

⁵ 50 Year Levelized Value (Run of River/Fully Dispatchable) = (Net Present Value of Future Marginal Energy and Capacity Costs utilizing Working Average Cost of Capital as the Discount Rate over 50 Years / 50 Years) / Normal Annual Production

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Appendix D provides the detailed results of the calculated levelized costs and benefits.⁶

5.0 CONCLUSION

The results indicate that continued operation of the Lookout Brook Hydro Plant is economically justified under current forecast capital, operating, marginal energy and capacity costs.

⁶ The financial assumptions used in the economic evaluation are provided in Appendix E.



Appendix A:

Summary of Capital Costs

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Table A-1 Lookout Brook Plant Economic Analysis Summary of Capital Costs (2027-2076) (\$000s)															
Description	2027	2028	2029	2031	2032	2033	2035	2036	2047	2050	2054	2058	2061	2065	2075
Civil															
Access Roads and Bridges	612	622	1,588	3,286	3,914										
Dams, Spillways and Gates					4,800			1,000							
Head Gate															
Penstock and Surge Tank						3,500						3,500			
Powerhouse											1,000				
Mechanical															
Main Valve															
Turbine							1,500			750			750	750	
Cooling Water															
Powerhouse Systems															
Electrical															
Generator									450						1,500
Switchgear										750					
Protection and Controls									1,550						
Transformer	73	86	2,175												
Other															
Transmission													4,000		
Total (\$2026)	685	708	3,763	3,286	8,714	3,500	1,500	1,000	2,000	1,500	1,000	3,500	4,750	750	1,500



Appendix B:

Summary of Operating Costs

Newfoundland Power Inc. – 2027 Capital Budget Application

Table B-1 Lookout Brook Hydro Plant Economic Evaluation Summary of Operating Costs (\$2026)	
Year	Amount
2021	222,496
2022	208,889
2023	216,325
2024	179,182
2025	159,675
Average¹	\$197,314
Water Power Rental ²	103,353
Total Average Operating Cost	\$300,666

¹ Cost excludes the water power rental rate.

² Calculated using the Provincial Government's current water rental rate (\$3.15/MWh in 2025 escalated using CPI All Items for Canada) multiplied by the normal annual output of the plant.



Appendix C:

Marginal Costs Estimates

Newfoundland Power Inc. – 2027 Capital Budget Application

Table C-1 Marginal Cost Projections 2027-2045¹ Island Interconnected System At Hydro's Delivery Point to Newfoundland Power							
Year	Energy Supply Costs			Generation and Transmission Capacity Costs			
	Winter		Non-Winter	Winter		Non-Winter	Annual
	On-Peak \$/MWh	Off-Peak \$/MWh	All-Hours \$/MWh	On-Peak \$/MWh	Off-Peak \$/MWh	All-Hours \$/MWh	
2027	100.83	84.05	35.80	135.85	42.49	2.07	258.02
2028	85.88	69.58	28.17	125.92	39.35	1.90	239.29
2029	65.26	55.99	25.68	157.60	49.33	2.43	299.49
2030	63.93	55.58	25.34	251.80	79.02	4.00	478.32
2031	67.76	56.83	27.76	467.19	146.91	7.62	887.06
2032	71.74	59.62	28.94	339.33	106.60	5.46	644.61
2033	71.58	59.73	29.89	372.95	117.19	6.02	708.53
2034	71.94	62.43	29.20	282.63	88.71	4.50	537.31
2035	72.63	65.76	29.74	203.08	63.62	3.16	386.53
2036	70.37	62.99	30.67	298.04	93.54	4.75	566.82
2037	72.77	62.95	30.23	306.79	96.29	4.89	583.57
2038	77.31	67.08	30.89	315.80	99.12	5.04	600.82
2039	76.92	67.40	30.82	325.07	102.04	5.19	618.59
2040	79.83	74.17	33.85	334.63	105.04	5.34	636.89
2041	82.08	78.47	35.85	344.48	108.14	5.50	655.74
2042	84.20	77.00	37.69	354.61	111.32	5.66	675.16
2043	87.24	77.68	36.47	365.05	114.60	5.83	695.15
2044	94.60	84.63	36.63	375.80	117.98	6.01	715.74
2045	98.76	90.09	39.75	386.87	121.46	6.19	736.96

¹ 2026-2045 based on the marginal cost projections provided by Hydro in the summary report, Marginal Cost Update, dated December 2025.



