

- 1 Q. The response to PUB-Nalcor-35 states the expected accuracy for an AACE
2 International Class 5 Screening or Scoping Level Estimate would be +30 to 100% on
3 the high side. The response filed by Hydro to PUB-NLH-154 in reference to Hydro’s
4 2012 Capital Budget Application states that it would be +40% to 100%. Please clarify
5 which is correct.
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8 A. The response to PUB-NLH-154 in reference to Hydro’s 2012 Capital Budget
9 Application referenced AACE International Recommended Practice No. 17R-97,
10 “Cost Estimate Classification System”, and AACE International Recommended
11 Practice No. 18R-97 “Cost Estimate Classification System – As Applied in
12 Engineering, Procurement, and Construction for the Process Industries.”
13
14 RP 18R-97 states that the expected accuracy for a Class 5 Screening or Scoping
15 Level Estimate is +30 to +100% on the high side:

COST ESTIMATE CLASSIFICATION MATRIX FOR THE PROCESS INDUSTRIES

The five estimate classes are presented in table 1 in relationship to the identified characteristics. Only the degree of project definition determines the estimate class. The other characteristics are secondary and are generally correlated with the degree of project definition, as discussed in the generic RP^[1]. The characteristics are typical for the process industries but may vary from application to application.

	<i>Primary Characteristic</i>	<i>Secondary Characteristic</i>		
ESTIMATE CLASS	DEGREE OF PROJECT DEFINITION Expressed as % of complete definition	END USAGE Typical purpose of estimate	METHODOLOGY Typical estimating method	EXPECTED ACCURACY RANGE Typical variation in low and high ranges ^[a]
Class 5	0% to 2%	Concept screening	Capacity factored, parametric models, judgment, or analogy	L: -20% to -50% H: +30% to +100%

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1 RP 18R-97 is primarily focused on process equipment and projects, while 17R-97
2 provides a generic model for any industry, where secondary characteristics may
3 increase the level of uncertainty. As the Holyrood plant is an existing process
4 facility, RP 18R-97 was considered to a reasonable reference for the accuracy of the
5 estimate class.

6 The level of accuracy is highly dependent on the level of project definition and
7 presence (or absence) of technical certainty. These factors play a much more
8 significant role on estimate accuracy than an arbitrary “Estimate Class” criterion.
9 Estimate accuracy must be evaluated on an estimate –by-estimate basis, and should
10 be considered in conjunction with some form of risk analysis process.

1 Q. PUB-Nalcor-45 asked Nalcor to identify the key policy objectives used in the
2 approach to determine the purchase price of Muskrat Falls energy. The response
3 states that the key policy objective is developing the Lower Churchill Resource and
4 no other objectives were listed. Please confirm that no other public policy
5 objectives or considerations affected the determination of the Muskrat Falls power
6 purchase price other than the development of the Lower Churchill Resource.

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9 A. The power purchase price for Muskrat Falls has been established in a manner that is
10 consistent with a utility level return on equity for the investment (as per PUB-
11 Nalcor-44) while providing an annual approach to pricing that achieves ratepayer
12 benefits as outlined in Exhibit 36.

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14 The policy objective of developing the Lower Churchill Project is the cornerstone of
15 the Province's *Energy Plan* and the proposed pricing arrangement helps to facilitate
16 its development since interconnected rates are consistently lower than isolated
17 rates.

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19 The Muskrat Falls pricing model is based on a substantial equity injection by the
20 Province in Muskrat Falls and this is consistent with the Province's stated intent in
21 the *Energy Plan* of "the strategic investment of a significant portion of our non-
22 renewable resource revenues in renewable infrastructure." ¹

¹ Energy Plan, page 30

1 Q. On pg. 2, lines 8-10 of the Executive Summary it is stated that “*each year NLH*
2 *engages in a comprehensive load forecasting exercise to determine the province’s*
3 *electrical consumption over a 20 year horizon.*” On pg. 19, lines 14-18 of the
4 Submission it is stated that a long-term load forecast is completed annually
5 beginning in the last quarter. Has such a load forecast been completed in 2011? If
6 yes, please provide. If not, why not?

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9 A. Nalcor did not complete a long term load forecast and a generation expansion
10 analysis during 2011. With the announcement of the current proceeding before the
11 Board in 2011, Nalcor elected to maintain a consistent body of material through this
12 proceeding. This includes the 2010 PLF, which is the foundation for the generation
13 expansion plan and economic analysis filed in this proceeding.

14

15 The load forecast and subsequent studies will be updated as part of Nalcor’s DG-3
16 analysis, currently expected to be undertaken during the first half of 2012.

1 Q. On pg. 4, lines 18-19 of the Executive Summary it is stated that Nalcor was directed
2 to progress the development of the Lower Churchill by the Government's 2007
3 Energy Plan. Please describe the weight/priority placed by Nalcor on this direction
4 and describe how Nalcor incorporates this direction in its short and long-term
5 business plans and corporate strategy.

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8 A. Nalcor's planning efforts in respect of the Lower Churchill are consistent with
9 direction provided by Government, either directly or through the *Energy Plan*.

10 Nalcor has incorporated this direction in its business strategies, annual budgets, and
11 corporate plans. Nalcor has established a separate division to assess and progress
12 the Lower Churchill, and the Lower Churchill Project division has support from all
13 functional groups within the organization. These groups have been provided with
14 the necessary resources and budget in order to execute their Lower Churchill work
15 plans.

