RESPONSES TO RFIS

PUB-Nalcor-91 Further to the response to MHI-Nalcor-2, please provide the individual CPW results for each of the Interconnected Scenario and the Isolated Island Scenario.

PUB-Nalcor-92 The response to MHI-Nalcor-3 states that the option of accessing Churchill Falls power in 2041 was screened out as a viable option due to a number of issues including security of supply and reliability. It is stated on p. 1 in lines 19-22 that it is difficult to determine the environmental and policy frameworks that will be in place in 2041 and that there are other issues surrounding the Churchill Falls asset with respect to Hydro Quebec. The response to MHI-Nalcor-99 confirms that in the analysis for the power purchased expense for the Infeed Option, energy was assumed to be sourced from Churchill Falls for the period 2057 to 2067 while the response to MHI-Nalcor-49.2 provides that the price for such energy during that period is the price paid by Hydro Quebec under the Power Contract with CF(L)Co. In the response to MHI-Nalcor-3, p. 2 lines 18-19 it is stated that the risks and uncertainties associated with the option of accessing Churchill Falls power in 2041 are not present in the Interconnected scenario.

These responses appear to provide conflicting information. Explain how the issues of security and reliability referred to in the response to MHI-Nalcor-3 do not apply to accessing Churchill Falls power in the period 2057 to 2067 and how the statement on lines 18-19 on p. 2 of the MHI-Nalcor-3 is correct.

PUB-Nalcor-93 Explain why accessing Churchill Falls power for the period 2057-2067, as evidenced in the responses to MHI-Nalcor-49.2 and MHI-Nalcor-99, is a valid assumption for the Infeed scenario but it is not appropriate to use Churchill Falls power from 2041 as stated in the response to MHI-Nalcor-3 due to security and reliability issues as a viable option for the supply of power for the Isolated Island scenario.

PUB-Nalcor-94 The response to MHI-Nalcor-9 states that in the Isolated Island Option no analysis has been done related to the operation of the Holyrood Thermal Plant and the response to MHI-Nalcor-3 states that there are risks

associated with life extension measures for the Plant. If no analysis has been completed on the life extension measures and costs associated with the Plant what is the support for the statement that there are risks associated with life extension?

PUB-Nalcor-95 In the responses to MHI-Nalcor-3, p.3, it is stated that the option of accessing Churchill Falls power in 2041 introduces other economic disadvantages as value is lost through the deferral of monetization of the Province's energy warehouse and the economic and employment benefits from energy construction projects are foregone for decades. Is it correct that this assumes that there will be no other Lower Churchill developments for sales of power and energy outside the Province prior to 2041?

EXHIBIT 101 – INDEPENDENT SUPPLY DECISION REVIEW BY NAVIGANT CONSULTING LTD. ("NAVIGANT")

PUB-Nalcor-96 When was Navigant engaged by Nalcor to complete this review?

PUB-Nalcor-97 Please identify the key personnel by focus area who conducted the review by Navigant and provide their CVs.

PUB-Nalcor-98 Please provide the total person hours spent by the key Navigant personnel in completing its review and provide a breakdown of the hours spent by each key person.

PUB-Nalcor-99 Describe the process followed by Navigant in completing Exhibit 101 and include in the reply the total hours spent by Navigant in each of: (i) reviewing Nalcor produced documentation; (ii) meetings or interviews with Nalcor personnel and (iii) completing its own analysis.

PUB-Nalcor-100 Did Navigant perform any other work or analysis for Nalcor or any of its subsidiaries or associated companies prior to its engagement for the Independent Supply Decision Review? If yes, provide details.

PUB-Nalcor-101 On p. 2 of Exhibit 101, Navigant's disclaimer states that the report was prepared based on information provided by Nalcor and other sources. What other sources provided information and what information was provided by each source?

PUB-Nalcor-102 On p. 13 of Exhibit 101, key finding 38 states: "*Relative to the Isolated Island alternative, the Interconnected Island alternative is also expected to provide similar levels of security and reliability, significantly reduced GHG emissions and significantly less risk and uncertainty.*" Please describe in detail how these "*similar levels of security and reliability*"

were determined for both options. Was a quantitative assessment of each option completed for comparative purposes? If so, please provide a copy of the assessment.

