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November 30, 2023

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

Attention: Jo-Anne Galarneau
Executive Director and Board Secretary

Dear Ms. Galarneau:

**Re: Newfoundland and Labrador Hydro ("Hydro") – 2021 Capital Budget
Supplemental Application Approval of the Construction of Hydro's Long-Term
Supply Plan for Southern Labrador – Newfoundland Power's Comments**

A. Introduction

On October 5, 2023, Hydro filed Revision 2 of its application for approval of the construction of its long-term supply plan for southern Labrador (the "Revised Application").¹ The Revised Application proposes the construction of a new regional diesel generating station in Port Hope Simpson to replace four isolated diesel systems serving the communities of: (i) Charlottetown and Pinsent's Arm; (ii) Mary's Harbour and Lodge Bay; (iii) Port Hope Simpson; and (iv) St. Lewis (the "Southern Labrador Communities"). The Revised Application also proposes construction of approximately 130 km of 25 kV distribution line to enable the new regional diesel generating station to supply the Southern Labrador Communities.

The Board set today's date as the deadline for submissions from the parties. These are Newfoundland Power's submissions with respect to the Revised Application.

B. Background

Hydro's Original Application and Revised Application followed an October 2019 fire at the Charlottetown Diesel Generating Station that rendered it inoperable. Customers previously served by the Charlottetown Diesel Generating Station are currently being served by mobile diesel generators until a long-term source of supply can be provided.

Hydro's Original Application included a three-phase approach involving the construction of a regional diesel generating station in Port Hope Simpson and distribution interconnections to supply the other Southern Labrador Communities over the 2021 to 2045 period. The total capital cost proposed in the Original Application was \$72.6 million.² Hydro's Revised Application is largely the same as the Original Application, except that it proposes to complete all three

¹ Hydro's Original Application was filed with the Board on July 16, 2021 (the "Original Application").

² See the Revised Application, paragraphs 9 and 10.

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phases simultaneously instead of using a phased approach. Hydro's Revised Application is based on the recommendations of Midgard Consulting Inc. ("Midgard") and proposes capital expenditures of \$87.9 million over the 2023 to 2028 period.³

The Southern Labrador Communities comprise approximately 880 customers. The four isolated diesel systems serving the communities are relatively small with a combined peak demand of 3.6 MW, ranging from 0.3 MW in St. Lewis to 1.5 MW in Charlottetown.⁴ Since 2001, the area has experienced population decline while the electrical load has been relatively stable.⁵ Hydro forecasts the load requirements in the Southern Labrador Communities to remain consistent in the future.⁶

The cost of serving customers in the Southern Labrador Communities is largely borne by Newfoundland Power's customers through the rural deficit.⁷ Hydro's Revised Application is expected to increase rates to all Newfoundland Power's customers by approximately 1.5%.⁸ As a result, it is important to Newfoundland Power's customers that Hydro implement a long-term solution to customers in the Southern Labrador Communities that is least-cost while also being safe, adequate, reliable, and environmentally responsible in accordance with Hydro's statutory requirements.

C. Hydro's Revised Application

Midgard evaluated several alternatives in support of the Revised Application. In response to a direction by the Board, Hydro provided additional information on four alternatives. These include: (i) Regional Plant; (ii) Islanded Operation; (iii) Interconnection of Existing Plants; and (iv) 2-Community Portable Generation.⁹

Midgard completed a multi-variate sensitivity analysis to evaluate the alternatives against various sensitivities including interconnection costs, fuel costs, non-interconnection capital costs, and load change. Midgard's analysis indicated that the Regional Plant alternative was the top-ranked scenario in 260 of 300 sensitivity instances.¹⁰

The Islanded Operation scenario, which involves constructing new diesel generating stations in Charlottetown, Mary's Harbour, Port Hope Simpson, and St. Lewis in 2028, 2030, 2035, and 2045, respectively, was ranked the top scenario in the remaining 40 instances. These instances

³ See the Revised Application, paragraphs 11-15, and 26.

⁴ See Hydro's *Long-Term Supply Study for Southern Labrador: Economic & Technical Assessment*, June 10, 2021, Appendix A – Operating Load Forecast (2020-2070).