16

17 Nalcor's business plans and corporate strategies are confirmed by the results of the
18 DG2 decision reached by Nalcor in the fall of 2010, which concluded that Muskrat
19 Falls and the Labrador Island Transmission Link represent the long term least cost
20 supply alternative for the Island of Newfoundland. The DG2 decision was not
21 influenced by the *Energy Plan*, but was arrived at as a result of Nalcor's economic
22 analysis.

1 Q. On pg. 21, lines 14-17 of the Submission, it is stated that *“direct input from those*
2 *customers forms the basis for NLH’s forecast of total industrial power requirements”*
3 *and that “it would not be appropriate for NLH to forecast industrial requirements*
4 *independent of the input provided by the industrial customers themselves.”* Explain
5 the process followed to determine industrial load from the time input is received
6 from industrial customers to the finalization of the load forecast. Are factors, other
7 than input from customers, considered? If so, describe them.

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10 A. All industrial customers are requested by Nalcor to provide a five year forecast of
11 their expected load requirements. Forecast load requirements provided by
12 customers to Nalcor are subsequently reviewed with respect to the customers’
13 recent historical load requirements as well as publicly available information about
14 the customers’ operations. Nalcor may make modest adjustments to customer load
15 forecasts based on the customers’ recent operating history.

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17 Any significant changes provided by the industrial customers to forecast load
18 requirements are reviewed with those customers to ensure their load requirements
19 are understood. Once reviewed, forecast industrial loads together with any modest
20 adjustments made by Nalcor are finalized for input to Nalcor’s load forecast model.

1 Q. On pg. 28, lines 10-11 of the Submission it is stated that *“the island’s electricity*
2 *requirements have declined recently due to structural changes within international*
3 *pulp and paper markets.”* Describe in detail the analysis completed by Nalcor on
4 international pulp and paper markets to assess future load implications for the
5 Island’s electricity requirements, particularly in light of the significant impact the
6 closure of two mills has had on the Island’s load forecast in the recent past.

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9 A. Nalcor has not completed an analysis of international pulp and paper markets but is
10 aware of some of the challenges facing North American newsprint manufacturers.
11 Nalcor does not exercise judgment respecting the long term viability for established
12 industry in the Province unless definitive notices have been provided to the
13 Province.

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15 Risks associated with variations in the load forecast were evaluated during Nalcor’s
16 DG2 analysis through sensitivity analyses and their impacts on the CPW results are
17 provided in section 7.2 of the Submission.

1 Q. On pg. 22, line 21 of the Submission it is stated that one of the main factors in the
2 economic forecast supporting the long-term load forecast for the Island is
3 continued newsprint production at Corner Brook over the forecast period of 20
4 years to 2029. What level of production was assumed for the forecast period for
5 this customer and what information was relied on by Nalcor to support the
6 assumption?

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9 A. Nalcor has assumed the continuation of the two-machine newsprint operation that
10 currently exists at the Corner Brook mill in its forecast. Nalcor based this
11 assumption on the energy forecasts provided by the customer which did not show a
12 significant change in energy requirements from their current usage.

1 Q. Table 16 on pg. 46 of the Submission gives the Forced Outage Rate for the Labrador
2 Island Link (per pole) as 0.89. Is this on a per pole or bipole basis?

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5 A. Nalcor confirms that 0.89% is on a per pole basis. Each pole was modeled in
6 Strategist independently.

1 Q. In reference to Table 20, pg. 51 of the Submission and pg. 26 of Exhibit 27, please
2 provide an explanation as to the factors causing the growth in the Island load
3 forecast in the years 2021-2023.

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6 A. The factors that cause the forecasted increase in load growth during this period are
7 relatively higher forecasted growth rates in key economic indicators, particularly
8 Gross Domestic Product and Personal Disposable Income. These are shown on
9 Exhibit 27, Page 25.

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11 For the period between 2021 and 2023 these factors combined to result in a minor
12 increase in utility demand relative to the underlying trend.

1 Q. The response to PUB-Nalcor-61 states in lines 14-16 that it is not “currently” the
2 case that Hydro must comply with NERC reliability guidelines. What consideration
3 has been given as to whether such compliance will be required in the future?
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6 A. Nalcor expects that compliance with NERC guidelines and standards will be required
7 for its new facilities in Labrador.
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9 Since the Muskrat Falls generating facility, the AC transmission system between
10 Muskrat Falls and Churchill Falls, and the Labrador HVdc terminal are
11 interconnected to the North American grid via the AC interconnection between
12 Churchill Falls and the Hydro Quebec TransEnergie system, Nalcor and its EPCM
13 consultant will apply all relevant NERC reliability guidelines to the design,
14 construction, and operation of Nalcor’s new facilities. These requirements will be
15 coordinated with Quebec so that disturbances originating from Nalcor’s new
16 facilities do not cause problems in Quebec.
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18 The new Nalcor facilities in Labrador must also ensure compliance with NERC
19 criteria for contingencies specified in the criteria originating from NL Hydro
20 facilities, including the Island Interconnected System and NL Hydro facilities in
21 Labrador. The HVdc interconnection between Labrador and Newfoundland
22 simplifies this task, as the HVdc link provides a high degree of control over the
23 interconnection between the two systems for many events. In effect, the
24 Newfoundland electricity system is ‘firewalled’ from Labrador and Nova Scotia
25 systems by HVdc interconnects, thus preventing events on the Newfoundland
26 system from cascading into Labrador and Nova Scotia, respectively.

1 In so far as the application of NERC reliability criteria on NL Hydro system is
2 concerned, NL Hydro continues to be guided by its existing standards and practices.
3 Any changes to these practices will be considered as required if and when NERC
4 reliability criteria are applied to NL Hydro's system.