HAND DELIVERED

September 6, 2017

Board of Commissioners
of Public Utilities
P.O. Box 21040
120 Torbay Road
St. John's, NL A1A 5B2

Attention: G. Cheryl Blundon
Director of Corporate Services
and Board Secretary

Ladies and Gentlemen:

Re: Newfoundland and Labrador Hydro – 2018 Capital Budget Application

Please find enclosed the original and 10 copies of Newfoundland Power's Requests for Information NP-NLH-001 to NP-NLH-029 in relation to the above noted Application.

For convenience, the Requests for Information are provided on three-hole punched paper.

A copy of this letter, together with enclosures, has been forwarded directly to the parties listed below.

If you have any questions regarding the enclosed, please contact the undersigned at your convenience.

Yours very truly,

Gerard Hayes
Senior Counsel

Enclosures

c. Tracey Pennell
Newfoundland and Labrador Hydro

Paul Coxworthy
Stewart McKelvey

Dennis Browne, QC
Browne Fitzgerald Morgan Avis

Newfoundland Power Inc.
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IN THE MATTER OF the Public Utilities Act, (the "Act"); and

IN THE MATTER OF an Application by Newfoundland and Labrador Hydro for an Order approving: (1) its 2018 capital budget pursuant to s.41(1) of the Act; (2) its 2018 capital purchases, and construction projects in excess of $50,000 pursuant to s.41(3) (a) of the Act; (3) its leases in excess of $5,000 pursuant to s. 41(3) (b) of the Act; and (4) its estimated contributions in aid of construction for 2018 pursuant to s.41(5) of the Act.

Requests for Information by
Newfoundland Power Inc.

NP-NLH-001 to NP-NLH-029

September 6, 2017

Requests for Information

Reference: **2018 Capital Budget: Multi-Year Projects over $50,000, Page 5**

NP-NLH-001 Please provide a project description of the Purchase Office Equipment multi-year project, and explain how this project complies with the Capital Budget Application Guidelines applicable to multi-year projects.

Reference: **2018 Capital Projects Overview, Volume I, Page 8**

"Hydro's gas turbine plants at Stephenville and Hardwoods are more than 40 years of age, exceeding the generally accepted life expectancy of 25 to 30 years for gas turbine plants. Until their expected retirements in 2025 and 2028, for Hardwoods and Stephenville respectively, the maintenance of these assets will remain part of Hydro's integrated generation plan. Based on the results of condition assessments of both the Hardwoods and Stephenville gas turbines, capital expenditures are required to refurbish equipment at these facilities to ensure that they operate reliably and that their useful service lives can be extended as long as can be financially justified."

NP-NLH-002 Provide the capital plan for the period 2018 to 2025 for the Hardwoods gas turbine, and for 2018 to 2028 for the Stephenville gas turbine.

NP-NLH-003 Provide a table for each of the Hardwoods and Stephenville gas turbines listing each capital project undertaken on the respective plants, and the actual capital expenditure for each listed project, from 2008 to present.

Reference: **2018-2022 Capital Plan, Volume I, Page 5**

"Maintaining the reliability of Hydro's gas turbine assets, which are relied upon to provide stand-by and spinning reserve power, and (with the exception of the Holyrood gas turbine) to function as synchronous condensers to help control voltage on the Island and Labrador interconnected systems, is a priority."

NP-NLH-004 What is Hydro's current estimated capital cost per equivalent start for the Holyrood gas turbine?

NP-NLH-005 For the period 2013 to 2017 year to date, provide the number of equivalent starts each month for the Holyrood gas turbine when operated to provide spinning reserve.

NP-NLH-006 For the period 2017 year to date to 2022, provide the monthly forecast of the number of equivalent starts for the Holyrood gas turbine when operating to provide spinning reserve.

NP-NLH-007 What is the efficiency (in kWh/gal) of the Holyrood gas turbine when operating for spinning reserve at minimum load? What is its efficiency when operating at full load?

Reference: **Turbine Hot Gas Path Level 2 Inspection and Overhaul - Holyrood Gas Turbine, Volume II, Tab 3, Pages 3-4**

"The installation of an access hatch in the powerhouse roof to allow for lifting major components out of the building to a laydown area by the powerhouse during the inspection and overhaul is also included in the scope of work."

NP-NLH-008 Why was the installation of an access hatch not included in the original construction of the Holyrood gas turbine building?

NP-NLH-009 What is the budget estimate for installing the access hatch in the roof of the Holyrood gas turbine building?

