

NEWFOUNDLAND AND LABRADOR HYDRO
Generation Expansion Analysis 2010 Island Isolated Alternative
Fuel Expense Details

	Factor	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
NO. 2 FUEL:																	
c/litre (Fuel Forecast)		0.67375	0.7	0.76	0.815	0.85	0.905	0.945	0.99	1.03	1.065	1.1	1.155	1.195	1.235	1.275	1.315
\$/bbl	158.970	107.10	111.30	120.80	129.60	135.10	143.90	150.20	157.40	163.70	169.30	174.90	183.60	190.00	196.30	202.70	209.00
\$/Mbtu	5.825	18.386	19.107	20.738	22.249	23.193	24.704	25.785	27.021	28.103	29.064	30.026	31.519	32.618	33.700	34.798	35.880
Existing CT																	
Production (GWh)		5.8	4.4	4.8	9.6	15.1	16.4	13.2	14.3	16.1	15.2	16.5	16.3	17.6	2.4	2.7	1.1
MBTU/MWh		12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263
Fuel cost (\$000)		1,315	1,021	1,225	2,632	4,298	4,967	4,159	4,752	5,552	5,416	6,085	6,314	7,036	992	1,161	503
Diesel																	
Production (GWh)		0.3	0.3	0.3	0.5	0.6	0.7	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.2	0.2	0.3
MBTU/MWh		10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970
Fuel cost (\$000)		53	56	67	113	164	183	162	180	207	212	231	247	268	70	80	117
New CT																	
Production (GWh)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.2
MBTU/MWh		9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434
Fuel cost (\$000)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	750
CCGT ⁽¹⁾																	
Production (GWh)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	28.7	35.0	42.9
MBTU/MWh														8.092	8.135	8.145	8.188
Fuel cost (\$000)		0	0	0	0	0	0	0	0	0	0	0	0	653	7,881	9,927	12,602
NO. 6 FUEL:																	
0.7% s \$/bbl (Fuel Forecast)		81.30	83.20	90.90	98.80	102.60	106.80	111.10	116.30	121.10	124.90	129.20	132.80	136.00	139.10	142.10	145.00
\$/Mbtu	6.287	12.931	13.234	14.458	15.715	16.319	16.987	17.671	18.498	19.262	19.866	20.550	21.123	21.632	22.125	22.602	23.063
2.2% s \$/bbl (Fuel Forecast)		79.60	80.50	88.00	95.50	99.00	103.00	107.00	111.50	115.60	118.60	120.30	123.10	125.80	128.50	131.10	133.70
\$/Mbtu	6.287	12.661	12.804	13.997	15.190	15.747	16.383	17.019	17.735	18.387	18.864	19.135	19.580	20.010	20.439	20.853	21.266
Holyrood ⁽²⁾																	
Production (GWh)		1,032.8	952.5	997.1	1,352.5	1,597.1	1,620.9	1,485.4	1,524.1	1,583.4	1,521.8	1,574.4	1,543.3	1,636.8	1,792.8	1,854.9	1,904.4
MBTU/MWh		9.956	9.963	9.963	9.982	9.957	9.932	9.997	9.987	9.976	9.978	9.975	9.971	9.960	9.923	9.905	9.896
Fuel cost (\$000)		132,962	125,597	143,630	212,169	259,500	268,612	252,720	269,937	290,425	286,441	300,528	301,294	326,211	363,606	383,114	400,763
TOTALS:																	
Production (GWh)		1,038.9	957.2	1,002.2	1,362.6	1,612.8	1,638.0	1,499.1	1,539.1	1,600.1	1,537.7	1,591.7	1,560.3	1,657.6	1,824.2	1,893.0	1,951.0
Fuel cost (\$000)		134,330	126,675	144,921	214,914	263,962	273,762	257,040	274,870	296,184	292,070	306,844	307,855	334,168	372,549	394,342	414,735

Notes:

- (1) CCGT efficiency is related to the amount of unit production. Efficiencies are input to Strategist for minimum and maximum production levels, and Strategist uses this range to determine operating efficiency on an hourly basis. For CCGT units, the minimum efficiency input (MBTU/MWh) is 8.629 and the maximum efficiency input is 7.637. The values reported here are annual averages, and are within these limits.
- (2) Holyrood efficiency is related to the amount of unit production. Efficiencies are input to Strategist for minimum and maximum production levels, and Strategist uses this range to determine operating efficiency on an hourly basis. For Holyrood units, the minimum efficiency input (MBTU/MWh) is 10.388 and the maximum efficiency input is 9.78. The values reported here are annual averages, and are within these limits.

