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

IN THE MATTER OF an application by
Newfoundland and Labrador Hydro for approval
of a capital project to supply and install 100 MW
of combustion turbine generation, pursuant
to section 41 of the *Act.*

PUBLIC UTILITIES BOARD
REQUESTS FOR INFORMATION

GT-PUB-NLH-1 to GT-PUB-NLH-42

Issued: June 2, 2014

GT-PUB-NLH-1 On page 1 of the report entitled *Supply and Install 100 MW (Nominal) of Combustion Turbine Generation Holyrood April 10, 2014* (the "Report") it is stated that the Island Interconnected System has a requirement for additional generation capacity in 2015. The Generation Planning Issues – November 2012 Report identifies a generation capacity deficit for 2015 and states as follows:

(i) that the "*capacity deficits trigger the need for the next generation source by late 2014 under the current planning criteria to avoid exceeding the LOLH limits in 2015*" (Page 15); and

(ii) that a 50 MW CT would be completed in 2015 which "*will result in a slight violation of Hydro's reliability criteria in the winter of 2014-15*" (Page 27).

Please explain why Hydro decided to defer the additional generation required until 2015 and to violate its reliability criteria for the winter of 2014-15. Include in the response all factors considered in the decision and provide a copy of the risk analysis completed by Hydro to support its decision to defer the required generation until 2015.

GT-PUB-NLH-2 In Hydro's *Generation Planning Issues 2008 Mid Year Update – System Planning July 2008* various alternatives are discussed as a means to meeting the capacity deficit in 2013, including a 50 MW combustion turbine for 2012. The report also stated a 36-month in-service date for this combustion turbine. What circumstances led to Hydro's decision of not proceeding in securing this 50 MW combustion turbine as a solution for the 2013 deficit?

GT-PUB-NLH-3 Update Table 1 on page 1 of the Report to provide the actual LOLH for 2013 and for 2014 using actual to May 31, 2014 and forecast for the remainder of the year.

GT-PUB-NLH-4 On page 2 of the Report it is stated that analysis completed in 2012 indicated that the least-cost, long-term option to meet the additional capacity requirements was a 50 MW (nominal) combustion turbine which was subsequently increased to 60 MW. On page 16 of the Report it is stated that in the 2013 review, 60 MW was assumed as the minimum to include replacement of the additional 10 MW for black start facility at Holyrood. Explain in detail the timing of and the reason for the increase to 60 MW.

GT-PUB-NLH-5 On page 2 of the Report it is stated that the new generation capacity addition will provide required system security for potential transmission contingencies after the completion of the Muskrat Falls Project. What contingencies are being referred to in the Report?

GT-PUB-NLH-6 Please explain in detail the extent to which the identified contingences will be covered by the addition of the new generation capacity.

GT-PUB-NLH-7 Did Hydro study any other alternatives to the new combustion turbine to provide the required system reliability to which the Report refers? If yes, provide details on the alternatives studied and why they were rejected.

GT-PUB-NLH-8 On page 3 of the Report it is stated that Hydro initiated a review of its generation capacity shortfalls experienced in January 2014 and that it expanded its 2013 Base Case analysis to include sensitivities relating to weather and reduced thermal generation availability. On page 4 it is stated that as one of the sensitivities Hydro increased the thermal outage rate assumptions. On page 22 of the Report it is stated that DAFOR was increased by 2% and UFOP was increased by 10%. Provide the actual DAFOR and UFOP for 2003-2013 and explain how Hydro determined what the appropriate increase should be. In the response state whether Hydro completed any sensitivities around the selected increased outage rate. If it did so, provide a copy of the sensitivities completed.

GT-PUB-NLH-9 Did Hydro prepare cost-benefit analyses of any of the alternatives presented in Table 2, page 5 of the Report? If yes, provide copies. If no, why not?