Appendix D:

Calculation of Levelized Costs and Benefits

CA-NP-072
Attachment A

Newfoundland Power Inc. – 2027 Capital Budget Application

Table D-1 Calculation of Levelized Costs				
	PV Costs ¹ (\$000)	Levelized Annual Cost (\$000)	Annual Production (GWh)	Levelized Unit Cost (¢/kWh)
Lifecycle Cost of Plant	28,719	1,969	31.51	6.25
Cost of Replacement Production (Run-of-River)				
Energy Cost	23,814	1,632	31.51	5.18
Capacity Cost	34,724	2,380	31.51	7.55
Total	58,538	4,013		12.73
Cost of Replacement Production (Fully Dispatchable)				
Energy Cost	23,814	1,632	31.51	5.18
Capacity Cost	43,110	2,955	31.51	9.38
Total	66,924	4,587		14.56

¹ See Cumulative Present Value at 50-year life on pages D-2 to D-5.

CA-NP-072
Attachment A

Newfoundland Power Inc. – 2027 Capital Budget Application

Table D-2 Present Worth Analysis of the Lifecycle Cost of Lookout Brook Plant												
		Generation Hydro	Generation Hydro	Transmission	Substation	Distribution						
Production Year	Year	65.7 yrs 8% CCA	65.7 yrs 100% CCA	51.9 yrs 8% CCA	48.5 yrs 8% CCA	52.9 yrs 8% CCA	Capital Revenue Requirement	Operating Costs	Spillage Cost	Net Benefit	Present Worth Benefit	Cumulative Present Value Benefit
1	2027	612,000	0	0	73,000	0	62,409	300,666	0	-363,075	-340,692	-340,692
2	2028	622,000	0	0	86,000	0	131,967	306,505	0	-438,471	-386,075	-726,766
3	2029	1,588,000	0	0	2,175,000	0	482,395	312,759	205,440	-1,000,593	-826,709	-1,553,475
4	2030	0	0	0	0	0	510,160	318,360	0	-828,521	-642,338	-2,195,813
5	2031	3,286,000	0	0	0	0	795,066	323,657	0	-1,118,723	-813,856	-3,009,669
6	2032	9,529,406	0	0	0	0	1,675,738	328,801	0	-2,004,539	-1,368,374	-4,378,043
7	2033	3,891,985	0	0	0	0	2,079,556	334,340	0	-2,413,896	-1,546,229	-5,924,272
8	2034	0	0	0	0	0	2,058,258	339,963	0	-2,398,221	-1,441,483	-7,365,755
9	2035	1,724,387	0	0	0	0	2,155,963	345,644	0	-2,501,607	-1,410,926	-8,776,681
10	2036	1,168,644	0	0	0	0	2,218,670	351,372	0	-2,570,042	-1,360,162	-10,136,843
11	2037	0	0	0	0	0	2,167,874	357,195	0	-2,525,069	-1,253,974	-11,390,817
12	2038	0	0	0	0	0	2,107,383	363,140	0	-2,470,523	-1,151,249	-12,542,066
13	2039	0	0	0	0	0	2,049,431	369,193	0	-2,418,624	-1,057,581	-13,599,648
14	2040	0	0	0	0	0	1,993,816	375,384	0	-2,369,200	-972,103	-14,571,750
15	2041	0	0	0	0	0	1,940,352	381,659	0	-2,322,010	-894,004	-15,465,755
16	2042	0	0	0	0	0	1,888,865	388,025	0	-2,276,890	-822,588	-16,288,343
17	2043	0	0	0	0	0	1,839,198	394,515	0	-2,233,714	-757,239	-17,045,583
