

1 Q. Consumer Question: Nalcor has been used to develop Muskrat Falls, rather than  
2 developing Muskrat Falls directly through Hydro (a regulated utility). Using Nalcor  
3 as the developer of Muskrat Falls produces a CPW preference of \$2.2 Billion for the  
4 Muskrat Falls option. The CPW analysis looks at projects costs only. Nalcor sells  
5 power to Hydro under a power purchase agreement (PPA) based on the Bruce  
6 Power model (designed to have low power prices in the earlier years). This PPA cost  
7 from Nalcor is used as a cost for Hydro in the CPW analysis. At MHI-Nalcor-18,  
8 Nalcor states, "The supply of MF energy is through a power purchase agreement  
9 and not on a cost of service basis. Exhibit 15 shows the development of the power  
10 purchase agreement price to Hydro (which is reflected in the CPW analysis), and the  
11 inputs used in exhibit 15 are those for the developer of MF, not Hydro." This CPW  
12 preference of \$2.2 Billion would change if Hydro developed Muskrat Falls directly,  
13 what is the CPW if Hydro as a regulated utility developed Muskrat Falls directly?  
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16 A. Please refer to the response to PUB-Nalcor-177. MHI has also provided analysis  
17 concerning the COS approach versus the PPA approach for the pricing of Muskrat  
18 Falls energy. Please see the MHI Report, Volume I, page 84, Section 7.2 wherein  
19 they state: "Using an 8% interest rate for calculating AFUDC, the CPW using a COS  
20 approach is approximately equal to that using a PPA approach".

1 Q. Consumer Question: In its April 1, 2011 letter to the Joint Panel Nalcor make the  
2 following statements (on page 4):

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4 "The 7.7 cents per kWh figure is a levelized unit energy cost (LUEC) for Muskrat Falls  
5 generation only calculated the traditional way - the present value of costs divided  
6 by the present value of output. A critical feature of this type of analysis is that the  
7 output is total plant capability, in the case of Muskrat Falls, this is 4.9 TWh annually.

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9 The 14.3 cents per kWh figure is the equivalent escalating price for the Island  
10 market, assuming that the entire cost of the Muskrat Falls generating station and  
11 the Labrador-Island Transmission Link is recovered based on projected demand in  
12 the Island market. The price per kWh is expressed in real terms and escalates  
13 according to CPI.

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15 Please cite a definition of the LUEC from electrical industry sources.

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18 A. Definitions of both LUEC and "escalating supply price" are provided on pages 41 and  
19 42 of Nalcor's Submission.

20 The US Energy Information Administration offers a definition of levelized cost as  
21 follows:

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Levelized cost is often cited as a convenient summary measure of the overall competitiveness of different generating technologies. Levelized cost represents the present value of the total cost of building and operating a generating plant over an assumed financial life and duty cycle, converted to equal annual payments and expressed in terms of

1                   real dollars to remove the impact of inflation. Levelized cost reflects  
2                   overnight capital cost, fuel cost, fixed and variable O&M cost,  
3                   financing costs, and an assumed utilization rate for each plant type.<sup>1</sup>

4                   Please note that the levelized cost referred to in the EIA definition above is  
5                   expressed on a per kWh basis, which reflects the plant production.

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<sup>1</sup> [http://www.eia.gov/oiaf/aeo/electricity\\_generation.html](http://www.eia.gov/oiaf/aeo/electricity_generation.html)

1 Q. Consumer Question: With reference to CA/KPL-Nalcor-132, the LUEC, as Nalcor  
2 defines it, is based on the present value of costs divided by the present value of  
3 output. Which costs are included, capital only or all costs, including fuel and  
4 maintenance?

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7 A. All costs are captured in the calculation of a LUEC, including capital, operating,  
8 maintenance, and fuel costs if applicable.

- 1 Q. Consumer Question: With reference to CA/KPL-Nalcor-132, how is the "present  
2 value of output" priced. Value implies price. How is the price calculated?  
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- 5 A. The definition of a LUEC is that price, which when multiplied by output, and the  
6 resulting revenue stream discounted, equals the present value of the all capital and  
7 operational related costs. In algebraic terms, the LUEC can be equivalently stated as  
8 the "present value of costs" divided by the "present value of output". In each case,  
9 both cost and energy amounts are discounted by the discount rate used in the  
10 analysis.

