

1 Q. **Schedule 1 – Long-Term Supply for Southern Labrador – Phase 1**

2 Footnote 7 on page 8 states “Hydro forecasts a reduction on operating, maintenance, fuel, and
3 overhaul costs of \$1 million in 2035 and \$2.8 million by 2055.” Please provide the assumptions
4 and analyses used to derive these forecast reductions as well as the reduction forecasts for all
5 years from 2024 to the end of the study period.

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8 A. Please refer to Newfoundland and Labrador Hydro’s response to LAB-NLH-007 for a description
9 of the assumptions used to derive the operating, maintenance, and overhaul costs.

10 The fuel costs for all alternatives were calculated using a fuel price forecast, energy requirement
11 forecast, diesel plant efficiencies, distribution loss values, and station service consumption.

12 • The fuel price forecast is based on the 2020-2040 Platts Analytics fuel price outlook,
13 June 2020 World Oil Market Forecast and May 2020 Scenario Planning Service Long
14 Term forecast. Additional details and assumptions regarding diesel fuel price forecasts
15 are included in Appendix F of the referenced document.¹

16 • The fuel consumption forecast is based on historical demand and energy consumption
17 trends and any known new service requests in the area. Additional details and
18 assumptions regarding the operating load forecast (2020–2070) are included in
19 Appendix A of the referenced document.²

20 • Diesel plant efficiencies are based on historical plant efficiencies and are provided in
21 Table 11 of the referenced document.³ For new diesel generating stations, a 5% increase
22 in fuel efficiency was assumed as units would be sized such that it would encourage

¹ “Long-Term Supply for Southern Labrador – Phase 1,” Newfoundland and Labrador Hydro, July 16, 2021, sch. 1, att. 1, app. F.

² “Long-Term Supply for Southern Labrador – Phase 1,” Newfoundland and Labrador Hydro, July 16, 2021, sch. 1, att. 1, app. A.

³ “Long-Term Supply for Southern Labrador – Phase 1,” Newfoundland and Labrador Hydro, July 16, 2021, sch. 1, att. 1, table 11, p. 36.

1 more efficient plant operation. The plant efficiency for the regional diesel generating
2 station was assumed to be 3.75 kWh/L.

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- Distribution loss values were determined using load flow analysis.
 - Station service consumption was determined for existing systems based on historical
4 records and included as part of the energy forecast. The new regional diesel generation
5 station was assumed to have an annual station service energy requirement of 450
6 MWh/year.
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8 As is the case with the operating, maintenance, and overhauls costs explained in response to
9 LAB-NLH-007, and as outlined in Section 6.3 of the referenced document,⁴ although a
10 substantial effort was put into the development of the fuel costs, a high level of accuracy for
11 these estimates was not crucial for economic analysis, as a significant deviation from the
12 estimated fuel costs would have to occur for the outcome of the cumulative present worth
13 analysis to change.

14 PUB-NLH-013, Attachment 1 contains a table showing the forecasted cost reductions for all
15 years from 2024 to the end of the study period.

⁴ “Long-Term Supply for Southern Labrador – Phase 1,” Newfoundland and Labrador Hydro, July 16, 2021, sch. 1, att. 1, sec. 6.3, p. 44.

Long-Term Supply for Southern Labrador
Operating, Maintenance, Fuel and Overhaul Forecasts
Alternative 1 vs. Alternative 3A
(\$ million)

