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NEWFOUNDLAND POWER
A FORTIS COMPANY

August 12, 2021

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

Dear Ms. Blundon:

Re: Newfoundland and Labrador Hydro – Application for Approval to Construct Phase 1 of Hydro's Long-Term Supply Plan for Southern Labrador

Please find enclosed Newfoundland Power's Requests for Information NP-NLH-001 to NP-NLH-048 in relation to the above noted Application.

In accordance with the Board's February 12, 2021 notice regarding the activation of its Business Continuity Plan to address the COVID-19 pandemic, these Requests for Information are provided in electronic format only.

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

Yours truly,

Dominic Foley
Legal Counsel

Enclosures

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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 ("Hydro") for an Order approving the Construction of Phase 1 of Hydro's Long-Term Supply Plan for Southern Labrador, pursuant to Section 41(3) of the *Act*.

Requests for Information by
Newfoundland Power Inc.

NP-NLH-001 to NP-NLH-048

August 12, 2021

Requests for Information

Reference: **Application, Page 4, Section 3.0**

NP-NLH-001 On May 13, 2021, Hydro, in partnership with the Government of Canada, announced a study to assess the "value of bringing more renewable integration to isolated communities in Labrador and investigates options including a fully integrated system." Does Hydro foresee the results of this study impacting the long-term supply for southern Labrador?

NP-NLH-002 In the same announcement referenced in NP-NLH-002, it was stated "The government is investing an additional $300 million to give rural, remote and Indigenous communities currently reliant on diesel the opportunity to be powered by clean, reliable energy by 2030." Does the Government of Canada's position on reducing diesel generation in the future place any risk on Hydro's 50-year plan for the long-term supply for southern Labrador?

NP-NLH-003 The Government of Canada has identified a program for Rural and Northern Communities Infrastructure Funding as part of the Investing in Canada Infrastructure Program. Has Hydro or the Government of Newfoundland and Labrador approached the Government of Canada to discuss non-diesel generation solutions for southern Labrador?

Reference: **Application, Page 7, Lines 22 - 24**

NP-NLH-004 On Page 7 at Lines 22 - 24, Hydro states:

"Preliminary cost estimates prepared by Hydro indicate that the total capital cost of such an interconnection would be in excess of $400 million. Due to the magnitude of this cost, it was not considered further for analysis."

Please provide the preliminary cost estimates that Hydro prepared for the Interconnection to the Labrador Interconnected System alternative, including a breakdown of the estimate between the terminal station at Port Hope Simpson, transmission line construction, 25 kV distribution line extension and the conversion to 25 kV for the existing distribution feeders.

NP-NLH-005 Please provide Hydro's unit cost per kilometre estimates for the construction of 25 kV, 69 kV, 138 kV and 230 kV transmission and distribution lines including the costs for acquiring and clearing right of way.

NP-NLH-006 Please identify the new 69 kV, 138 kV and 230 kV transmission lines that Hydro has constructed in the past 25 years, providing the transmission line designation, total kilometres constructed per transmission line, total cost of construction and resulting unit cost per kilometre to construct.

NP-NLH-007 Did Hydro consider transmission voltages other than 138 kV? If yes, what advantages did 138 kV construction have over other transmission line voltages? If not, why not?

NP-NLH-008 Please provide a map of southern Labrador showing the transmission line route that was used to create the preliminary cost estimates that Hydro prepared for the Interconnection to the Labrador Interconnected System alternative.

Reference: Application, Page 9, Figure 2

NP-NLH-009 Why does Hydro consider alternative 1 as the base case for the purposes of comparison?

Reference: Application, Page 9, Table 1

NP-NLH-010 Please provide tables for each of the 5 alternatives showing the actual dollar amounts of the overall increases in total revenue requirement to be potentially recovered from Newfoundland Power and Labrador Interconnected customers.

NP-NLH-011 What is the increase in revenue requirement in actual dollar amounts to be recovered from Newfoundland Power and Labrador Interconnected customers over the 50-year anticipated life of the southern Labrador Interconnection supplied by a regional diesel generating station?

Reference: Application, Attachment 1, Page 5, Footnote 13

NP-NLH-012 Please provide a copy of the "*Feasibility Study of Hydraulic Potential of Coastal Labrador – Phase 2: Project Definition Phase & Annex (Potential Storage) – Final Report,*" Hatch Ltd., March 2013.

Reference: Application, Attachment 1, Page 5, Footnote 14

NP-NLH-013 Please provide a copy of the "*Newfoundland and Labrador Coastal Labrador Energy – Southern Communities New Diesel Schemes – Class 3 Cost Estimates,*" Hatch Ltd.

