NEWFOUNDLAND AND LABRADOR
BOARD OF COMMISSIONERS OF PUBLIC UTILITIES
120 Torbay Road, P.O. Box 21040, St. John's, Newfoundland and Labrador, Canada, A1A 5B2

E-mail: shirleywalsh@nlh.nl.ca

2020-09-22

Ms. Shirley Walsh
Senior Legal Counsel, Regulatory
Newfoundland and Labrador Hydro
P.O. Box 12400
Hydro Place, Columbus Drive
St. John's, NL A1B 4K7

Dear Ms. Walsh:

Re: Newfoundland and Labrador Hydro - 2021 Capital Budget Application
Requests for Information

Enclosed are Requests for Information PUB-NLH-001 to PUB-NLH-040 regarding the above-noted application.

If you have any questions, please do not hesitate to contact the Board's Legal Counsel, Ms. Jacqui Glynn, by email, jglynn@pub.nl.ca or telephone (709) 726-6781.

Sincerely,

Cheryl Blundon
Board Secretary

CB/cj
Enclosure

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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
regulations thereunder; and

IN THE MATTER OF
an Application by Newfoundland and Labrador Hydro
for an Order approving:

1) its 2021 capital budget pursuant to s.41(1) of the *Act*;
2) its 2021 capital purchases and construction projects in excess of $50,000 pursuant to s.41(3)(a) of the *Act*;
3)) for an Order pursuant to s.78 of the *Act* fixing and determining its average rate base for 2017.

PUBLIC UTILITIES BOARD
REQUESTS FOR INFORMATION

PUB-NLH-001 to PUB-NLH-040

Issued: September 22, 2020

General

PUB-NLH-001 Has Hydro contacted potential manufacturers/suppliers to discuss the availability of the materials and contract labour required to complete the requested 2021 projects? If yes, please discuss. If no, please explain why not?

PUB-NLH-002 What impact, if any, does COVID-19 have on Hydro's load forecast over the next three years? Please describe the potential impacts of a reduced load forecast, should it occur, on this year's and future years' capital budgets.

PUB-NLH-003 Please explain the processes applied by Hydro for developing cost estimates for capital projects. When using historical patterns to develop cost estimates, please discuss how Hydro combines the province's past, current and forecast economic and demographic conditions when developing these estimates.

Volume 1: 2021 Capital Projects Overview

PUB-NLH-004 Hydro states on page 1, line 15, that approximately 70% of the $107.5 million requested in 2021 relates to new projects.

Please highlight any actions that Hydro has taken in response to the current economic conditions within Newfoundland and Labrador to control and/or reduce capital expenditures while maintaining reliable service.

PUB-NLH-005 Hydro states on page 1, lines 9-12, that "At the time of the filing of this Capital Budget Application, Hydro is confident the majority of its highest priority capital projects will be completed prior to year-end and is developing mitigation and/or contingency plans should a select portion of work not be completed."

Considering that the fourth quarter of 2020 is imminent, does Hydro still have confidence that the majority of its highest priority capital projects will be completed prior to the end of the year? Please discuss and comment on the mitigation and/or contingency plans if priority capital work is not completed.

PUB-NLH-006 Hydro states on page 16, lines 26-29, that "Hydro has deferred the $2.0 million project to replace various VHF mobile radio systems to 2022 as the current contract is near expiration and Hydro is reviewing current and future functionality required; there are no reliability impacts anticipated as a result of this deferral as a month by month option for extension of the contract is available."

Has Hydro consulted with Newfoundland Power and/or the provincial government with respect to potentially utilizing a common field communications system? If so, please provide details. If not, please explain.

Volume I: 2021-2025 Capital Plan

Appendix A lists all the projects that Hydro has planned for the years 2021-2025.

PUB-NLH-007 Please list the capital expenditures associated with the Labrador Interconnected System and provide the impact on revenue requirement and rates to Labrador Interconnected Rural and Labrador Industrial Regulated customers for the years 2021 through to 2025.

PUB-NLH-008 Please list the capital expenditures associated with the Labrador Isolated System and provide the impact on the Rural Deficit for the years 2021 through to 2025.

PUB-NLH-009 Page A-11 lists the planned rural generation projects for 2021-2025.

Please provide an update, including next steps, on the expressions of interest ("EOI") process with respect to renewable energy solutions for 14 of the province's isolated diesel powered electricity systems.

PUB-NLH-010 Please describe the expected impact of the EOI process on the planned 2021-2025 rural generation projects listed on page A-11. In particular please identify the projects, if any, that could be deferred, cancelled or altered as a result of potential developments arising out of the EOI process.