	Alternative 1				Alternative 3A				Incremental Costs (Total Costs Alt. 3A - Total Costs Alt. 1)
	Operating	Overhauls	Fuel	Total Costs ¹	Operating	Overhauls	Fuel	Total Costs ¹	
2023		0.4		0.4				-	(0.4)
2024		0.4		0.4		0.4		0.4	-
2025	1.7	0.5	4.5	6.7	1.5	0.3	4.3	6.0	(0.7)
2026	1.7	1.0	4.6	7.3	1.5	0.3	4.3	6.2	(1.1)
2027	1.8	-	4.7	6.4	1.5	-	4.4	6.0	(0.5)
2028	1.8	0.9	4.8	7.5	1.5	0.5	4.5	6.6	(0.8)
2029	1.8	0.4	4.9	7.1	1.7	-	4.6	6.3	(0.8)
2030	1.9	0.5	5.0	7.4	1.6	0.2	4.7	6.5	(0.8)
2031	2.0	0.5	5.0	7.5	1.7	0.2	4.5	6.4	(1.1)
2032	2.1	0.3	5.1	7.5	1.7	-	4.6	6.3	(1.1)
2033	2.1	0.8	5.2	8.1	1.8	-	4.7	6.5	(1.7)
2034	2.2	0.4	5.3	7.9	2.5	1.3	4.8	8.7	0.8
2035	2.2	-	5.4	7.6	1.8	-	4.9	6.7	(0.9)
2036	2.4	0.5	5.5	8.4	1.9	0.8	5.0	7.7	(0.8)
2037	2.5	0.3	5.5	8.4	1.9	-	5.1	7.0	(1.4)
2038	2.6	1.1	5.6	9.3	1.9	0.2	5.2	7.3	(2.0)
2039	2.6	1.5	5.7	9.8	2.2	0.8	5.2	8.3	(1.5)
2040	2.6	0.4	5.8	8.8	2.1	-	5.3	7.4	(1.4)
2041	2.7	1.2	5.9	9.8	2.1	0.2	5.4	7.7	(2.0)
2042	2.7	0.4	6.0	9.1	2.1	-	5.5	7.7	(1.5)
2043	2.8	1.4	6.1	10.3	2.2	1.9	5.6	9.7	(0.7)
2044	2.8	-	6.3	9.1	3.0	-	5.8	8.8	(0.3)
2045	2.9	-	6.4	9.3	2.3	-	5.9	8.1	(1.2)
2046	3.3	2.0	6.5	11.8	2.1	1.7	5.9	9.7	(2.1)
2047	3.4	0.8	6.6	10.8	2.1	-	6.0	8.1	(2.7)
2048	3.4	0.4	6.8	10.6	2.1	-	6.1	8.3	(2.3)
2049	3.5	0.8	6.9	11.2	2.5	-	6.2	8.8	(2.4)
2050	3.6	0.5	7.0	11.1	2.2	-	6.4	8.6	(2.5)
2051	3.6	1.5	7.2	12.3	2.3	-	6.5	8.8	(3.5)
2052	3.7	0.3	7.3	11.3	2.4	2.0	6.6	11.0	(0.3)
2053	3.8	0.8	7.5	12.1	2.8	-	6.8	9.5	(2.5)
2054	3.9	2.3	7.6	13.8	3.8	-	6.9	10.7	(3.2)
2055	4.0	0.5	7.8	12.2	2.4	0.9	7.0	10.3	(1.9)
2056	4.1	2.0	7.9	14.0	2.5	-	7.2	9.7	(4.3)
2057	4.1	-	8.1	12.2	2.6	-	7.3	9.9	(2.3)
2058	4.2	0.5	8.2	13.0	2.8	1.2	7.5	11.5	(1.5)
2059	4.3	1.0	8.4	13.7	4.1	-	7.6	11.7	(2.0)
2060	4.4	0.9	8.6	13.9	2.8	-	7.8	10.5	(3.3)
2061	4.5	1.4	8.7	14.7	2.8	-	7.9	10.7	(4.0)
2062	4.6	1.8	8.9	15.4	2.8	-	8.1	10.9	(4.5)
2063	4.7	0.6	9.1	14.4	2.9	-	8.2	11.2	(3.2)
2064	4.8	0.6	9.3	14.7	4.8	1.4	8.4	14.6	(0.1)
2065	4.9	0.6	9.5	15.0	4.7	-	8.6	13.2	(1.7)
2066	5.0	1.7	9.7	16.3	3.1	-	8.8	11.9	(4.4)
2067	5.1	1.2	9.8	16.2	3.1	-	8.9	12.1	(4.1)
2068	5.2	2.1	10.0	17.4	3.2	-	9.1	12.3	(5.0)
2069	5.3	-	10.2	15.6	3.9	-	9.3	13.2	(2.4)
2070	5.4	1.8	10.5	17.7	3.6	4.5	9.5	17.5	(0.2)

¹ Footnote 7 on page 8 was based on presenting the forecast revenue requirements in five year increments. For the purposes of that analysis, Newfoundland and Labrador Hydro used 5-year average overhaul costs. For the purposes of this response, overhead costs are provided annually.