Reference: Application, Page 6, Lines 16 - 19

NP-NLH-014 On Page 6 at Lines 16 - 19, Hydro states:

"Phase 2 (In Service 2030)
- *Install one additional 1,800 kW genset;*
- *Construct 50 kilometres of 25 kV distribution line to connect Mary's Harbour; and*
- *25 kV voltage conversion of the Mary's Harbour distribution system."*

Hydro's 2022 Capital Budget Application includes the *Additions for Load (2022) – Distribution System – Mary's Harbour Voltage Conversion* project for estimated costs of $550,600 in 2022 and $524,600 in 2023. Is the 25 kV voltage conversion of the Mary's Harbour distribution system identified in the citation and the above-referenced capital budget project one and the same project? If so, please explain the difference in the project timelines. If not, please explain the differences in the projects.

Reference: Application, Attachment 1, Page 7, Lines 16 - 18

NP-NLH-015 On Page 7 at Lines 16 - 18, Hydro states:

"Installing storage at this site would require higher dams, which may be considered unacceptable, given it would result in unacceptable upstream flooding; therefore, the option of constructing higher dams to provide additional capacity was removed from consideration."

What is located upstream of Site 8C-2 that makes the option of constructing higher dams unacceptable?

Reference: Application, Attachment 1, Page 9, Lines 2 - 11

NP-NLH-016 On Page 9 at Lines 2 - 11, Hydro states:

"To ensure environmental requirements are satisfied, the following are some of the mandatory activities that Hydro would have to perform for both hydro developments:

- *Phase 1: aquatic and terrestrial field studies, public and agency consultation, impact statement, mitigation measures, assessment of residual effects, environmental management plan;*
- *Phase 2: environmental assessment report preparation, issue draft report for submission to agency for approval, and final report, with input from public consultation;*
- *Publishing Notice of Completion (once Environmental Assessment approved) separately for each site implemented; and*
- *Provincial and federal approvals (permitting process)."*

Are there similar environmental requirements for the development of regional diesel generating station? If yes, please provide a similar list for mandatory activities that Hydro would have to perform for the development of a regional diesel generating station and all associated costs built into the cost estimate. If not, why not?

Reference: **Application, Attachment 1, Page 10, Lines 10 - 11**

NP-NLH-017 On Page 10 at Lines 10 - 11, Hydro states:

"Hydro's interpretation of the regulations suggests that any commercial or hydroelectric development would not be approved through the environmental assessment process."

Has Hydro held any discussions with the appropriate government agencies with respect to the environmental assessment process? If yes, please provide the details of the discussions. If not, why not?

Reference: **Application, Attachment 1, Page 10, Lines 12 - 14**

NP-NLH-018 On Page 10 at Lines 12 - 14, Hydro states:

"If the environmental assessment process were to result in project approval, Hydro estimates that the costs associated with mitigating or accommodating all environment requirements for Site 5B, as described above, could cost in the order of $10,000,000."

Please provide the details of the $10,000,000 estimate for the costs associated with mitigating or accommodating all environment requirements for Site 5B.

Reference: **Application, Attachment 1, Page 12, Lines 9 - 10**

NP-NLH-019 On Page 12 at Lines 9 - 10, Hydro states:

"Hydro estimates that the environmental mitigation costs associated with Site 8C-2 would be in excess of $7,000,000."

Please provide the details of the $7,000,000 estimate for the costs associated with mitigating or accommodating all environment requirements for Site 8C-2.

Reference: **Application, Attachment 1, Page 18, Lines 18 - 22**

NP-NLH-020 On Page 18 at Lines 18 - 22, Hydro states:

"The timing of a diesel generating station replacement depends heavily on the existing condition and design capacity of the facility. Hydro has established a replacement schedule (Table 4) for the diesel generating stations in southern Labrador based on service life, plant capacity, and condition. The diesel generating stations in Mary's Harbour and Port Hope Simpson have both exceeded their design plant capacity and any future generation expansion would likely require a new plant or extension."

Please describe all the constituent steps involved in a diesel generating station replacement. How many of these diesel generating station replacements has Hydro completed in Labrador based on the existing

condition and design capacity of the facility? Provide a detailed listing including location, project cost, year of construction, age of diesel generating station replaced. Note if any sites were replaced due to extreme circumstances such as fire or catastrophic failure.

NP-NLH-021 Please complete the economic analysis for Alternatives 1 and 2 assuming that the requirement for new diesel plants in St. Lewis, Mary's Harbour and Port Hope Simpson are not required.

NP-NLH-022 Please provide any condition assessment reports completed by or for Hydro on the existing diesel plants in St. Lewis, Mary's Harbour and Port Hope Simpson.