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	Factor	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
NO. 2 FUEL:																
c/litre (Fuel Forecast)		1.34	1.365	1.395	1.425	1.45	1.48	1.51	1.54	1.57	1.6	1.635	1.665	1.7	1.735	1.77
\$/bbl	158.970	213.00	217.00	221.80	226.50	230.50	235.30	240.00	244.80	249.60	254.40	259.90	264.70	270.20	275.80	281.40
\$/Mbtu	5.825	36.567	37.253	38.077	38.884	39.571	40.395	41.202	42.026	42.850	43.674	44.618	45.442	46.386	47.348	48.309
Existing CT																
Production (GWh)		1.4	1.6	1.0	1.2	1.3	0.8	0.9	0.9	0.4	0.4	0.7	0.3	0.4	0.5	0.5
MBTU/MWh		12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263
Fuel cost (\$000)		631	732	448	558	626	386	455	476	194	237	359	178	224	279	323
Diesel																
Production (GWh)		0.4	0.4	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MBTU/MWh		10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970
Fuel cost (\$000)		152	179	108	133	150	0	0	0	0	0	0	0	0	0	0
New CT																
Production (GWh)		3.2	4.6	7.0	8.1	9.5	12.5	14.2	14.2	7.1	8.1	13.0	5.7	6.5	7.3	8.0
MBTU/MWh		9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434
Fuel cost (\$000)		1,094	1,621	2,516	2,979	3,563	4,759	5,521	5,622	2,879	3,338	5,472	2,438	2,833	3,281	3,640
CCGT ⁽¹⁾																
Production (GWh)		52.4	63.1	72.0	85.5	98.2	112.0	125.2	144.8	1,739.9	1,809.1	2,255.6	2,879.8	2,949.3	3,018.8	3,080.5
MBTU/MWh		8.226	8.259	8.276	8.301	8.287	8.252	8.227	8.152	7.864	7.850	7.808	7.779	7.770	7.762	7.757
Fuel cost (\$000)		15,754	19,402	22,688	27,589	32,188	37,326	42,454	49,593	586,308	620,240	785,770	1,017,949	1,063,001	1,109,376	1,154,403
NO. 6 FUEL:																
0.7% s \$/bbl (Fuel Forecast)		147.90	150.80	153.90	156.90	160.10	163.30	166.50	169.90	173.30	176.70	180.30	183.90	187.50	191.30	195.10
\$/Mbtu	6.287	23.525	23.986	24.479	24.956	25.465	25.974	26.483	27.024	27.565	28.106	28.678	29.251	29.823	30.428	31.032
2.2% s \$/bbl (Fuel Forecast)		136.40	139.10	141.90	144.80	147.70	150.60	153.60	156.70	159.80	163.00	166.30	169.60	173.00	176.40	180.00
\$/Mbtu	6.287	21.696	22.125	22.570	23.032	23.493	23.954	24.431	24.924	25.418	25.927	26.451	26.976	27.517	28.058	28.631
Holyrood ⁽²⁾																
Production (GWh)		1,976.0	2,052.5	2,123.4	2,188.8	2,252.7	2,314.9	2,378.0	2,436.7	927.4	927.4	546.3	0.0	0.0	0.0	0.0
MBTU/MWh		9.890	9.884	9.878	9.874	9.872	9.872	9.875	9.872	9.894	9.894	9.894				
Fuel cost (\$000)		423,986	448,837	473,392	497,791	522,448	547,407	573,720	599,562	233,238	237,908	142,959	0	0	0	0
TOTALS:																
Production (GWh)		2,033.3	2,122.2	2,203.6	2,283.9	2,362.1	2,440.2	2,518.4	2,596.6	2,674.8	2,745.1	2,815.5	2,885.8	2,956.2	3,026.6	3,089.1
Fuel cost (\$000)		441,617	470,772	499,152	529,050	558,975	589,879	622,150	655,253	822,619	861,723	934,560	1,020,564	1,066,058	1,112,936	1,158,366