PUB-Nalcor 103 On p. 19 of Exhibit 101, Section 1.2 states: "*The outcome of the generation planning analysis is a metric called Cumulative Present Worth (CPW), which is the present value of all incremental utility capital and operating costs incurred by the utility to reliably meet a specific load forecast given a prescribed set of reliability criteria.*" Specifically, what was the "*prescribed set of reliability criteria*" assessed by Navigant as part of its review of both Interconnected Island and Isolated Island Options?

PUB-Nalcor-104 On p. 23 of Exhibit 101, one of the key findings is that the level and accuracy of information used in Nalcor's DG2 Island Supply Decision was appropriate for the decision stage. Explain in detail the information relied on to reach this conclusion.

PUB-Nalcor-105 On p. 23 of Exhibit 101, it is stated that Nalcor asked Navigant to provide an opinion on whether current information impacts the reasonableness of the DG2 decision. What information did Nalcor give Navigant to review to allow such an opinion to be provided?

PUB-Nalcor 106 On p. 25 of Exhibit 101, it is stated: "*As the Island requirements represent a much lower proportion of the Gull Island output and in the absence of confirmed export transmission via Quebec or new, large industrial load in Labrador, the financial returns for the Gull Island project selling only to the Island would be unacceptably low and the project would likely not be supported in capital markets. In order to provide the same rate of return as projected for the Muskrat Falls project in the DG2 decision, the purchase price for power from Gull Island would have to be approximately 60 percent higher than power from Muskrat Falls.*" Would the addition of a new, large industrial load on the Island or in Labrador potentially impact the analysis of the preferred supply option?

PUB-Nalcor 107 Further to Exhibit 101, p. 25 referred to in PUB-Nalcor 106, what are the estimated average energy costs in 2010 $/MWh, at the busbar, for each of the Muskrat Falls and the Gull Island developments.

PUB-Nalcor 108 On p. 32 of Exhibit 101, Navigant states as a key finding that additional wind power could be considered in the Isolated Island alternative, provided power system constraints identified in the 2004 wind integration study can be addressed cost effectively. Has Nalcor or Navigant studied how the power system constraints could be addressed and at what cost? If yes, please provide copies of the studies completed.

PUB-Nalcor 109 On p. 49 of Exhibit 101, Navigant states as a key finding that the estimated capital costs and escalation methodology for the various supply options were reasonable. What information was provided by Nalcor and/or relied on by Navigant to allow it to reach this conclusion? For example, was a detailed cost estimate report(s) on Muskrat Falls and the Labrador Island Link provided to Navigant?

PUB-Nalcor 110 Further to PUB-Nalcor-109, did Navigant complete an independent analysis relating to the capital costs for the various supply options? If yes, provide details of the analysis completed.

PUB-Nalcor 111 On p. 55 of Exhibit 101, a table is provided of the Forced Outage Rates ("FOR") used by Nalcor in its analysis. Key finding 29 on p. 55 states: "*The...outage rates used by Nalcor in its analysis of the generation expansion alternatives were reasonable.*" How did Navigant determine that a FOR for LIL of .89% was reasonable?

PUB-Nalcor 112 On p. 58 of Exhibit 101, it is stated that Navigant understands that Nalcor will be undertaking further work to further define the factors affecting the power purchase price for Muskrat Falls Energy and the "*degree of volumetric flexibility*". Specifically, what work is Nalcor undertaking on this issue and what does "*degree of volumetric flexibility*" mean in this context?

PUB-Nalcor 113 Did Navigant or Nalcor determine the sensitivity analyses to be completed, as outlined in Section 5 of Exhibit 101? Were other sensitivities completed by either Navigant or Nalcor that are not outlined in Section 5? If yes, please provide them.

PUB-Nalcor-114 On p. 69 of Exhibit 101, Generation Expansion Variants, Table 15, it is stated that for two of the variants (the first and third), Nalcor assumed an early replacement of the Holyrood facility in 2017 with a CCCT. What was the rationale for this assumption on this early retirement date?