Reference: Application, Attachment 1, Page 19, Lines 2 - 5

NP-NLH-023 On Page 19 at Lines 2 - 5, Hydro states:

"There are currently four diesel generating stations operating in the southern Labrador region and based on economies of scale it would suggest that it could be more economically feasible to minimize the number of facilities. A reduction in the number of diesel generating stations would inherently decrease the overall operating and maintenance costs in the region."

Pursuant to section 38 of the *Public Utilities Act*, has Hydro provided notice to the communities of Charlottetown, St. Lewis and Mary's Harbour of its intention to retire, dismantle and/or remove the existing diesel generating stations from their communities? Please summarize any feedback received from each of these municipalities. When does Hydro anticipate applying to the Board for its approval to remove these diesel stations?

NP-NLH-024 If the existing diesel generating stations in the communities of Charlottetown, St. Lewis and Mary's Harbour were to be maintained as emergency and standby generation, how would this affect the economic evaluation of alternatives as set forth in Section 5.0?

NP-NLH-025 Please provide a listing of other locations where Hydro has interconnected a formerly isolated community or communities that previously had a diesel generating station. In any of these locations, did the diesel generating station that previously supplied customers remain in service as emergency and standby generation?

NP-NLH-026 Please explain Hydro's contingency plans, over both the short term and long term, to provide electricity service to all customers on the southern Labrador systems if the regional diesel generating station experienced a long-term outage (e.g. as result of a fire). Are all costs associated with these contingency plans included in the economic analysis of the

recommended approach? If so, please provide details of these costs. If they are not included, why not?

Reference: **Application, Attachment 1, Page 19, Lines 6 - 9**

NP-NLH-027 On Page 19 at Lines 6 - 9, Hydro states:

"Hydro forecasts that the total annual O&M cost for all four diesel generating stations would be approximately $2.15 million per year over the 50-year duration of the study. Hydro estimates that by supplying southern Labrador with one centralized diesel generating station, the overall O&M costs would reduce by approximately $670,000 per year."

Please provide detailed O&M cost estimates by function (i.e. generation, distribution, etc.) and by generating station annually over the 50-year duration of the study for both the status quo alternative of 4 diesel generating stations and one centralized diesel generating station. Please state all assumptions including decommissioning dates associated with existing generating stations and commissioning dates associated with any new generating assets.

NP-NLH-028 Please provide a 10-year history of operating and maintenance costs by function (i.e. generation, distribution, etc.) for each operating area (Port Hope Simpson, Charlottetown, St. Lewis and Mary's Harbour).

Reference: **Application, Page 3, Lines 7 - 10 and Application, Attachment 1, Page 24, Lines 8 - 10**

NP-NLH-029 On Page 3 of the Application at Lines 7 - 10, Hydro states:

"Prior to 2019, the Charlottetown Diesel Generating Station had three diesel gensets inside the powerhouse with an installed capacity of 1,770 kW and two mobile units located outside with an installed capacity of 1,635 kW. The total installed capacity was 3,405 kW with a total firm capacity of 2,495 kW."

and

On Page 24 of Attachment A to the Application at Lines 8 - 10, Hydro states:

"The engine hall would have adequate space to accommodate five 1,000 kW diesel units including provisions for future load growth. There would be four units initially installed to provide enough generation capacity to meet current forecasted peak demand."

Please explain why a smaller sized facility with mobile generation for summer peaking, similar to what existed prior to the 2019 fire, would not be acceptable for the new Charlottetown diesel generating station.

Reference: **Application, Attachment 1, Page 25, Lines 3 - 4**

NP-NLH-030 On Page 25 at Lines 3 - 4, Hydro states:

"The construction of a second dedicated 4.16 kV distribution feeder to supply the shrimp processing plant."

Why is the construction of a second dedicated 4.16 kV distribution feeder to supply the shrimp processing plant only included in Alternative 2, and not in any of the other alternatives?

Reference: **Application, Attachment 1, Page 26, Line 9**

NP-NLH-031 On Page 26 at Line 9, Hydro states:

"The engine hall would have adequate space to accommodate six 2,000 kW class diesel units."

Table 6 on Page 25 identifies unit sizes of 800 kW, 1,000 kW, 1,500 kW (2) and 1,800 kW. Why is the regional diesel generating station at Port Hope Simpson being sized for six 2,000 kW units?

Reference: **Application, Attachment 1, Page 27, Line 4**

NP-NLH-032 On Page 27 at Line 4, Hydro states:

"*The construction of two new 25 kV distribution lines to 66 kV standards..."*

Please describe the benefits of constructing a 25 kV distribution line to 66 kV standards. In describing the benefits, please discuss the design difference that give rise to the benefits. What is the incremental cost per kilometre of a 25 kV distribution line built to 66 kV standards compared to a similar line built to 25 kV standards?