Reference: **2018 Capital Projects $500,000 and Over, Increase Fuel and Water Treatment System Capacity, Volume I, Page C-9**

"…the demineralized water requirement for NOx control has at times exceeded the capacity of the water treatment system and when this occurs, generation is not compliant with the Certificate of Approval. The gas turbine is operated under Certificate of Approval No. AA14-125602. As per Section 38 of this approval, Hydro shall not operate the 123 MW gas turbine unless the NOx control system associated with the unit is in full operation."

NP-NLH-010 Does the water treatment system aspect of this project qualify as a mandatory project within the meaning of the Capital Budget Application Guidelines? If not, why not?

Reference: **2018 Capital Projects $500,000 and Over, Increase Fuel and Water Treatment System Capacity, Volume I, Page C-8**

"Since being placed in service, the Holyrood Gas Turbine generating unit has been operated more frequently and for longer durations than was forecasted during the engineering for its installation. Table 2 provides the forecasted and actual operating hours for the gas turbine from February 2015 to April 2017."

NP-NLH-011 Update Table 2 to August 2017 for forecast and actual operating hours for the Holyrood gas turbine.

NP-NLH-012 In Hydro's response to Request for Information PUB-NLH-001 of the *Combustor Inspection and Overhaul of the Holyrood CT Supplemental Application*, Hydro provided a table of Holyrood gas turbine forecast requirements 2015-2017 (by month). Please provide a table providing a monthly forecast of the same information for the period 2018 to 2022.

NP-NLH-013 With reference to the information provided in the response to Request for Information NP-NLH-013 above, explain how the completion of TL267 and the interconnections to Nova Scotia and Labrador are incorporated in Hydro's forecast.

Reference: **Increase Fuel and Water Treatment System Capacity – Holyrood Gas Turbine, Tab 2, Volume II, Page 3**

"Operation as standby generation during circumstances, in which a "single worst Avalon contingency event" could cause sustained customer interruptions"

NP-NLH-014 Please fully describe the "single worst Avalon contingency event", and explain in detail how customer load, outage duration, and any other relevant variable, resulted in a proposal to increase the fuel storage to 5 million litres.

Reference: **2018 Capital Projects $500,000 and Over, Turbine Hot Gas Path Level 2 Inspection and Overhaul, Volume I, Page C-12**

"The Holyrood Gas Turbine has been in service since March, 2015. A Combustion Overhaul was completed in 2016 when the unit total equivalent starts approached 400. The manufacturer recommends that a hot gas path level 2 inspection and overhaul be completed when the unit total equivalent starts reaches 800. The on-going requirement for hot gas path level 2 inspection and overhaul has been incorporated into the Holyrood Combustion Turbine asset management practices and Hydro expects the unit to reach its first 800 total equivalent starts in 2019."

NP-NLH-015 What was the actual number of equivalent starts on the Holyrood gas turbine when it was taken out of service for the 2016 inspection and overhaul?

Reference: **Turbine Hot Gas Path Level 2 Inspection and Overhaul - Holyrood Gas Turbine, Tab 3, Volume II, Page i**

"The gas turbine unit manufacturer, Siemens, recommends that a hot gas path inspection and overhaul be completed when the total equivalent starts on the gas turbine reaches 800 (See Appendix A). Hydro anticipates that the Holyrood gas turbine will reach this milestone in 2019."

NP-NLH-016 Will the overhaul be deferred if the 800 equivalent starts threshold is not met in 2019 as anticipated?

Reference: Install Plant Heating System – Holyrood Thermal Generating Station, Tab 4, Volume II, Page 4

"Hydro performed a cost/benefit analysis to compare the alternatives. Table 1 provides the capital and annual operating and maintenance (O&M) costs for each alternative."

NP-NLH-017 Did Hydro consider an all-electric heat alternative for the plant heating system? If not, why not?

Reference: 2018 Capital Projects $500,000 and Over, Hydraulic Generation Refurbishment and Modernization, Volume I, Page C-5

"In the 2018 Capital Budget Application, Hydro has consolidated program, pooled, and stand-alone type hydraulic generation projects into a single project, Hydraulic Generation Refurbishment and Modernization Project, and will respond to hydraulic generation in-service infrastructure failures using the Hydraulic Generation In-Service Failures Project, where applicable. Moving forward, these projects are proposed for work to address the required refurbishment or replacement of assets and have similar justifications and other information presented each year."

NP-NLH-018 For the period 2013 to 2017, provide the total capital expenditures by year for the hydraulic generation capital projects that would have been included in a single project under the new consolidated approach.