⁵ See the responses to Requests for Information PUB-NLH-019 part a) and NP-NLH-044.

⁶ See Hydro's *Long-Term Supply Study for Southern Labrador: Economic & Technical Assessment*, June 10, 2021, Appendix A – Operating Load Forecast (2020-2070).

⁷ See the response to Request for Information NP-NLH-081.

⁸ See the response to Request for Information NP-NLH-085.

⁹ See Midgard report *Southern Labrador Communities – Integrated Resource Plan – Response to Newfoundland and Labrador Board of Commissioners Public Utilities Information Request Issued Aug 1, 2023*, October 3, 2023, Pages 14 – 15 of 74.

¹⁰ *Ibid*, Page 36 of 74.

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coincided with interconnection costs increasing by 300% and demonstrate how future capital expenditures can affect the feasibility of Hydro's proposed alternative.¹¹ In Newfoundland Power's view, the Islanded Operation alternative is worthy of further consideration by the Board.

Hydro's Islanded Operation Alternative

In addition to constructing a new diesel generating station in Charlottetown, Hydro's Islanded Operation alternative assumes that the Mary's Harbour, Port Hope Simpson, and St. Lewis diesel generating stations will be replaced with new diesel generating stations after 40 years of service. The estimated capital costs to construct these new diesel generating stations are significant and amount to \$37.4 million, \$37.3 million, and \$36.5 million, respectively, or \$111.2 million in total.¹² These estimated capital costs are a key consideration in assessing whether Hydro's proposed alternative is the least-cost alternative for supplying the customers in Southern Labrador over the long-term.

Hydro assesses the need to replace a diesel generating station versus refurbishing a diesel generating station on a case-by-case basis. In instances where the existing plant is adequately sized and well suited for the community it serves, but is in deteriorated condition, Hydro states that refurbishment may be more cost effective. In instances where the plant requires extension to meet forecasted load or other substantial modifications, Hydro states that reconstruction is often more cost effective.¹³ Hydro indicates that it seeks to extend the life of its diesel generating stations through refurbishment and upgrades and, generally speaking, replacement is not considered until either asset condition and/or load growth requirements dictate the necessity.¹⁴

In practice, Hydro has maintained its diesel generating stations beyond 40 years of service.¹⁵ As an example, Hydro completed a project in 2021 in relation to the 43-year-old Makkovik diesel generating station.¹⁶ The project scope included replacement of a genset that had reached end of life, upgrades associated mechanical and electrical equipment, extending the building to accommodate the new genset and installation of a new fire suppression system. Hydro completed the project at a cost of approximately \$10.4 million.¹⁷

¹¹ Ibid.

¹² Ibid, Table 5, Page 19 of 74.

¹³ See the response to Request for Information NP-NLH-090.

¹⁴ See the response to Request for Information PUB-NLH-045.

¹⁵ Ibid.

¹⁶ See the responses to Request for Information NP-NLH-021, PUB-NP-045 and Hydro's *Capital Expenditures and Carryover Report for the Year Ended December 31, 2021, Revision 1*, page 28, which was filed with the Board on March 8, 2022.

¹⁷ Ibid.

Hydro states that it is appropriate to include the costs to construct new diesel generating stations in Mary's Harbour, Port Hope Simpson, and St Lewis in addition to a new diesel generating station in Charlottetown as a part of the Islanded Operation alternative. Hydro indicates that the existing Mary's Harbour and Port Hope Simpson diesel generating stations are not well suited to reliably meet the needs of customers in the other Southern Labrador Communities, as they require significant upgrades to address condition and space constraints over the study period.

Hydro's St. Lewis diesel generating station was constructed in 2006 and is assumed to be replaced in 2045 as part of the Islanded Operation alternative. Hydro states that, since the anticipated replacement of the St. Lewis diesel generating station is 22 years away, it cannot reasonably predict the condition or suitability of the plant at that time.¹⁸ The current and estimated future load in the community of St. Lewis is 0.3 MW. Hydro's estimated cost to replace the St. Lewis diesel generating station in 2045 as part of the Islanded Operation alternative is \$36.5 million.

