IN THE MATTER OF the *Electrical Power Control Act*, RSNL, 1994, Chapter E-5.1 (the "EPCA") and the *Public Utilities Act*, RSNL 1990, Chapter P-47 (the "Act") and Regulations thereunder;

AND IN THE MATTER OF an Application by Newfoundland and Labrador Hydro, pursuant to Subsection 41(3) of the Act, for approval of the Restoration of Unit 1 Turbine and Generator at the Holyrood Thermal Generating Station

REQUEST FOR INFORMATION OF THE ISLAND INDUSTRIAL CUSTOMERS

IC-NLH-1 At page 2 of Hydro's Application, it is stated:

> "It has also identified that a major contributor to the loss of lubrication oil was a failure of the DC oil pump set to deliver sufficient lubricating oil when the two AC oil pumps shut down due to the disturbance of the power system. The investigation has identified that weekly testing of the DC oil pump set was completed as required consistent with the original equipment manufacturer guidelines. However, it was found that the test procedure lacked a check that would have identified the particular failure experienced within the pump set which made the pump unable to deliver the required oil flow to the bearings. The test procedure has now been enhanced."

Further, at page 11 of AMEC's Assessment Report (Appendix D) it is recommended that the root cause of the Unit 1 DC lube oil pump failure should be identified and mitigated.

(i) This incident occurred on January 11, 2013, almost 3 months ago. Has the root cause of the failure of the DC oil pump to deliver sufficient lubricating oil when the two (2) AC oil pumps shut down been determined by Hydro or by its consultants? If the answer is "yes", identify and explain the root cause. If the answer is "no", is the identification and explanation of the root cause within the scope of the final root cause analysis report, referred to at page 2 of Hydro's own report in support of this project?

(ii) Have, other than the root cause, the contributory causes of the failure of the DC oil pump to deliver sufficient lubricating oil when the two (2) AC oil pumps shut down been determined by Hydro or its consultants? If the answer is "yes", identify and explain the contributory causes. If the answer is "no", is the identification and explanation of the contributory causes within the scope of the final

root cause analysis report, referred to at page 2 of Hydro's own report in support of this project?

(iii) Has Hydro prepared or approved a document (or series of documents) setting out the scope of the final root cause analysis report? If the answer is "yes", provide a copy of this document (or documents). If the answer is "no" please explain how and when the scope of this report will be determined.

(iv) Who is preparing the final root cause analysis report?

(v) Hydro indicates that the final root cause analysis report will be submitted to the Board of Commissioners of Public Utilities when it is completed. When is the final root cause analysis report expected to be completed? Will Hydro be objecting to or opposing the disclosure of the report to the intervenors, including the Island Industrial Customers?

(vi) Is Hydro confident that the DC oil pumps for Unit 2 and Unit 3 are not at risk of the same or similar type of failure as was experienced for the DC oil pump for Unit 1? If the answer is "yes", identify and explain the factors giving rise to this confidence. If the answer is "no", identify and explain how this risk is intended to be addressed.

IC-NLH-2 At page 62 of the Alstom Field Service Report (FSR) 030213 (Appendix C1), it was stated that "from a mechanical standpoint, there were no findings that would have prevented the pump from operating effectively." What repairs/actions will be carried out in Phase 3 of the project to ensure that the DC Oil pump does operate effectively in the future?

IC-NLH-3 With respect to the major overhaul inspection of the Unit 1 DC oil pump in 2012:

(i) Did Hydro personnel or a third party contractor carry out the major overhaul inspection of the DC oil pump in 2012?

(ii) Was the ability of the DC oil pump to deliver the necessary pressure to provide adequate lubricating oil to the bearings of Unit 1 in the case of a failure of the two (2) AC pumps tested during the major overhaul inspection in 2012?

(iii) Provide any inspection reports available in relation to the DC oil pump conducted during the major overhaul inspection program in 2012.

IC-NLH-4 Provide details of the weekly online test program as it existed in relation to Unit 1 as at January 11th, 2013.

IC-NLH-5 At page 2 of the Executive Summary provided by System Improvements, Inc. (Appendix A), it is stated that "the weekly online test program,

although regularly executed, did not detect that the DC pump was not delivering sufficient pressure". At page 2 of Hydro's own report in support of the Application, it is stated that the weekly test procedure has been "enhanced". Please provide details of the enhancement(s) which would detect such failures in the future.