Reference: **Application, Attachment 1, Page 27, Lines 8 - 9**

NP-NLH-033 On Page 27 at Lines 8 - 9, Hydro states:

"A fibre-optic line would also be installed for communication purposes."

What communication and/or protection services will be provided by the fibre optic line? Has Hydro considered any other commercially available services from third party providers that could replace the need for the fibre optic cables?

NP-NLH-034 What is the additional cost per kilometre and additional total project cost per 25 kV distribution feeder for the fibre optic cable construction?

Reference: **Application, Attachment 1, Page 31, Lines 23 – 25**

NP-NLH-035 On Page 31 at Lines 23 - 25, Hydro states:

"The total capital cost associated with two hydro developments and a 25 kV interconnection, including environmental mitigation considerations (sic), was determined to be in the range of $160 million to $210 million."

Please provide the estimate of total capital cost broken down by asset class associated with two hydro developments and a 25 kV interconnection, including environmental mitigation considerations.

Reference: **Application, Attachment 1, Page 34, Lines 8 - 9**

NP-NLH-036 On Page 34 at Lines 8 - 9, Hydro states:

"The current Charlottetown site has limited physical space and likely would not support a new diesel generating station."

Why is it not possible to expand the existing site to accommodate a larger diesel generating station?

Reference: **Application, Attachment 1, Appendix F, Page F-1**

NP-NLH-037 Does Hydro have a more recent diesel fuel price forecast than the one presented in Appendix F? If yes, please provide that forecast and an updated sensitivity analysis.

Reference: **Application, Sections 4.5 and 4.6**

NP-NLH-038 Has Hydro conducted an analysis on potential carbon emissions resulting from the recommended alternative in comparison to that of Alternative 5? If not, why not?

Reference: **Application, Attachment 1, Page 7, Lines 21 - 23**

NP-NLH-039 On Page 7 at Lines 21- 23, Hydro states:

"Based on historical data collected for a critical dry period (Winter 1987), it was determined that the available firm generation from both hydro sites may not satisfy the forecasted power requirements for all four communities during the winter months."

To address the critical dry period, has Hydro considered either mobile generation or renewable resources to satisfy the forecasted power requirements for all four communities during the winter months?

Reference: **Application, Attachment 1, Page 36, Lines 1 - 2**

NP-NLH-040 On Page 36 at Lines 1 - 2, Hydro states:

"A 5% increase in fuel efficiency was assumed for each new diesel generating station replacement."

What data has Hydro used to establish a 5% fuel efficiency assumption?

Reference: **Application, Attachment 1, Page 23, Section 4.2**

NP-NLH-041 Please provide a capital cost estimate for the straightforward direct rebuild of the Charlottetown diesel generating station building to the same specifications that existed prior to the 2019 fire that destroyed the building. In the capital cost estimate for this alternative include diesel gensets of similar size to what existed previously, construction on the existing site, no voltage conversion for the distribution feeder and no additional dedicated distribution feeder for the shrimp processing plant.

NP-NLH-042 Compare the capital cost estimate from NP-NLH-043 above with the anticipated proceeds from the insurance claim, explaining the difference between the 2 estimates.

Reference: **Application, Attachment 1, Appendix A**

NP-NLH-043 Did Hydro use any economic or demographic reports relating to the Labrador South Coast in its load forecast? If so, please provide. If not, why not?

NP-NLH-044 Please provide actual energy and demand for each system for the period 2000 - 2020.

NP-NLH-045 Please provide a sensitivity analysis for both high and low load forecasts.

Reference: **Application, Attachment 1, Appendix C, Page 6**

NP-NLH-046 On Page 6, Hydro states:

"*A southern Labrador interconnection would improve the overall system performance of the southern Labrador isolated diesel systems as long as the regional diesel plant has a redundancy of N-2."*

Do any of the five alternatives involving diesel generation include the cost of providing redundancy of N-2? If yes, please provide the additional cost for providing redundancy of N-2 versus N-1 for each applicable alternative.

Reference: **Application, Attachment 1, Appendix C, Table 4**

NLH-NP-047 Does the reliability data provided in Table 4 include the impact of both scheduled and unscheduled outages on customer reliability? If not, please explain why not.

Reference: **Application Attachment 1, Page 31, Lines 22 – 27**

NP-NLH-048 Please provide the CPW over 50 years of the reduction to fuel and O&M costs that would occur with Alternatives 4 and 5.

RESPECTFULLY SUBMITTED at St. John's, Newfoundland and Labrador, this 12th day of August, 2021.

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