GT-PUB-NLH-10 On page 6 of the Report Hydro states that 60 MW of interruptible is acceptable for the Base Case from a capacity planning perspective. In its response, dated May 2, 2014, to the Liberty Consulting Group Interim Report, Hydro on page 10 stated that:

> *"Hydro agrees that current generation planning assumptions may result in generation reserve margins that are too low, and that measures need to be taken to ensure a more robust reserve margin during the period leading up to the in-service of Muskrat Falls. However, Hydro feels that maintaining the current LOLH criterion of 2.8 hours and more closely evaluating low probability/high impact scenarios through the use of more conservative assumptions related to generation reliability and extreme weather, is a more practical approach to generation planning in the interim period leading up to Muskrat Falls".*

What scenario presented in Table 2 on page 5 reflects, in Hydro's opinion, the most appropriate scenario to be considered in assessing the Application?

GT-PUB-NLH-11 On page 8 of the Report it is stated that the cost estimate for a new 60 MW combustion turbine in-service in 2015 was $120.8 million. When was this cost estimate prepared? Please provide a copy of the cost estimate.

GT-PUB-NLH-12 On page 8 of the Report it is stated that Hydro identified several combustion turbine options that could provide capacity up to 100 MW to be in service in late 2014. Provide details of the options identified, including for each the capacity, the warranty to be provided, the estimated in-service date and the cost.

GT-PUB-NLH-13 On page 9 of the Report it is stated that the anticipated award date was April 30, 2014. Has Hydro awarded the contract for the 100 MW combustion turbine and if so, when? Provide a copy of the signed contract.

GT-PUB-NLH-14 Provide the number of bids received in response to Hydro's tender for the combustion turbine, the breakdown of the full contract cost for each in the same format as page 35, Table 10, the number rejected for non-compliance, and the number of bids evaluated by Hydro.

GT-PUB-NLH-15 Describe in detail the selection process and evaluation criteria used by Hydro in selecting the successful bidder for the 100 MW combustion turbine.

GT-PUB-NLH-16 On page 9 of the Report it is stated that Hydro proposes to negotiate interruptible contracts with major industrial customers for 2014-2015. Provide an update on the status of these negotiations.

GT-PUB-NLH-17 On page 16 of the Report it is stated that a review of the previous load forecast was conducted in 2013 and, while 60 MW was then assumed as the minimum required combustion turbine size, other options were identified. Provide copies of all reports, analyses, memos and other documents related to this 2013 review.

GT-PUB-NLH-18 Further to GT-PUB-NLH-17 describe in detail the other options identified as potential options for the required new generation capacity addition, including the capacity, cost and schedule for completion for each option.

GT-PUB-NLH-19 On page 16 of the Report it is stated that Hydro has not issued an updated Generation Planning Load Forecast since 2012 but conducted a review of the previous forecast. Please provide an updated Generation Planning Load Forecast.

GT-PUB-NLH-20 On page 18 of the Report it is stated that the cost and risk associated with changing breakers, cabling and other internal aspects of an existing operating plant to gain system access to an additional 4.6 MW from the diesels at the Holyrood Plant is not recommended. Provide the analysis

completed which outlines the costs and risks identified to support the conclusion.

GT-PUB-NLH-21 On page 28 of the Report it is stated that there is a low probability of occurrence of the combined sensitivity of reduced availability and extreme load forecast. What is the probability and how does this compare with the system operating conditions and load forecast experienced in January 2014?

GT-PUB-NLH-22 On page 29 of the Report the reserve margins for 2014 to 2017 are stated. Provide the actual reserve margins for 2005-2013 inclusive.

GT-PUB-NLH-23 On page 12, lines 10-13 of its response, dated May 2, 2014, to the Liberty Consulting Group Interim Report Hydro stated that generation reserve margins in predominantly hydroelectric systems in the Canadian electric utility industry are typically around 10% and 15-20% in predominantly thermal systems. Define "*predominantly hydroelectric system*" as used in this context and compare it to the definition generally used in the industry.

GT-PUB-NLH-24 Provide the source of the information relied on for reserve margins in the Canadian electric utility industry.

GT-PUB-NLH-25 Prior to 2014 did Hydro use a target reserve margin in its long-term generation planning? If yes, what was it? If no, why not?