18	2044	0	0	0	0	0	1,791,206	401,137	0	-2,192,343	-697,396	-17,742,978
19	2045	0	0	0	0	0	1,744,754	407,883	0	-2,152,636	-642,549	-18,385,527
20	2046	0	0	0	0	0	1,699,718	414,713	0	-2,114,431	-592,235	-18,977,762
21	2047	2,804,818	0	0	0	0	1,912,176	421,657	0	-2,333,833	-613,388	-19,591,151
22	2048	0	0	0	0	0	1,890,815	428,718	0	-2,319,533	-572,046	-20,163,197
23	2049	0	0	0	0	0	1,841,103	435,897	0	-2,276,999	-526,937	-20,690,134
24	2050	2,211,068	0	0	0	0	1,994,771	443,196	0	-2,437,967	-529,406	-21,219,540
25	2051	0	0	0	0	0	1,964,481	450,617	0	-2,415,099	-492,108	-21,711,648
26	2052	0	0	0	0	0	1,912,178	458,163	0	-2,370,340	-453,212	-22,164,860
27	2053	0	0	0	0	0	1,861,304	465,835	0	-2,327,139	-417,521	-22,582,381
28	2054	1,575,284	0	0	0	0	1,955,632	473,635	0	-2,429,267	-408,974	-22,991,356
29	2055	0	0	0	0	0	1,919,175	481,566	0	-2,400,741	-379,255	-23,370,611
30	2056	0	0	0	0	0	1,867,290	489,630	0	-2,356,920	-349,378	-23,719,989
31	2057	0	0	0	0	0	1,816,659	497,829	0	-2,314,488	-321,937	-24,041,926
32	2058	5,892,169	0	0	0	0	2,305,367	506,165	0	-2,811,532	-366,965	-24,408,891
33	2059	0	0	0	0	0	2,301,425	514,641	0	-2,816,066	-344,897	-24,753,787
34	2060	0	0	0	0	0	2,236,585	523,258	0	-2,759,843	-317,173	-25,070,960
35	2061	1,327,103	0	7,077,882	0	0	2,964,349	532,020	0	-3,496,370	-377,045	-25,448,005
36	2062	0	0	0	0	0	2,988,095	540,929	0	-3,529,024	-357,105	-25,805,110
37	2063	0	0	0	0	0	2,900,546	549,987	0	-3,450,533	-327,637	-26,132,747
38	2064	0	0	0	0	0	2,815,589	559,196	0	-3,374,785	-300,689	-26,433,436
39	2065	1,418,250	0	0	0	0	2,862,557	568,560	0	-3,431,117	-286,861	-26,720,297
40	2066	0	0	0	0	0	2,792,881	578,081	0	-3,370,962	-264,457	-26,984,754
41	2067	0	0	0	0	0	2,710,330	587,761	0	-3,298,091	-242,789	-27,227,543
42	2068	0	0	0	0	0	2,629,842	597,603	0	-3,227,444	-222,941	-27,450,484
43	2069	0	0	0	0	0	2,551,251	607,610	0	-3,158,860	-204,751	-27,655,235
44	2070	0	0	0	0	0	2,474,406	617,784	0	-3,092,190	-188,074	-27,843,309
45	2071	0	0	0	0	0	2,399,168	628,129	0	-3,027,296	-172,775	-28,016,084
46	2072	0	0	0	0	0	2,325,407	638,647	0	-2,964,054	-158,737	-28,174,821
47	2073	0	0	0	0	0	2,253,006	649,341	0	-2,902,347	-145,850	-28,320,671
48	2074	0	0	0	0	0	2,181,856	660,214	0	-2,842,070	-134,016	-28,454,687
49	2075	3,348,908	0	0	0	0	2,420,711	671,269	0	-3,091,980	-136,812	-28,591,498
50	2076	0	0	0	0	0	2,376,634	682,510	0	-3,059,143	-127,014	-28,718,512