Reference: 2018 Capital Projects $500,000 and Over, Hydraulic Generation In-Service Failures, Volume I, Page C-31

"Hydro uses historical data and engineering judgement to predict the magnitude of in-service failures."

NP-NLH-019 For the period 2013 to 2017, provide the total capital expenditures by year for the hydraulic generation in-service failures experienced by Hydro that are the basis of the $1,251,100 budget estimate.

Reference: 2018 Capital Projects $500,000 and Over, Terminal Station Refurbishment and Modernization (2018-2019), Volume I, Page C-42

"In the 2017 Capital Budget Application, Hydro consolidated program-type terminal station projects into a single project, Terminal Station Refurbishment and Modernization."

NP-NLH-020 For the period 2013 to 2017, provide the total capital expenditures by year for the terminal station projects that would have been included in a single project under the new consolidated approach.

Reference: Muskrat Falls to Happy Valley Interconnection, Volume II, Tab 13, Page 7

"At the North Side Diesel Plant, there is approximately 5 MW of diesel generation, but due to the deteriorating condition of the plant, it is not reliable."

NP-NLH-021 What is Hydro's plan for the retirement or replacement of the North Side Diesel Plant?

NP-NLH-022 Would the replacement of the North Side Diesel Plant in 2017 delay the need to proceed with this project in 2018?

Reference: Muskrat Falls to Happy Valley Interconnection, Volume II, Tab 13, Appendix A, Eastern Labrador Transmission System – Planning Report Page 5

"The load increases over the past year reflect data center load requests received prior to July 7, 2017, and the Department of National Defence conversion to all-electric boilers at Canadian Forces Base Goose Bay. The 7.6 MW increase in the 2017 forecast is a direct result of service applications for new data centers, while an increase of approximately 12.5 MW in 2020 is directly attributed to the Department of National Defense (DND) conversion to all-electric boilers."

NP-NLH-023 Does Hydro have agreements with the data center customers and the Department of National Defence with respect to the additional 20.1 MW of load? If not, when does Hydro expect to have these agreements in place?

Reference: Muskrat Falls to Happy Valley Interconnection, Volume II, Tab 13, Appendix A, Eastern Labrador Transmission System – Planning Report, Section 5, Pages 7 - 19

NP-NLH-024 Under Options 1 to 5, terminal station MFATS3 continues to be maintained. For each of the 5 options, please describe the role MFATS3 plays in the Eastern Labrador transmission system, and comment on whether this would change if transmission line L1301 was removed from service.

NP-NLH-025 Options 1 to 5 include costs for a wood pole management program for L1301 from Churchill Falls to Muskrat Falls, and maintenance costs associated with the Churchill Falls and MFATS3 138 kV terminal stations. Please recalculate the cumulative net present values presented in Table 2: CPV Summary of Options Considered on page 22 of the report, with those costs excluded.

NP-NLH-026 For Options 4 and 5, which feature 2 single circuits from Muskrat Falls to Happy Valley, is the existing 25 MW gas turbine at Happy Valley still required? Please provide an estimate of the cumulative net present value of life cycle costs for continued operation of the existing 25 MW gas turbine in service for the study period.

Reference: Replace Transformer T1 – Buchans, Tab 19, Volume II, Page 2

"Dissolved Gas Analysis (DGA) has indicated high concentrations of gases in the main tank including ethylene, acetylene, and carbon monoxide. This is a result of thermal heating and electrical discharge and is an indication of either an internal fault, or a leaking tap changer. Its oil quality is IEEE Class 3, which is considered the worst class by IEEE standards. Bushings are suspected to contain poly chlorinated biphenyls (PCB's)."

NP-NLH-027 Provide all dissolved gas analysis reports for Buchans T1 for the past 10 years.

Reference: 2018 Capital Projects $500,000 and Over, Line Depot Condition Assessment and Refurbishment Program, Volume I, Page C-72

"This report outlines the 2018 year of a multi year program to refurbish Hydro's aging line depot infrastructure, planned to continue for the next nine years. This program includes continuing detailed assessments, engineering and construction of line depot upgrades and replacements as well as replacements of specific line depot storage ramps and storage sheds, which have been identified previously as needing replacement."

NP-NLH-028 Provide the annual budget estimate for each of the 9 years that Hydro anticipates this program to last and provide the total budget cost for the complete program.

NP-NLH-029 Provide the 2018 and 2019 total budget estimate for all replacement and refurbishment work, including assessments, associated with all line depots and office buildings including Hydro Place and control buildings.

RESPECTFULLY SUBMITTED at St. John's, Newfoundland and Labrador, this 6th day of September, 2017.

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