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	Factor	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054
NO. 2 FUEL:															
c/litre (Fuel Forecast)		1.805	1.84	1.875	1.915	1.955	1.995	2.035	2.075	2.115	2.155	2.2	2.245	2.29	2.335
\$/bbl	158.970	286.90	292.50	298.10	304.40	310.80	317.10	323.50	329.90	336.20	342.60	349.70	356.90	364.00	371.20
\$/Mbtu	5.825	49.253	50.215	51.176	52.258	53.356	54.438	55.536	56.635	57.717	58.815	60.034	61.270	62.489	63.725
Existing CT															
Production (GWh)		0.7	0.7	0.4	0.5	0.6	0.6	0.3	0.4	0.5	0.5	0.0	0.1	0.2	0.2
MBTU/MWh		12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263
Fuel cost (\$000)		408	434	260	293	366	392	225	257	338	350	30	45	118	142
Diesel															
Production (GWh)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MBTU/MWh		10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970
Fuel cost (\$000)		0	0	0	0	0	0	0	0	0	0	0	0	0	0
New CT															
Production (GWh)		9.5	11.4	14.7	15.8	20.5	24.2	28.9	32.0	37.4	34.3	5.2	5.5	6.2	6.9
MBTU/MWh		9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434
Fuel cost (\$000)		4,394	5,409	7,084	7,779	10,297	12,430	15,143	17,097	20,391	19,053	2,960	3,187	3,656	4,121
CCGT ⁽¹⁾															
Production (GWh)		3,141.4	3,202.0	3,261.6	3,323.0	3,380.7	3,439.4	3,497.6	3,557.0	3,614.0	3,671.8	3,756.2	3,810.6	3,864.6	3,918.6
MBTU/MWh		7.745	7.741	7.738	7.734	7.730	7.728	7.728	7.725	7.729	7.731	7.738	7.735	7.735	7.735
Fuel cost (\$000)		1,198,330	1,244,658	1,291,655	1,343,035	1,394,320	1,447,040	1,501,181	1,556,241	1,612,205	1,669,573	1,744,918	1,805,898	1,867,867	1,931,436
NO. 6 FUEL:															
0.7% s \$/bbl (Fuel Forecast)		199.00	203.00	207.10	211.20	215.40	219.70	224.10	228.60	233.20	237.90	242.70	247.60	252.60	257.70
\$/Mbtu	6.287	31.653	32.289	32.941	33.593	34.261	34.945	35.645	36.361	37.092	37.840	38.603	39.383	40.178	40.989
2.2% s \$/bbl (Fuel Forecast)		183.60	187.20	191.00	194.80	198.70	202.70	206.80	210.90	215.10	219.40	223.80	228.30	232.90	237.60
\$/Mbtu	6.287	29.203	29.776	30.380	30.985	31.605	32.241	32.893	33.545	34.213	34.897	35.597	36.313	37.045	37.792
Holyrood ⁽²⁾															
Production (GWh)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MBTU/MWh															
Fuel cost (\$000)		0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS:															
Production (GWh)		3,151.5	3,214.1	3,276.7	3,339.3	3,401.7	3,464.2	3,526.9	3,589.3	3,651.9	3,706.6	3,761.5	3,816.1	3,870.9	3,925.6
Fuel cost (\$000)		1,203,132	1,250,501	1,298,998	1,351,106	1,404,983	1,459,862	1,516,550	1,573,595	1,632,934	1,688,976	1,747,908	1,809,130	1,871,641	1,935,699

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	Factor	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067
NO. 2 FUEL:														
c/litre (Fuel Forecast)		2.38	2.43	2.48	2.53	2.58	2.63	2.685	2.74	2.795	2.85	2.905	2.965	3.025
\$/bbl	158.970	378.30	386.30	394.20	402.20	410.10	418.10	426.80	435.60	444.30	453.10	461.80	471.30	480.90
\$/Mbtu	5.825	64.944	66.318	67.674	69.047	70.403	71.777	73.270	74.781	76.275	77.785	79.279	80.910	82.558
Existing CT														
Production (GWh)		0.3	0.4	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.2
MBTU/MWh		12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263	12.263
Fuel cost (\$000)		210	355	60	76	89	103	124	142	187	297	187	224	229
Diesel														
Production (GWh)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MBTU/MWh		10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970	10.970
Fuel cost (\$000)		0	0	0	0	0	0	0	0	0	0	0	0	0
New CT														
Production (GWh)		7.5	6.3	1.1	1.2	1.3	1.4	1.7	1.9	4.8	19.3	24.1	27.3	26.7
MBTU/MWh		9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434	9.434
Fuel cost (\$000)		4,602	3,918	674	771	877	963	1,152	1,340	3,489	14,191	18,022	20,854	20,784
CCGT ⁽¹⁾														
Production (GWh)		3,972.5	4,028.2	4,088.7	4,143.3	4,197.8	4,252.4	4,306.9	4,361.4	4,413.0	4,453.1	4,503.3	4,554.7	4,610.0
MBTU/MWh		7.733	7.735	7.738	7.734	7.730	7.730	7.723	7.720	7.718	7.701	7.700	7.700	7.700
Fuel cost (\$000)		1,995,122	2,066,360	2,141,148	2,212,557	2,284,510	2,359,492	2,437,135	2,517,755	2,597,852	2,667,416	2,748,889	2,837,713	2,930,426
NO. 6 FUEL:														
0.7%\$/bbl (Fuel Forecast)		262.90	268.20	273.60	279.10	284.70	290.40	296.20	302.10	308.10	314.30	320.60	327.00	333.50
\$/Mbtu	6.287	41.816	42.659	43.518	44.393	45.284	46.191	47.113	48.052	49.006	49.992	50.994	52.012	53.046
2.2%\$/bbl (Fuel Forecast)		242.40	247.20	252.10	257.10	262.20	267.40	272.70	278.20	283.80	289.50	295.30	301.20	307.20
\$/Mbtu	6.287	38.556	39.319	40.099	40.894	41.705	42.532	43.375	44.250	45.141	46.047	46.970	47.908	48.863
Holyrood ⁽²⁾														
Production (GWh)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MBTU/MWh														
Fuel cost (\$000)		0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS:														
Production (GWh)		3,980.3	4,034.9	4,089.9	4,144.5	4,199.2	4,253.9	4,308.7	4,363.4	4,418.1	4,472.7	4,527.6	4,582.2	4,637.0
Fuel cost (\$000)		1,999,934	2,070,633	2,141,882	2,213,404	2,285,477	2,360,558	2,438,412	2,519,237	2,601,528	2,681,905	2,767,099	2,858,791	2,951,438