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Table D-3 Present Value of the Cost of Replacement Energy (Reduced Exports)					
Production Year	Year	Marginal Energy Costs (\$)	Total Present Worth (\$)	Cumulative Present Worth (\$)	Export Sales (¢/kWh)
1	2027	1,716,336	1,610,524	1,610,524	5.45
2	2028	1,413,457	1,244,551	2,855,075	4.49
3	2029	1,180,636	975,463	3,830,538	3.75
4	2030	1,164,534	902,843	4,733,381	3.70
5	2031	1,241,261	903,001	5,636,382	3.94
6	2032	1,301,691	888,583	6,524,965	4.13
7	2033	1,321,265	846,340	7,371,306	4.19
8	2034	1,324,044	795,834	8,167,140	4.20
9	2035	1,357,640	765,720	8,932,860	4.31
10	2036	1,349,876	714,404	9,647,264	4.28
11	2037	1,352,598	671,714	10,318,978	4.29
12	2038	1,412,637	658,281	10,977,259	4.48
13	2039	1,411,030	616,995	11,594,254	4.48
14	2040	1,527,113	626,587	12,220,841	4.85
15	2041	1,604,439	617,730	12,838,571	5.09
16	2042	1,645,055	594,321	13,432,892	5.22
17	2043	1,638,867	555,583	13,988,476	5.20
18	2044	1,718,719	546,733	14,535,209	5.45
19	2045	1,835,546	547,899	15,083,108	5.83
20	2046	1,866,282	522,731	15,605,839	5.92
21	2047	1,897,533	498,718	16,104,557	6.02
22	2048	1,929,307	475,808	16,580,365	6.12
23	2049	1,961,613	453,951	17,034,316	6.23
24	2050	1,994,460	433,098	17,467,415	6.33
25	2051	2,027,858	413,203	17,880,617	6.44
26	2052	2,061,814	394,222	18,274,839	6.54
27	2053	2,096,339	376,112	18,650,951	6.65
28	2054	2,131,442	358,835	19,009,786	6.76
29	2055	2,167,133	342,351	19,352,137	6.88
30	2056	2,203,422	326,624	19,678,762	6.99
31	2057	2,240,318	311,620	19,990,382	7.11
32	2058	2,277,833	297,305	20,287,687	7.23
33	2059	2,315,975	283,648	20,571,336	7.35
34	2060	2,354,756	270,618	20,841,954	7.47
35	2061	2,394,186	258,187	21,100,141	7.60
36	2062	2,434,277	246,327	21,346,467	7.73
37	2063	2,475,039	235,011	21,581,478	7.85
38	2064	2,516,483	224,215	21,805,694	7.99
39	2065	2,558,622	213,916	22,019,609	8.12
40	2066	2,601,466	204,089	22,223,698	8.26
41	2067	2,645,028	194,714	22,418,412	8.39
42	2068	2,689,319	185,769	22,604,181	8.53
43	2069	2,734,351	177,236	22,781,417	8.68
44	2070	2,780,138	169,094	22,950,511	8.82
45	2071	2,826,691	161,326	23,111,837	8.97
46	2072	2,874,024	153,915	23,265,752	9.12
47	2073	2,922,150	146,845	23,412,597	9.27
48	2074	2,971,081	140,099	23,552,697	9.43
49	2075	3,020,832	133,664	23,686,360	9.59
50	2076	3,071,416	127,524	23,813,884	9.75

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Table D-4
Present Value of the Cost of Replacement Capacity
(Run-of-River Assumption)