As part of its analysis of Hydro's alternatives, Midgard provided a sensitivity analysis that considered changes in load in the Southern Labrador Communities. For the Islanded Operation alternative, the capacity in the existing diesel generating stations in Mary's Harbour, Port Hope Simpson, and St. Lewis appears capable of meeting future demand in all scenarios except where load increases by 2% annually.¹⁹

In support of its Revised Application, Hydro also states that the proposed alternative facilitates increased penetration of incremental renewable energy resources.²⁰ Hydro's Southern Labrador Renewable Energy Study demonstrates that the potential for renewable energy resources for the Islanded Operation alternative is 87% of the potential for renewable energy sources achievable in proposed alternative.²¹ Hydro also states that the communities of Charlottetown, Port Hope Simpson, and St. Lewis have no renewable energy generation sources connected to their distribution systems, leaving their entire potential available for use. The community of Mary's Harbour is currently availing of renewable energy alternatives from an independent power producer ("IPP") in the form of a small hydro plant and photovoltaic and battery energy storage system facility. The IPP is expected to utilize approximately half of the allowable renewable energy available in the community, leaving the remaining half available for future renewable energy projects.²²

¹⁸ See the response to Request for Information NP-NLH-090.

¹⁹ See Midgard report *Southern Labrador Communities – Integrated Resource Plan – Response to Newfoundland and Labrador Board of Commissioners Public Utilities Information Request Issued Aug 1, 2023*, October 3, 2023, Page 39 of 74, Table 18: Load Change Impacts.

²⁰ See the Revised Application, paragraphs 20 and 21.

²¹ See Hydro's *Long-Term Supply Study for Southern Labrador: Economic & Technical Assessment*, June 10, 2021, *Appendix B: Southern Labrador – Renewable Energy Study*, Page 3, Table 1: Renewable Energy Potential in Southern Labrador.

²² *Ibid*, page 2.

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D. Newfoundland Power's Submissions

Hydro is required to provide service to customers that is safe, adequate, reliable, least-cost, and environmentally responsible. Hydro's Revised Application proposes capital expenditures of \$87.9 million to build a new source of electricity supply for approximately 880 customers in the Southern Labrador Communities. Evidence filed in support of the Revised Application includes a net present value analysis over a 25-year term and various sensitivity analyses to test the robustness of Hydro's recommended alternative. Newfoundland Power submits that it is not clear that Hydro's proposed alternative is the least-cost alternative when compared to the Islanded Operation alternative.

Hydro's load for the Southern Labrador Communities has remained relatively stable since 2001. Load is also forecast to remain stable over the forecast period. The demographics of the Southern Labrador Communities also do not suggest substantial load growth over the forecast period. In Newfoundland Power's submission, construction of new diesel generating facilities, as part of the Islanded Operation alternative, has not been justified on the basis of load growth.

The Islanded Operation alternative has approximately 87% of the capability of the proposed alternative to accommodate renewable energy resources. Newfoundland Power submits that under the Islanded Operation alternative, each of the Southern Labrador Communities have significant potential to accommodate renewable energy projects to reduce the costs and environmental impact of diesel consumption.

In practice, Hydro maintains its diesel generating stations beyond 40 years of service where possible. Hydro's Islanded Operation alternative assumes each of the Mary's Harbour, Port Hope Simpson, and St. Lewis diesel generating stations will be replaced after 40 years of service at a cost of approximately \$110 million. In Newfoundland Power's submission, it is important for the Board to have a clear understanding of whether these diesel generating stations can be maintained, operated, and potentially expanded in the future in a manner similar to the \$10.4 million project that was recently completed in Makkovik. If such projects are possible, the estimated capital cost of \$111 million to replace three diesel generating stations could be avoided by completing refurbishment projects of approximately \$31 million. This could influence whether Hydro's proposed alternative is the least cost alternative.

Hydro's proposed alternative has the highest upfront capital cost compared to any other alternative. Because of its significant upfront capital cost, proceeding with the proposed alternative requires a high degree of confidence that less expensive alternatives are not available or are not likely to occur in the future. In Newfoundland Power's view, this degree of confidence cannot be established without a clear understanding of whether the existing diesel generating stations can be refurbished as opposed to decommissioned and reconstructed after 40 years of service.

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E. Conclusion

We trust this is in order. If you have any questions regarding the enclosed, please contact the undersigned.

Yours truly,



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