GT-PUB-NLH-26 On page 32 of the Report it is stated that contact was made with a number of suppliers to get current budgetary quotes for an Engineer, Procure and Construct (EPC) contract to supply and install a 60 MW combustion quotes and what was the range of quotes and completion dates provided?

GT-PUB-NLH-27 On page 32 of the Report it is stated that consideration was given to adding a larger generation unit to aid integration of the Labrador Island HVdc Link. Define "*integration*" as used in this context.

GT-PUB-NLH-28 Explain in detail why and how a larger generation unit would aid such integration.

GT-PUB-NLH-29 Further to GT-PUB-NLH-27 what additional costs, if any, were included in the estimate of costs to provide the required integration support for the Labrador Island HVdc Link.

GT-PUB-NLH-30 On page 32 of the Report it is stated that Hydro considered adding a second 60 MW combustion turbine. Explain in detail why Hydro decided not to add a second 60 MW combustion turbine and to increase the size of the proposed unit from 60 MW to 100 MW.

GT-PUB-NLH-31 On page 33 of the Report it is stated that after January 2013 a number of aftermarket options to meet the 2015 capacity requirement were identified. Describe the options identified including: the manufacturer; whether the units were used, used but overhauled, or unused; the capacity of each; the warranty to be provided; the anticipated in-service date; and the approximate costs associated with each option.

GT-PUB-NLH-32 On page 33 of the Report it is stated that Hydro limited its review to unused units and identified several units that were considered. State the number of unused units that were identified for review and for each state the manufacturer, the capacity, the warranty to be provided, the cost and the projected in-service date.

GT-PUB-NLH-33 On page 33 of the Report it is stated that "*Other utilities have procured similar units and have experienced positive results. Hydro was in contact with one generation utility and made a site visit to discuss their experience*". State the number of utilities Hydro identified that had procured similar units, how many were contacted by Hydro, and what the experience of each had been with their purchase of a similar unit.

GT-PUB-NLH-34 On page 33 of the Report it is stated that one unit of interest to Hydro was an unused 113 MW unit purchased in 2008 but never installed which had been maintained to like new condition in storage. Confirm whether this is the unit that Hydro has contracted to buy. If yes, explain in detail why the unit was never used and the due diligence Hydro undertook to satisfy itself on its operating condition, the warranty provided and its effectiveness, and the ability of the supplier to perform its contractual obligations, including completion by the in-service date.

GT-PUB-NLH-35 On page 34 of the Report the installed cost per MW of various unit sizes is provided. When was this costing information prepared and did Hydro analyze other options, including the cost per MW of an aftermarket 60 MW unit? If yes, provide the cost of all options reviewed. If no, why not?

GT-PUB-NLH-36 Table 9, page 34 of the Report provides combustion turbine summary estimates. The 113 MW after market option does not include synchronous condenser capacity. What is the estimated cost to add synchronous condenser capability with this option at the time of installation?

GT-PUB-NLH-37 Provide the estimated future cost to add synchronous condenser capability to this option at a later date.

GT-PUB-NLH-38 Provide an update to Table 9 page 34 of the Report to include the cost of including synchronous condenser capability and indicating the time at which, for the purpose of this exercise, it would be added.

GT-PUB-NLH-39 Provide a status update on the approval process required under the Environmental Assessment process for the installation of the combustion turbine.

GT-PUB-NLH-40 Has the Risk Management Plan referred to on page 39 of the Report and attached as Appendix F been updated? If yes, provide a copy. If no, when is it anticipated that it will be?

GT-PUB-NLH-41 Have any changes been made to the project schedule set out in Table 11, page 41? If so, please provide a revised Table.

GT-PUB-NLH-42 In evaluating the options, particularly the procurement of one 100 MW unit versus one 60 MW unit, has Hydro considered the total forecast O & M costs, including the efficiency factor, over the life of the machines considered? If no, why not? If yes, provide this evaluation.

DATED at St. John's, Newfoundland this 2nd day of June, 2014.

BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

Per _____
Cheryl Blundon
Board Secretary