Production Year	Year	Marginal Capacity Costs (\$)	Total Present Worth (\$)	Cumulative Present Worth (\$)	Avoided Generation Capacity (¢/kWh)
1	2027	962,251	902,928	902,928	3.05
2	2028	897,537	790,283	1,693,211	2.85
3	2029	1,124,882	929,399	2,622,610	3.57
4	2030	1,800,847	1,396,166	4,018,775	5.72
5	2031	3,347,099	2,434,971	6,453,746	10.62
6	2032	2,428,929	1,658,079	8,111,825	7.71
7	2033	2,670,138	1,710,366	9,822,191	8.47
8	2034	2,021,637	1,215,132	11,037,323	6.42
9	2035	1,450,405	818,040	11,855,363	4.60
10	2036	2,131,922	1,128,293	12,983,656	6.77
11	2037	2,194,545	1,089,833	14,073,489	6.96
12	2038	2,259,141	1,052,746	15,126,235	7.17
13	2039	2,325,558	1,016,887	16,143,122	7.38
14	2040	2,393,890	982,233	17,125,355	7.60
15	2041	2,464,460	948,849	18,074,205	7.82
16	2042	2,536,895	916,522	18,990,727	8.05
17	2043	2,611,669	885,368	19,876,095	8.29
18	2044	2,688,780	855,315	20,731,409	8.53
19	2045	2,768,072	826,253	21,557,662	8.78
20	2046	2,814,423	788,297	22,345,960	8.93
21	2047	2,861,550	752,085	23,098,045	9.08
22	2048	2,909,467	717,537	23,815,582	9.23
23	2049	2,958,186	684,575	24,500,157	9.39
24	2050	3,007,721	653,128	25,153,285	9.55
25	2051	3,058,085	623,125	25,776,411	9.71
26	2052	3,109,293	594,501	26,370,911	9.87
27	2053	3,161,358	567,191	26,938,103	10.03
28	2054	3,214,295	541,136	27,479,239	10.20
29	2055	3,268,118	516,278	27,995,517	10.37
30	2056	3,322,843	492,562	28,488,079	10.55
31	2057	3,378,484	469,935	28,958,014	10.72
32	2058	3,435,057	448,348	29,406,362	10.90
33	2059	3,492,577	427,752	29,834,114	11.08
34	2060	3,551,060	408,102	30,242,217	11.27
35	2061	3,610,522	389,355	30,631,572	11.46
36	2062	3,670,981	371,470	31,003,042	11.65
37	2063	3,732,451	354,405	31,357,447	11.85
38	2064	3,794,951	338,125	31,695,572	12.04
39	2065	3,858,497	322,593	32,018,165	12.25
40	2066	3,923,108	307,774	32,325,939	12.45
41	2067	3,988,800	293,636	32,619,574	12.66
42	2068	4,055,593	280,147	32,899,721	12.87
43	2069	4,123,504	267,278	33,166,999	13.09
44	2070	4,192,552	255,000	33,421,999	13.31
45	2071	4,262,756	243,286	33,665,285	13.53
46	2072	4,334,136	232,110	33,897,395	13.75
47	2073	4,406,711	221,448	34,118,843	13.99
48	2074	4,480,502	211,275	34,330,118	14.22
49	2075	4,555,528	201,570	34,531,688	14.46
50	2076	4,631,810	192,310	34,723,998	14.70