PUB-Nalcor-115 On page 70 of Exhibit 101, Section 5.2.1, Security of Supply and Reliability, it states "*Nalcor has investigated the level of exposure and unserved energy due to transmission failures in both alternatives. Based on the Nalcor analysis, in the worst case scenarios (transmission failures occurring in the worst two week window in terms of system load and available generation) both alternatives yield unsupplied energy of less than 1 percent of the annual energy forecast which represents increased security of supply and reliability as compared to the current situation. Further, with inclusion of the Maritime Link to the Interconnected Island alternative, the security of supply and reliability for this alternative will be substantially improved.* " Please provide a copy of Nalcor's analysis and describe in detail what process Navigant followed to confirm the results of

Nalcor's analysis. As a result of Nalcor's analysis, what was the percent unsupplied energy under the "*current situation*" and for each of the Interconnected Island and Isolated Island options?

PUB-Nalcor-116 Further to PUB-Nalcor-115 reference is made to a "*worst case*" scenario in the quote from the report. Did Navigant or Nalcor determine this scenario and how was it determined to be appropriate?

PUB-Nalcor-117 Further to PUB-Nalcor-115, what analysis of the Maritime Link did Navigant complete to allow them to conclude that the Maritime Link would "*substantially improve*" the security of supply and reliability of the Interconnected Island alternative? Please provide a copy of this analysis.

GENERAL OR OTHER

PUB-Nalcor-118 Provide a sensitivity analysis assuming the capital costs of the Muskrat Falls facilities and the HVdc Labrador-Island Link facilities are increased by 50% each and compare this sensitivity to the Isolated Island and Labrador Interconnected base cases.

PUB-Nalcor-119 Further to PUB-Nalcor-7, PUB-Nalcor-8 and PUB-Nalcor-9, what other financial commitments have been made, or are anticipated to be made, from August 1, 2011 to the planned date of project sanction, i.e. passing through DG3? Please provide a detailed list of all such commitments, e.g. studies, testing, construction, etc., their individual anticipated costs and schedule for completion.

PUB-Nalcor-120 Please provide a high resolution electronic version of the latest up-to-date "*Provincial Generation and Transmission Grid*" graphic as depicted on p. 17 of Exhibit 101.

PUB-Nalcor-121 What are the annual power and energy requirements of each industrial customer of Newfoundland Hydro?

PUB-Nalcor-122 What is the annual capacity and energy capability of each industrial customer that has its own generation?

PUB-Nalcor-123 With reference to Exhibit 68; Air Emission Controls Assessment - Holyrood Thermal Generating Station - Final Report p. 31 has four recommendations. The first recommendation is as follows: "*adopt the use of fuel oils with one percent sulphur content. This would achieve the objective of a 50 percent reduction in SO_2 emissions using the least cost option as determined by a Net Present Worth analysis as presented in Appendix B.*" With Nalcor's switch to 0.7% sulphur No. 6 fuel at Holyrood, have the emission targets identified in the study been met?

PUB-Nalcor-124 Further to PUB-Nalcor-123, the final three recommendations on p. 31 of Exhibit 68 involve follow-up work to be completed by Nalcor. Please describe the specific activities undertaken by Nalcor for each of these recommendations and the individual results realized.

PUB-Nalcor-125 Please provide a copy of the Provincial Certificate of Approval currently governing the operation of the Holyrood Thermal Generating Station. Is the Holyrood Thermal Generating Station currently operating within the guidelines of this Certificate of Approval?

PUB-Nalcor-126 With Reference to Exhibit 44, Holyrood Thermal Generating Station – Condition Assessment and Life Extension Study p. 6 of 725, Section Overall Plant Assessment states: "*Holyrood is also expected to be able to meet its 2041 end of life date for operation in a synchronous condensing mode, but will require some further substantial equipment refurbishments and replacements specific to that role. These are identified later in the report, but examples of these would include generator rewinds, powerhouse and pump house roof replacements, switching yard breakers and motorized switches refurbishments/replacements, and synchronous condensing conversions.*" Have the costs of these refurbishments and replacements been included in the CPW analysis?

PUB-Nalcor-127 Further to PUB-Nalcor-126, with the retirement of these synchronous condensers in 2041, what additional equipment will be added to the system to provide the necessary reactive power requirements?

PUB-Nalcor-128 Further to PUB-Nalcor-126, have the costs of these additions been included in the CPW analysis?

DATED at St. John's, Newfoundland this 6th day of October, 2011.

BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

Per _____
Cheryl Blundon
Board Secretary