IC-NLH-6 At page 2 of the Executive Summary provided by System Improvements, Inc. (Appendix A), it is stated that "the start-up procedure used to test the DC oil pump lacked sufficient steps to verify pressure and flow to the bearings" and that "displays of pressure where the test was performed could be improved".

(i) When is the last recorded date that Hydro positively tested the pressure which would be provided by the DC oil pump to Unit 1, prior to January 11, 2013?

(ii) Have improvements been identified to verify pressure and flow to the bearings and are these improvements being implemented?

(iii) Have improvements been identified to display pressure when its weekly online test program is carried out and are these improvements being implemented?

IC-NLH-7 Explain the significance of the comment in the green shaded block of the chart found at page 4 of Appendix A where it is stated "weekly online test program does not catch issue since at least November 26, 2009". Include in the explanation the following:

i. What is the "issue" being referred to?

ii. How was the date November 26, 2009 determined as the date from which "at least" the issue was not caught?

iii. Could the issue have been caught from a date earlier than November 26, 2009?

IC-NLH-8 At page 2 of the Executive Summary provided by System Improvements, Inc. (Appendix A), it is stated that:

> "The control circuitry for the secondary pump calls for a re-start based on both loss of the primary AC pump and loss of lube oil pressure. The secondary pump re-started three minutes after the unit tripped."

(i) Has it been determined how long after failure of the primary AC pump that lube oil pressure was lost?

(ii) Based on Hydro's understanding of how long after failure of the primary AC pump that lube oil pressure was lost, was the re-start of the secondary AC pump at three (3) minutes within the expected time frame?

IC-NLH-9 At page 5 of AMEC's Assessment Report (page 15 of 21 of Appendix D), it is noted that the Unit 1 DC oil pump had "apparently been checked the previous day". Please provide any details, logs, reports or other documentation confirming such check of the DC oil pump and the results of same.

IC-NLH-10 At page 7-8 of Hydro's own report in support of the Application, Hydro lists the repair and re-assembly scope of work to be carried out during Phase 3 of the project.

(i) Is it anticipated that further damage may be discovered during Phase 3 of the project? and

(ii) If the answer to (i) is "no", why would a $2,112.6 M contingency on an estimated $8,281.8 budget (as outlined in Table 2 of Hydro's Application), being in excess of 25% of the estimated budget for Phase 3, be justified?

IC-NLH-11 At page 8 of AMEC's Assessment Report (page 18 of 21 of Appendix D), it is stated:

> "It should be noted that the unit was not barred after the shutdown so it probably also subsequently suffered unequal cooling."

Further, at page 10 of AMEC's Assessment Report (page 20 of 21 of Appendix D), it is stated:

> "Given the unit was not barred after the shutdown and probably suffered uneven cooling and hotspots caused by rubs, the rotor should be checked for straightness."

(i) What is meant by the term "barring" of the unit?

(ii) Would it have been normal operating procedure for Hydro personnel to have barred the unit after the January 11, 2013 shutdown of Unit 1, and if so, within what time frame following the shutdown?

(iii) If the answer to (ii) is in the affirmative, why was the unit not barred in this instance?

(iv) If the answer to (ii) is in the negative, will barring of the unit in the event of a shutdown be part of Hydro's normal operating procedure in the future?

(v) How much of the currently-estimated project cost is attributable to the non-barring of the unit?

(vi) Is it possible that further, at present unascertained costs will be incurred to address the effects of the non-barring of the unit?

IC-NLH-12 At paragraph 2 of Hydro's application, Hydro states that the major winter storm which occurred on January 11, 2013 caused widespread damage and power interruptions to the Island Interconnected System, including damage to the Holyrood Terminal Station.

(i) Based on the investigation carried out to date, does Hydro have reason to believe that the storm caused or contributed to the failure of the Unit 1 DC lubricating oil pump? If "yes", explain.

(ii) Based on the investigation carried out to date, does Hydro have reason to believe that the electrical fault experienced in the Holyrood switchyard on January 11, 2013 was due to the storm? If "yes", explain.

(iii) Based on the investigation carried out to date, does Hydro have reason to believe that the electrical fault experienced in the Holyrood switchyard was a unique event, or has there been any history of similar electrical faults? If there has been a history of similar electrical faults, provide particulars.

(iv) Will the questions raised in (i), (ii) and (iii) above be addressed in the final root cause report?

DATED at St. John's, in the Province of Newfoundland and Labrador, this 9th day of April, 2013.

POOLE ALTHOUSE

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STEWART McKELVEY

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