Volume 1: Holyrood Overview

PUB-NLH-011 Hydro outlines on page 5, lines 24-27, and on page 6, lines 1-3, that it has included projects in the 2021 Capital Budget Application related to steam production at the Holyrood Thermal Generating Station ("Holyrood TGS"), and that these projects are required to ensure that the Holyrood TGS is available for generation until March 31, 2022. The projects noted by Hydro include the following:

- Boiler Condition Assessment and Miscellaneous Upgrades - $3,000,000
- Overhaul Unit 3 Boiler Feed Pump East - $373,000
- Overhaul Unit 1 Turbine and Valves - $8,026,600
- A portion of the $2,000,000 included in the 2021 Budget for Thermal In-Service Failures may be attributed to steam production.

Please provide the estimated impact on revenue requirement and rates assuming that these projects are completed in 2021 and Holyrood TGS is removed from generation as of March 31, 2022.

PUB-NLH-012 Hydro has proposed a number of projects for the Holyrood TGS and is attempting to minimize the expenditures associated with stream generation that is currently planned to be retired in early 2022. One such item is the replacement of certain parts of the Distributed Control System ("DCS") system.

Should further ongoing studies determine that the Holyrood TGS will be required beyond the 2022 timeframe is there any concern that replacing a portion of the DCS system at this time might not be the most effective long-term solution if an extension to the Holyrood TGS plant is required? If that is the case, is it possible to delay this and any other similar projects until a decision on the future of the Holyrood TGS is determined?

Volume 1: Holyrood Projected Operation and Maintenance Expenditures

PUB-NLH-013 Table A-1, page A-1, provides the ten year System Equipment Maintenance ("SEM") expenditures for the Holyrood TGS.

Please update the forecast for the years 2022, 2023, and 2024 if readiness to operate the Holyrood TGS is extended beyond March 31, 2022 (i) by one year and (ii) by two years.

Tab A; Volume I: Capital Budget

PUB-NLH-014 Please update the financial schedules to reflect Hydro's approval request of $107,452,400.

Tab C; Volume I: Capital Projects over $500,000 (Hydraulic Generation Refurbishment and Modernization 2021-2022)

PUB-NLH-015 Please confirm that Table 1 on page C-9 provides the project estimates for 2021 and 2022 and not 2020 and 2021.

Tab C; Volume I: Capital Projects over $500,000 (Replace Hydro Personal Computers – 2021)

PUB-NLH-016 Hydro states on page C-100 that it operates and maintains approximately 313 desktop computers, schedules replacement on a six-year life cycle and has identified 128 of these desktops for replacement in 2021.

In Order Nos. P.U. 6(2020) and P.U. 46(2018) the Board approved Hydro's request to purchase 138 desktops in 2020 and 104 desktops in 2019, respectively. Considering the number of desktops replaced in the last two years please reconcile the current request of 128 desktops in comparison to the 313 desktops currently maintained by Hydro and the six-year replacement schedule followed by Hydro.

Tab D; Volume 1: Capital Projects over $200,000 and less than $500,000 (Replace Voltage Regulator – Happy Valley Gas Turbine)

PUB-NLH-017 Hydro states on page D-22, lines 2-6, that "The AVR [automatic voltage regulator] was installed in 1992. The AVR malfunctioned in December 2018 when a shorted conductor caused a blown fuse in the AVR. As a result, the generator did not have terminal voltage and the unit was unavailable to operate. The fuse was replaced and the unit put back in service. During the

investigation into this failure in early 2019, Newfoundland and Labrador Hydro ("Hydro") became aware that the OEM had declared the AVR obsolete." Hydro further states on page D-22, lines 15-16, that "The AVR is a critical component for operation of the unit as it maintains the generator terminal voltage at an acceptable level." The summary of superseded products on page D-29 indicates that the last day of availability for parts for the AVR was in 2010.

Please explain why this critical piece of equipment was not identified earlier through Hydro's Asset Management Program as a critical spare? If so, please provide.

Tab D; Volume 1: Capital Projects over $200,000 and less than $500,000 (Replace Fuel Storage Tank – Paradise River)

PUB-NLH-018 Hydro states on page D-40, lines 2-4, that "Hydro recommends replacing the existing tank with two smaller 8,000 L tanks. Two tanks of this size provide approximately six weeks of bulk storage for the diesel plant during peak demand periods, which Hydro has determined to be adequate as fuel can be delivered to the Paradise River DGS by truck."

How did Hydro determine that six weeks of bulk storage was adequate? Please provide any analyses conducted by Hydro that supports such an assertion.

Tab D; Volume 1: Capital Projects over $200,000 and less than $500,000 (Purchase Meters and Metering Equipment)

PUB-NLH-019 Hydro states on page D-47, line 16, that it will purchase 120 demand meters and 908 residential meters in 2020.

Please provide an update on Hydro's automated meter reading ("AMR") program including the current percentage of AMR residential customers. Within that update please include any plans Hydro may have to move to advanced metering infrastructure ("AMI") technology as well as any discussions concerning collaboration with Newfoundland Power in future deployments.

