

1 Q. Will Nalcor please prepare a table and graph showing capital and operating cost  
2 estimates for each year of the full period of the final analyses (through 2067), as  
3 they are incurred, for both the Isolated and the Interconnected Alternatives, all  
4 expressed in 2010 dollars. This data will present the total (cumulative) cost as it  
5 increases with time, both in present day (2010) and CPW terms. The presentation  
6 will be similar to Figure 30 of the November Submission to the Board, except that  
7 the vertical axis will be cost as opposed to \$/MWh, and there will be no financial  
8 "balancing" through assumed provisions of PPAs or other financing arrangements.

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10  
11 A. As requested, the following table and charts provide the annual capital and  
12 operating costs for the Isolated Island and Interconnected Island generation  
13 expansion alternatives as they are incurred, both in cumulative real 2010 dollars  
14 and cumulative present worth (CPW) in 2010 dollars.

15  
16 In order to derive real 2010 dollars, all of the nominal expenditures have been de-  
17 escalated by 2% annually. These amounts were then summed each year to  
18 construct the first graph on page 4. In order to derive the present worth stated in  
19 2010 dollars, all of the nominal expenditures have been discounted by 8% annually.  
20 These amounts were then summed each year to construct the second graph on  
21 page 4.

22  
23 In the case of capital costs, all financing charges have been excluded from the  
24 annual expenditure schedules. In the particular case of Muskrat Falls, annual capital  
25 and operating expenditures, as incurred, are included in the analysis instead of a  
26 power purchase cost.

1 Nalcor notes that where the discount rate and the cost of capital are the same, and  
2 where the timing of cash flows within a given year (average versus year-end) is the  
3 same, the present value of the revenue requirement which includes the recovery of  
4 asset financing costs will be same as the present value of the annual capital  
5 expenditures excluding financing. Therefore the CPWs for the Isolated Island and  
6 Interconnected Island alternatives should generally be same as the reference CPWs  
7 reported for the DG2 analysis. After allowing for the differences in financing costs  
8 between Muskrat Falls (8.4%) and other regulated assets (8.0%) and the annual  
9 cash flow timing differences, this holds true regardless of whether the mechanism  
10 for cost recovery is through a power purchase or a regulated rate base.

11  
12 In the data presented, there are both timing and cost of capital differences for the  
13 large up-front expenditures associated with the Lower Churchill Project, which  
14 serve to increase the CPW preference for the Interconnected Island alternative by  
15 approximately \$100 million.

