Q. In discussions with staff at the Holyrood facility on Aug. 19, 2011 a relevant report was identified. Please provide the report where Stantec carried out a review and condition assessment of the electrical switchgear for the facility.

A. Please see attached Exhibit 67. The report is the basis for ongoing capital work at the Holyrood facility, and its completion has been factored into the AMEC condition assessment.

Q. What validation was done for the data, and proprietary software used to study ice berg risks in Exhibit 35 "Iceberg Risk to Subsea Cables in Strait of Belle Isle"?

A. As part of the study, C-Core compared the results of this model to observations in the field (please refer to Exhibit 35, Section 3.4.6). With respect to the input data, there was no validation possible on a site specific basis. In order to achieve this there would need to be measurements in consecutive years, that is, repetitive scour mapping. As validation of data is important, the Marine Crossings Group has awarded a contract to Provincial Airlines (PAL) for continuous iceberg tracking that will start late 2011 and run for several years. As data is acquired, this data will be used to validate and fine tune C-CORE's model. C-CORE is a subcontractor to PAL for this work.

With respect to validation of the proprietary software, the same software application was used on the northeast Grand Banks for oil installations and on the Makkovik Bank for gas installations. Repetitive seabed mapping has been performed to establish measured iceberg scour rates in these areas to validate the software predictions.

Q. In the assessment of ice berg strike risks, was there any assessment of the impact energy inherent for icebergs for the scours at depth long the cable route? Significant work was performed on ice berg model grounding events to formulate a scour rates, but a useful design quantity in the cable protection system would be impact energy anticipated from an iceberg strike.

A. It is not necessary to assess impact energy for the protection approaches chosen for the Strait of Belle Isle crossing.

The primary approach is to design for no impacts within the desired return period range (~$1X10^{-3}$ and lower). In regions where icebergs have higher probability of impact, horizontal directional drilling (HDD) in high strength rock has been utilized to avoid impacts. In each case, assessment of impact energy is not required.

Assessment of impact energy is useful with other protection approaches. Where trenching is used for example, assessment of impact energy is necessary in order to determine a target burial depth in the trench.

Q. Please provide information on all sub-groups that are forecast to comprise the Total Island Energy Requirements (GW.h) and Total Island Peak Demand (MW) forecasts prepared since 2000. The response should be prepared in a format similar to information previously provided on Exhibit 46. As part of this request, please also provide the actual and weather-adjusted figures for the categories requested above for the 2000-2010 period, similar to page 1 of Exhibit 46. This information will be used to calculate forecast accuracy for all forecast sub-components.

A. Exhibit 64 provides actual and forecasts for the Island Interconnected sub-groups that had not been included in Exhibit 46. Actual industrial demand figures are provided in MHI-NALCOR-92. Actual and forecasts for area lighting and system losses are not considered material to forecast accuracy and have not been provided.

Q. Please provide regression equation results for all models that are used to prepare the load forecast and have not been previously provided in Exhibit 45. This would include regression models for Rural Residential and Rural General Service. Please provide the history and forecast information from 1967-2029, similar to page 7 of Exhibit 45, for all relevant variables used to calculate the regression results.

A. Please see Exhibit-62.

Q. Please provide information on all Department of Finance economic forecasts since 2000 that are used as input to the Residential Average Use and General Service Electric Heat regression equations. The response should be prepared in a format similar to information previously provided on Exhibit 46.

A. Please see Exhibit 63.

Q. The response to RFI MHI-Nalcor-58 which included CE-53, this document does not provide enough information to be able to determine how the calculations were formulated. Please resubmit CE-53 as a new Excel workbook (called CE-53 Revision 1), containing hard-coded data only for input parameters that have a documented external source, and formulas in all other cells requiring calculation. Colour these input cells yellow and indicate the source. Please include all data within the same workbook that is used by the worksheet that results in the figures already displaced in CE-53.

A. The Excel workbook, labeled as CE-53 Revision 1, is a summary annual economic analysis model for the Muskrat Falls project. Explanatory notes and/or cross-references have been provided for all inputs. This model has been verified against results from PWC's full project model for the reference case and several capital cost scenarios.

A comparison of the cash flows presented in Exhibit CE-53 with those produced by this model is provided at the bottom of the Cashflow tab. These minimal differences, combined with the capital scenario verification, support the validity of this model for high-level analysis.

Q. Please explain the progression or explain why the total cost estimate values for the SOBI Crossing differ between the response to MHI-Nalcor-7 and that documented in CE-44 page 31.

A. There are two reasons for the difference between the total cost estimate values for the SOBI Crossing in the response to MHI-Nalcor-7 and that provided in CE-44, page 31. The values contained in MHI-Nalcor-7 are the final DG2 estimates using CE-44 as input. In addition the values contained in MHI-Nalcor-7 include the transition compounds, whereas the values in CE-44 do not included the transition compounds.

Q. In Exhibit 49.2(d) HVDC losses are shown at 5%. Please explain the discrepancy between this value and the 10% worst case value shown in the response to MHI-NALCOR-62.

A. In selecting a voltage level for any transmission system there are a number of factors involved, including, but not limited to, technically available voltage levels, analysis of the voltage drop and prospective losses associated with the candidate voltage level(s) and the economics of capital versus value of losses. In developing a technically viable Labrador – Island HVdc Link, a reasonable maximum loss value of 10% worst case was chosen to determine the minimum acceptable operating voltage as indicated in response to MHI-Nalcor-62. The calculations indicated a minimum acceptable HVdc system voltage of ±320 kV. At the ±320 kV operating voltage both the line commutated converter (LCC) and voltage source converter (VSC) technologies would be viable candidates for the proposed HVdc system. As noted in the response to MHI-Nalcor-62, detailed voltage and conductor optimization, which invariably leads to optimization of the loss value, is to be conducted in final design. Therefore, in final design, one expects the optimization to result in peak losses below the “worst” case 10%.

Exhibit 49.2(d) filed in response to MHI-Nalcor-49 utilized an estimated average loss rate of 5% for the Labrador – Island HVdc Link and not the peak load loss rate of 10% utilized in determining the minimum technically viable HVdc system voltage.

Transmission losses will be evaluated further in conjunction with conductor, converter, and transmission optimization during detailed engineering prior to Project Sanction.

Q. In reference to CE-45, RFI-49.3 and Exhibit 3, the calculated weighted average composite escalation rates from 2011-2017 result in different rates. Please explain which escalation rates were used in the Strategist software for the CPW Analysis.

A. The escalation rates used in Strategist can be found in MHI-Nalcor-49.3 on lines 12-17 on the first two worksheets in the Excel file. As noted in this response on Note 2;

"Used single escalation factor for all years by project, as required by Strategist. This number represents the CAGR of the escalation series over the study period."

Escalation for the Lower Churchill project components (Muskrat Falls and Labrador Island Link) is undertaken outside of Strategist.