Tab D; Volume 1: Capital Projects over $200,000 and less than $500,000 (Level 2 Chargers for Electric Vehicles)

PUB-NLH-020 Table 1 on page D-61 provides the forecast costs and benefits of acquiring an electric fleet vehicle versus a comparable internal combustion engine vehicle. The analysis illustrates that after six years the life cycle cost of an electric vehicle is less than that of a comparable internal combustion engine vehicle.

Please include an analysis for this overall project that incorporates the costs to purchase and maintain the Level 2 chargers (preferably a net present value

analysis). As part of the output of that analysis please include the number of years before the overall project becomes economically viable and the number of electric vehicles that Hydro anticipates to have operating in its fleet at that time.

PUB-NLH-021 Please perform a similar analysis as requested in PUB-NLH-020 in the absence of the approximate 30% government funding for the project.

PUB-NLH-022 In Table 3 on page D-63 Hydro has estimated that the installation of 18 Level 2 chargers at nine of its sites will cost $299,800 before potential government funding. This estimate results in an average cost of approximately $16,650 per installation of a Level 2 charging station, understanding that the installation costs could vary based on the location.

During the Rate Mitigation Reference, in its response to PUB-NP-026, Newfoundland Power indicated that the Level 2 chargers cost $1,000 per unit and the total installation costs for two Level 2 chargers at its Head Office parking lot costs $16,013, an average installation cost of approximately $8,000 per unit. Newfoundland Power did note in its response that the pricing provided was specific to the location of the charger location and it can vary widely depending on the characteristics of the installation site.

In Hydro's response to PUB-Nalcor-109 during the Rate Mitigation Reference, Hydro estimated Level 2 chargers to be approximately $5,000 per unit, with installation costs varying based on the installation location.

Please explain how Hydro developed the estimated cost of this project and, if possible, why the costs to install Level 2 charging stations at its sites would be two times the cost that Newfoundland Power incurred to install Level 2 charging stations at its Head Office site.

Tab D; Volume 1: Capital Projects over $200,000 and less than $500,000 (Replace Radomes)

PUB-NLH-023 The proposed project, outlined on pages D-72 to D-79, includes replacement of 14 radomes at various locations within Hydro's microwave network.

Has Hydro investigated technology alternatives that could reduce the size of Hydro's microwave network or eliminate it (such as leased circuits from a telecom service provider, Hydro-funded fibre builds, joint-partner funded fibre builds, and emerging wireless technologies)? If so, please provide the details of any alternative analyses undertaken along with any associated cumulative net present value comparisons. If not, please explain.

Tab E; Volume 1: 2021 Capital Projects over $50,000 but less than $200,000 (Purchase SF6 Gas Recovery Systems)

PUB-NLH-024 Hydro states on page E-11, lines 9-11, that "While SF_6 is used industry wide for high voltage breakers due to its excellent dielectric strength, it is a harmful greenhouse gas that is 22,800 times more powerful than carbon dioxide."

As SF_6 is a harmful greenhouse gas, is Hydro aware of any discussions or analyses in the industry as to a possible replacement of this medium? If so, please provide details.

Tab H; Volume 1: 2020 Capital Expenditures Overview

PUB-NLH-025 Please reconcile the Project Variance of ($2,487.2 million) on page HA-3 with the Hydraulic variance of ($2,393 million) on Page HA-1.

PUB-NLH-026 Please explain the calculation of the $249,500 Annual Variance on page HA-13.

PUB-NLH-027 The table on page HA-1 provides the total variances between the capital budget approved by the Board and the project expenditures incurred as of June 30, 2020 and the forecast expenditures for the remainder of the year. The table includes a "COVID-19 Adjustment" under "Total Project Expenditures and Forecast" of $28.570 million. Page HA-2 indicates that this adjustment is a reduction of forecast expenditures for the period July to December 2020.

Please explain why the forecast expenditures are reduced by this amount, how the adjustment was determined, and whether these costs are being carried forward to future years.

Tab 2; Volume II: Hydraulic Generation Refurbishment and Modernization (2021-2022)

PUB-NLH-028 Hydro has proposed the continuation of a number of programs including Hydraulic Generation Refurbishment and Modernization (and a similar program for Terminal Stations).

What are the quantifiable risks associated with reducing the size of these programs by 25% and 50%, as separate alternatives. Has Hydro performed any risk analysis of this nature concerning these programs? If so, please provide details. If not, please explain and outline if Hydro has any plans to do so in the future.

Tab 12; Volume II: Diesel Genset Replacements (2021-2022)

PUB-NLH-029 Hydro states on page 5, lines 6-7, that "Hydro recommends replacing Unit 574 with a new 925 kW 1,200 rpm diesel genset. A new genset will increase reliability and allow Hydro to meet firm capacity requirements for 2021 and beyond." The estimated cost of the project is just over $3 million.