Cumulative Capital and Operating Costs As Incurred								
Isolated Island					Interconnected Island			
Capital	Operating	Total	CPW		Capital	Operating	Total	CPW
Cumulative Real \$2010			\$2010		Cumulative Real \$2010			\$2010
(\$, millions)								
2010	0.0	208.8	208.8	208.8	202.7	208.8	411.5	411.5
2011	0.0	406.9	406.9	395.9	488.1	406.9	895.0	868.1
2012	58.5	620.0	678.5	638.2	1,315.8	620.0	1,935.8	1,796.5
2013	269.7	896.6	1,166.3	1,049.1	2,547.9	896.6	3,444.5	3,067.4
2014	495.7	1,216.6	1,712.3	1,483.5	3,573.9	1,218.1	4,792.1	4,139.6
2015	667.5	1,551.1	2,218.6	1,863.9	4,348.4	1,562.8	5,911.1	4,980.5
2016	764.4	1,869.9	2,634.3	2,158.9	4,707.3	1,915.0	6,622.3	5,485.2
2017	813.7	2,199.6	3,013.3	2,413.0	4,710.0	2,021.5	6,731.5	5,558.4
2018	910.0	2,542.9	3,452.8	2,691.2	4,710.1	2,127.9	6,838.0	5,625.8
2019	995.8	2,877.2	3,873.0	2,942.4	4,710.2	2,238.7	6,948.9	5,692.1
2020	1,090.5	3,218.7	4,309.2	3,188.7	4,710.2	2,344.8	7,055.0	5,752.0
2021	1,203.7	3,555.7	4,759.4	3,428.8	4,711.3	2,436.0	7,147.3	5,801.2
2022	1,273.3	3,909.0	5,182.3	3,641.8	4,715.4	2,515.7	7,231.1	5,843.5
2023	1,292.4	4,281.5	5,573.9	3,828.0	4,719.5	2,588.0	7,307.4	5,879.8
2024	1,342.6	4,664.3	6,006.9	4,022.5	4,720.5	2,659.5	7,380.0	5,912.4
2025	1,344.8	5,056.4	6,401.2	4,189.8	4,722.6	2,730.1	7,452.7	5,943.2
2026	1,363.8	5,462.2	6,826.1	4,360.1	4,724.7	2,806.3	7,530.9	5,974.5
2027	1,455.0	5,882.9	7,337.9	4,553.8	4,728.2	2,877.7	7,605.9	6,002.9
2028	1,541.7	6,315.6	7,857.3	4,739.4	4,729.8	2,947.2	7,677.0	6,028.3
2029	1,563.0	6,757.0	8,320.1	4,895.6	4,731.4	3,010.9	7,742.2	6,050.3
2030	1,618.3	7,211.9	8,830.2	5,058.2	4,731.4	3,075.1	7,806.6	6,070.9
2031	1,722.9	7,680.7	9,403.6	5,230.9	4,731.5	3,144.9	7,876.4	6,091.9
2032	1,937.0	8,163.2	10,100.2	5,429.0	4,731.6	3,210.3	7,942.0	6,110.5
2033	2,116.9	8,659.5	10,776.4	5,610.6	4,731.7	3,276.5	8,008.2	6,128.3
2034	2,232.9	9,237.5	11,470.4	5,786.7	4,735.6	3,343.2	8,078.9	6,146.2
2035	2,337.8	9,826.4	12,164.2	5,952.9	4,783.3	3,410.6	8,193.8	6,173.8
2036	2,425.9	10,444.1	12,870.0	6,112.5	4,957.4	3,483.5	8,441.0	6,229.7
2037	2,427.7	11,099.7	13,527.4	6,253.0	5,023.5	3,551.6	8,575.1	6,258.3
2038	2,429.5	11,770.0	14,199.6	6,388.7	5,023.9	3,622.5	8,646.4	6,272.8
2039	2,431.3	12,455.3	14,886.6	6,519.6	5,024.4	3,694.1	8,718.4	6,286.5
2040	2,433.7	13,153.7	15,587.5	6,645.8	5,024.7	3,765.5	8,790.3	6,299.4
2041	2,453.0	13,864.4	16,317.4	6,769.9	5,025.1	3,842.7	8,867.8	6,312.6
2042	2,502.2	14,587.9	17,090.0	6,893.9	5,025.4	3,915.5	8,940.9	6,324.3
2043	2,503.9	15,324.7	17,828.6	7,005.9	5,025.8	3,989.0	9,014.8	6,335.5
2044	2,506.2	16,075.3	18,581.6	7,113.8	5,026.8	4,063.0	9,089.8	6,346.3
2045	2,525.5	16,839.9	19,365.4	7,219.8	5,044.7	4,137.5	9,182.3	6,358.8
2046	2,574.6	17,618.2	20,192.8	7,325.5	5,092.6	4,218.0	9,310.6	6,375.2
2047	2,619.2	18,410.9	21,030.1	7,426.5	5,093.0	4,301.3	9,394.3	6,385.3
2048	2,750.5	19,216.8	21,967.2	7,533.3	5,094.0	4,385.1	9,479.1	6,394.9
2049	2,913.4	20,036.0	22,949.4	7,639.0	5,112.0	4,469.4	9,581.4	6,405.9
2050	3,053.7	20,866.7	23,920.4	7,737.7	5,159.9	4,554.3	9,714.2	6,419.4
2051	3,156.7	21,711.0	24,867.7	7,828.6	5,160.4	4,645.7	9,806.1	6,428.3
2052	3,243.4	22,567.2	25,810.6	7,914.1	5,161.5	4,732.4	9,893.9	6,436.2
2053	3,264.9	23,434.9	26,699.8	7,990.2	5,179.5	4,819.6	9,999.1	6,445.2
2054	3,333.3	24,314.4	27,647.7	8,066.9	5,227.5	4,908.3	10,135.8	6,456.3
2055	3,442.3	25,204.9	28,647.1	8,143.2	5,228.0	4,999.2	10,227.2	6,463.3
2056	3,508.8	26,107.8	29,616.6	8,213.1	5,229.2	5,097.0	10,326.2	6,470.4
2057	3,510.8	27,025.2	30,536.0	8,275.8	5,247.3	5,190.7	10,438.0	6,478.0
2058	3,512.8	27,954.4	31,467.2	8,335.7	5,295.2	5,285.8	10,581.0	6,487.2
2059	3,514.8	28,894.8	32,409.6	8,392.9	5,295.8	5,382.8	10,678.6	6,493.1
2060	3,522.7	29,846.8	33,369.5	8,448.0	5,296.3	5,481.0	10,777.3	6,498.8
2061	3,598.8	30,810.7	34,409.4	8,504.4	5,297.6	5,586.3	10,883.8	6,504.6
2062	3,736.6	31,786.7	35,523.3	8,561.4	5,315.7	5,687.2	11,002.9	6,510.7
2063	3,934.9	32,774.6	36,709.5	8,618.7	5,363.7	5,789.5	11,153.2	6,517.9
2064	4,017.4	33,772.3	37,789.7	8,668.1	5,365.0	5,893.8	11,258.7	6,522.8
2065	4,198.0	34,782.1	38,980.1	8,719.4	5,383.1	6,000.4	11,383.6	6,528.1
2066	4,363.7	35,804.7	40,168.3	8,767.8	5,431.2	6,113.2	11,544.4	6,534.7
2067	4,449.2	36,839.4	41,288.6	8,810.9	5,431.8	6,230.5	11,662.3	6,539.2