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Table D-5 Present Value of the Cost of Replacement Capacity (Fully Dispatchable Assumption)						
Production Year	Year	Effective Capacity (MW) ²	Marginal Capacity Costs (\$)	Total Present Worth (\$)	Cumulative Present Worth (\$)	Avoided Generation Capacity (¢/kWh)
1	2027	4.67	1,204,093	1,129,861	1,129,861	3.82
2	2028	4.67	1,116,687	983,244	2,113,106	3.54
3	2029	4.67	1,397,620	1,154,740	3,267,846	4.44
4	2030	4.67	2,232,160	1,730,555	4,998,401	7.08
5	2031	4.67	4,139,613	3,011,514	8,009,915	13.14
6	2032	4.67	3,008,180	2,053,497	10,063,412	9.55
7	2033	4.67	3,306,473	2,117,972	12,181,384	10.49
8	2034	4.67	2,507,447	1,507,134	13,688,519	7.96
9	2035	4.67	1,803,807	1,017,361	14,705,880	5.72
10	2036	4.67	2,645,160	1,399,917	16,105,797	8.39
11	2037	4.67	2,723,327	1,352,431	17,458,228	8.64
12	2038	4.67	2,803,827	1,306,567	18,764,795	8.90
13	2039	4.67	2,886,753	1,262,278	20,027,073	9.16
14	2040	4.67	2,972,153	1,219,500	21,246,573	9.43
15	2041	4.67	3,060,120	1,178,186	22,424,759	9.71
16	2042	4.67	3,150,747	1,138,293	23,563,052	10.00
17	2043	4.67	3,244,033	1,099,742	24,662,794	10.30
18	2044	4.67	3,340,120	1,062,509	25,725,303	10.60
19	2045	4.67	3,439,147	1,026,565	26,751,868	10.91
20	2046	4.67	3,496,735	979,408	27,731,276	11.10
21	2047	4.67	3,555,288	934,417	28,665,692	11.28
22	2048	4.67	3,614,821	891,492	29,557,184	11.47
23	2049	4.67	3,675,351	850,540	30,407,724	11.66
24	2050	4.67	3,736,895	811,469	31,219,193	11.86
25	2051	4.67	3,799,470	774,192	31,993,385	12.06
26	2052	4.67	3,863,092	738,628	32,732,013	12.26
27	2053	4.67	3,927,779	704,698	33,436,711	12.47
28	2054	4.67	3,993,550	672,326	34,109,038	12.67
29	2055	4.67	4,060,422	641,442	34,750,479	12.89
30	2056	4.67	4,128,414	611,976	35,362,455	13.10
31	2057	4.67	4,197,544	583,863	35,946,318	13.32
32	2058	4.67	4,267,832	557,043	36,503,361	13.54
33	2059	4.67	4,339,297	531,454	37,034,815	13.77
34	2060	4.67	4,411,958	507,040	37,541,855	14.00
35	2061	4.67	4,485,836	483,748	38,025,604	14.24
36	2062	4.67	4,560,952	461,527	38,487,130	14.47
37	2063	4.67	4,637,325	440,325	38,927,456	14.72
38	2064	4.67	4,714,977	420,098	39,347,554	14.96
39	2065	4.67	4,793,929	400,800	39,748,354	15.21
40	2066	4.67	4,874,203	382,389	40,130,743	15.47
41	2067	4.67	4,955,822	364,823	40,495,566	15.73
42	2068	4.67	5,038,807	348,064	40,843,630	15.99
43	2069	4.67	5,123,182	332,075	41,175,705	16.26
44	2070	4.67	5,208,970	316,821	41,492,525	16.53
45	2071	4.67	5,296,194	302,267	41,794,792	16.81
46	2072	4.67	5,384,879	288,382	42,083,174	17.09
47	2073	4.67	5,475,048	275,134	42,358,308	17.38
48	2074	4.67	5,566,728	262,495	42,620,803	17.67
49	2075	4.67	5,659,943	250,437	42,871,240	17.96
50	2076	4.67	5,754,719	238,933	43,110,173	18.26

² Effective Capacity reflects winter capacity and an allowance for a 5% forced outage rate and a 14% reserve margin.



Appendix E:

Economic Analysis Financial Assumptions

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**Economic Evaluation
Major Inputs and Assumptions**

Specific assumptions include:

Income Tax: Income tax expense reflects a statutory income tax rate of 30%.

Operating Costs: Operating costs were assumed to be in 2026 dollars escalated yearly using the GDP Deflator for Canada.

<i>Average Incremental Cost of Capital:</i>	Capital Structure	Return	Weighted Cost
Debt	55.00%	4.913%	2.70%
Common Equity	45.00%	8.600%	3.87%
Total	100.00%		6.57%

<i>CCA Rates:</i>	Class	Rate	Details
	17(a.1) & 47	8.00%	All generating, transmission, substation and distribution equipment not otherwise noted.

Escalation Factors: Signal49 Research GDP deflator, medium term forecast dated February 6, 2026, and long term forecast dated March 27, 2026.

Supporting Documents: Newfoundland and Labrador Hydro's Marginal Cost Update dated December 2025.