1 Q. Consumer Question: With reference to CA/KPL-Nalcor-132, does the 7.7 cents per  
2 kWh include transmission cost? If so, what is the transmission component? If not,  
3 how much has to be added for transmission?  
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6 A. The LUEC value of 7.7 cents per kWh referred to in CA/KPL-132 was a generation  
7 only LUEC provided to the LCP Joint Review Panel under a different set of  
8 assumptions and for different purposes than applicable for Nalcor's Decision Gate 2  
9 generation expansion analysis. Therefore, this pricing reference is not applicable for  
10 the Reference Question before the PUB.

1 Q. Consumer Question: With reference to CA/KPL-Nalcor-135, if the 7.7 cents per kWh  
2 is based on total plant capability, namely 4.9 TWh, then, if the Island is going to use  
3 only 2.0 TWh initially, will the cost be proportionately higher on the basis of energy  
4 actually used?

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7 A. As indicated in Nalcor's response to CA/KPL-Nalcor-135, the 7.7 cent per kWh LUEC  
8 referred to in CA/KPL-Nalcor-135 is not applicable for Nalcor's Decision Gate 2  
9 analysis regarding the price of Muskrat Falls energy.

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11 The escalating supply price for Muskrat Falls energy of \$76 /MWh (\$2010,  
12 escalating at 2% annually) is the correct price with respect to the supply required by  
13 the Island. This supply price generates a revenue stream based on sales to the  
14 Island that recovers all of the costs associated with the Muskrat Falls investment  
15 and operation, inclusive of a utility grade return on equity for the shareholder.

1 Q. Consumer Question: If Emera is taking 1.0 TWh throughout the next 35 years, with  
2 no energy charge, then will this factor alone increase the cost to consumers on the  
3 Island, who will be paying for 4.9 TWh and will have access to only 3.9 TWh and  
4 initially will use only 2.0 TWh?

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7 A. The information requested does not assist consideration of the Reference Question.  
8 Consistent with the Reference Question and the Terms of Reference, Nalcor's  
9 analyses are based on Muskrat Falls supplying Island needs only. Costs and benefits  
10 associated with the proposed arrangements with Emera will be addressed by Nalcor  
11 and its shareholder, the Government of Newfoundland and Labrador, prior to  
12 Project Sanction.



1 Q. Consumer Question: With reference to CA/KPL-Nalcor-132, is the 7.7 cents  
2 comparable with the 14.3 cents per kWh, given the use of the term "equivalent" in  
3 paragraph 2 of the quote?  
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6 A. No, the 7.7 cents and 14.3 cents per kWh are not comparable. As indicated in  
7 CA/KPL-Nalcor-135, the LUEC value of 7.7 cents per kWh referred to in CA/KPL-  
8 Nalcor-132 was a generation only LUEC provided to the LCP Joint Review Panel  
9 under a different set of assumptions and for different purposes than applicable for  
10 Nalcor's Decision Gate 2 generation expansion analysis.  
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12 The 14.3 cents per kWh (\$2017, escalating at 2% annually) is the escalating  
13 equivalent economic price that recovers all the costs of Muskrat Falls and the  
14 Labrador Island transmission link based on only the energy delivered to the Island.  
15 This economic price is not a financial rate that would be charged to customers.  
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17 Please refer to CA-KPL-Nalcor-27 Rev. 1 regarding the incremental cost of Muskrat  
18 Falls plus the Labrador-Island Transmission Link relative to the incremental cost of  
19 base load thermal generation under the Isolated Island alternative.

1 Q. Consumer Question: What capital structure is assumed to underlie these numbers?  
2 How much equity and how much debt and what is the cost assumed for each of  
3 cost and equity.

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6 A. Please refer to Nalcor's response to CA/KPL-Nalcor-18 beginning at line 20. As  
7 noted in CA/KPL-Nalcor-20, for the purposes of Decision Gate 2 analysis, Nalcor has  
8 assumed 100% equity financing for the Muskrat Falls investment.

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10 Please note that the capital structure and associated costs for the JRP referenced  
11 LUEC are not applicable for the purposes of Decision Gate 2 analysis.

1 Q. Consumer Question: What is the delivered cost per kWh of energy delivered to the  
2 Island in 2017 and what will be the price to the consumer?

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5 A. Please refer to CA-KPL-Nalcor-27 Revision 1 regarding the incremental cost of  
6 Muskrat Falls plus the Labrador-Island Transmission Link relative to the incremental  
7 cost of base load thermal generation under the Isolated Island alternative. With  
8 respect to the price to consumers, please refer to Nalcor's Submission, Table 32 on  
9 page 143 and also the response to PUB-Nalcor-5.