Please outline the current status of the 1.8 MW Nain Wind Micro Grid Project, for which Hydro is a strategic partner with the Nunatsiavut Government, that had been anticipated to begin construction activities in 2021.

PUB-NLH-030 What impact, if any, does the 1.8 MW Nain Wind Micro Grid Project have on the decision to replace this genset in 2021?

PUB-NLH-031 Table 1 on page 1 shows that Nain currently has an installed capacity of 3865 kW (3550 kW with Unit 574 derated from 865 kW to 550 kW). If the largest genset (i.e., Unit 2085 with a capacity of 1275 kW) is out of service then the overall capacity of the remaining three gensets, with Unit 574 derated to 550 kW, is 2275 kW. Hydro states on page 4 that the forecasted peak load for Nain is 2343 kW and 2423 kW for 2021 and 2023 respectively resulting in capacity shortfalls of 68 kW and 148 kW in those respective years.

Please describe Hydro's view of the balance between cost and reliability in this particular circumstance given that any capacity shortfall would require (i) that a genset would have to fail at a time of peak demand, (ii) that the genset that failed would have to be the largest unit of the four units located at Nain, and (iii) that no load reduction activities could be facilitated for the 68-148 kW overload experienced during the peak load time period.

PUB-NLH-032 Please provide a listing, including cost and description of all corrective maintenance performed, since 2015 with respect to Unit 574.

Tab 15; Volume II: Overhaul Diesel Units – Various (2021)

PUB-NLH-033 Table A-1 on page A-1 outlines Hydro's Diesel Engine Overhaul five-year plan. On August 27, 2020 the Board approved Hydro's capital expenditure for the acquisition and installation of equipment to connect and integrate a photovoltaic (188 kW) and battery operated storage system (334.5 kW/669 kWh) at Mary's Harbour.

Does the scheduled photovoltaic and battery operated storage system in Mary's Harbour affect the timing (or need altogether) for the Mary's Harbour Unit 2090 and Unit 2093 diesel engine overhauls currently scheduled for 2021 and 2022 respectively? If so, please provide the new scheduled overhaul dates. If not, please explain.

PUB-NLH-034 Does the proposed 1.8 MW Nain Wind Micro Grid Project affect the timing (or need altogether) for the proposed diesel engine overhauls of Nain's Unit 2085 and Unit 591 currently scheduled for 2022 and 2023 respectively? If so, please provide the new scheduled overhaul dates. If not, please explain.

Tab 16; Volume II: Additions for Load – Wabush Substation Upgrades

PUB-NLH-035 Hydro states on page 5, lines 7-11, that "A complicating factor in consideration of power transformer capacity at the Wabush Substation is that assessments for the station have historically been performed by Distribution Planning. However, in 2017, equipment operating in Labrador City and Wabush at 46 kV became the responsibility of the Newfoundland and Labrador System Operator ("NLSO") and was therefore reclassified from distribution to transmission."

Please outline the rationale for transferring the responsibility for the Wabush 46/12.5 kV substation from Hydro to the NLSO. Please identify and provide a copy of any particular standards that are relevant to the decision.

PUB-NLH-036 Does the NLSO have responsibility for any other equipment operating below 138 kV? If so, please identify the location(s).

PUB-NLH-037 What steps would have to be taken by Hydro in order to have the Wabush substation reclassified as distribution? Has Hydro considered taking these steps? If so, why wasn't that option pursued? If not, why not given the amount of capital expenditures required to facilitate the change to a transmission classification.

PUB-NLH-038 Please provide a listing (including dates, system conditions at the time, and procedures followed to resolve the issue) of prior instances when either T3, T4, T5, or T6 within the Wabush substation were overloaded when the substation was designated as distribution.

PUB-NLH-039 Please provide the latest version of Hydro's Labrador Interconnected System Transmission Expansion Study.

PUB-NLH-040 Hydro states on page i (Executive Summary), lines 4-8, that "These upgrades include the addition of transformer capacity, the installation of breakers and other electrical equipment, the installation of a Supervisor Control and Data Acquisition ("SCADA") system, replacement of the control building, and distribution system upgrades. This project is required to support the reliable supply of power to Newfoundland and Labrador Hydro's ("Hydro") customers that are served by the Wabush Substation." The cost of the project is estimated to be approximately $10.5 million.

What would be the cost of a similar project designed to achieve the same goal of providing a "reliable supply to Newfoundland and Labrador Hydro's ("Hydro") customers that are served by the Wabush Substation" if the Wabush substation had remained classified as distribution? Please provide details on any significant cost differences that arise.

DATED at St. John's, Newfoundland and Labrador, this 22nd day of September, 2020.

BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

Per

Cheryl Blundon
Board Secretary