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July 14, 2023

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

Attention: Cheryl Blundon
Director of Corporate Services and Board Secretary

Re: *Reliability and Resource Adequacy Study Review* – Issues and Additional Studies Proposed by the Parties – Hydro's Comments

In correspondence dated May 5, 2023,[1] the Board of Commissioners of Public Utilities ("Board") directed Newfoundland and Labrador Hydro ("Hydro") to file a number of updates regarding the studies and analyses ongoing within the *Reliability and Resource Adequacy Study Review* proceeding ("RRA Study Review"). In particular, the Board directed Hydro to file, by May 19, 2023, a comprehensive list of all reports, studies, and analyses planned or currently underway with respect to the reliability of the Labrador-Island Link ("LIL"), potential alternative generation resources, the load forecast, and any other issues raised in the "Reliability and Resource Adequacy Study – 2022 Update" ("2022 Update")[2] and the subsequent technical conference, held in May 2023. This list was to include a description of the scope of each study, report, and analysis; the consultant or group undertaking the work; and the schedule for completion.[3]

In the same correspondence, the Board advised that the parties could file, by June 13, 2023, a list of issues or topics that they want addressed in the work being undertaken by Hydro.

In response to the Board's request, Hydro received correspondence from the Labrador Interconnected Group,[4] Newfoundland Power Inc. ("Newfoundland Power"),[5] and the Island Industrial Customer Group.[6] A summary of the issues and additional studies proposed by the parties follows.

[1] "Newfoundland and Labrador Hydro – Reliability and Resource Adequacy Study Review – To Parties - Further Process," Board of Commissioners of Public Utilities, May 5, 2023, p. 2.
[2] "Reliability and Resource Adequacy Study – 2022 Update," Newfoundland and Labrador Hydro, October 3, 2022.
[3] Hydro requested an extension from the Board to file its list of all reports, studies, and analyses, which was filed as "*Reliability and Resource Adequacy Study Review* – Listing of Planned Reports, Studies, and Analyses," Newfoundland and Labrador Hydro, May 25, 2023.
[4] "Reliability and Resource Adequacy Study Review – Listing of Planned Reports, Studies, and Analyses," Labrador Interconnected Group, June 7, 2023 (received June 8, 2023).
[5] "Newfoundland and Labrador Hydro – Reliability and Resource Adequacy Study Review – 2022 Update – Further Process – Newfoundland Power's Comments," Newfoundland Power Inc., June 13, 2023.
[6] "Newfoundland and Labrador Hydro - Reliability and Resource Adequacy Study," Review - 2022 Update - Further Process - Island Industrial Customer Group's Comments," Island Industrial Customer Group, June 20, 2023.

1.0 Party Issues and Additional Studies Proposed

1.1 Labrador Interconnected Group

The Labrador Interconnected Group recommends that Hydro perform studies or analyses regarding:

- The potential for short-term energy sales to Quebec in order to, among other things, avoid future spills; and
- Potential resource additions to supply energy and capacity in Labrador.

1.2 Newfoundland Power

Newfoundland Power noted in its submissions a number of outstanding concerns. These were:

- Consideration of how Hydro's recommendation to proceed with Bay d'Espoir Unit 8 influences the need to replace Holyrood and Hardwoods capacity;
- Whether the LIL should be treated as an energy-only line in consideration of the need to balance costs and reliability;
- Whether Hydro's probabilistic criteria are appropriate given the uniqueness of the Island Interconnected System; and
- What near-term opportunities exist to support the Island Interconnected System in order to respond to a potential supply shortfall, similar to what occurred during #DarkNL.

Newfoundland Power noted that Hydro had identified a clear and efficient process as necessary to obtain a decision and approval of future capacity additions and stated that a clear and efficient process would also address Newfoundland Power's outstanding concerns. Newfoundland Power identified four issues for Hydro to address as part of the next update to its Reliability and Resource Adequacy Study and as part of its ongoing and future studies. These include:

- Applications for additional capacity;
- The LIL as an energy-only line;
- Hydro's probabilistic analyses; and
- Near-term sources of capacity.

1.3 Island Industrial Customer Group

In addition to the tasks and issues identified by Hydro, the Liberty Consulting Group, and Newfoundland Power, the Island Industrial Customer Group submits that the following issues or topics should be addressed by Hydro in its next Reliability and Resource Adequacy Study update:

- An updated load forecast, including detailing the sensitivities that affect the reliability of the load forecast and the implications of a range of electrification scenarios to the load forecast;
- Confirmation with respect to whether an aggressive electrification plan remains in the best interest of ratepayers, given the forecast reliability and resource adequacy issues currently facing Hydro. The analysis should include consideration of the optimum level and type of electrification for reducing overall costs on the Island system;
- Options to mitigate negative impacts of electrification of heating, including options to minimize impact at peak times (e.g., encouraging/requiring customer redundancy that is non-electric) and ability to enter interruptible arrangements with large end-users;

- Development of options for energy conservation and demand management that could significantly mitigate peak loads or reliability risk;
- Options, including an analysis of potential contractual terms and system savings, for industrial capacity assistance that would provide more sustained assistance than the capacity assistance agreements used in recent years;
- Continued review of options to mitigate the duration of LIL outages, including increased investment in critical spare equipment and remote line repair capabilities; and
- Analysis of the rate impacts, by customer class, of potential additional generation options, including the proposed Unit 8 at Bay d'Espoir, for the Island Interconnected System.

On June 22, 2023, the Board requested Hydro provide comments on the issues and additional studies proposed by various parties.[7] Hydro's comments on these items are set out herein, including how they may or may not be addressed in Hydro's next update to the Resource Adequacy Plan, proposed for the spring of 2024.[8]

2.0 Hydro's Comments

2.1 Labrador Interconnected Group

2.1.1 The potential for short-term energy sales to Quebec in order to, among other things, avoid future spills

Due to transmission capacity constraints on the Hydro-Québec Interconnection, Hydro does not foresee near-term opportunities for short-term sales to Hydro-Québec. Therefore, Hydro does not consider a specific study of short-term energy sales to Quebec to be necessary to address the minimization of spill. However, Hydro has and will continue to seek opportunities to deliver energy within the Newfoundland and Labrador Interconnected System to mitigate spill.[9]

2.1.2 Potential resource additions to supply energy and capacity in Labrador

To meet the needs of the high growth scenario for the Labrador Interconnected System, Hydro will be evaluating the following potential resource options in the expansion plan for the Labrador Interconnected System:

- Churchill Falls Powerhouse 2: 1,100 MW capacity;
- Churchill Falls Unit Uprates: 560 MW capacity; and
- Wind for energy, if required.

[7] "Newfoundland and Labrador Hydro - Reliability and Resource Adequacy Study Review –Request for Hydro's Comments Regarding Issues and Additional Studies Proposed by Parties," Board of Commissioners of Public Utilities, June 22, 2023.
[8] "Newfoundland and Labrador Hydro - Reliability and Resource Adequacy Study Review –Current Schedule for Future Updates," Board of Commissioners of Public Utilities, June 19, 2023. Hydro noted that the Study Methodology and Planning Criteria and its Long-Term Resource Plan, previously known as Volumes I and III of the Reliability and Resource Adequacy Study would now be referenced as the Resource Adequacy Plan. Further, Hydro proposed that the Resource Adequacy Plan would be updated every other year, with the next update filed in the spring of 2024. Volume II of the Reliability and Resource Adequacy Study, the Near-Term Reliability Report, has historically been filed on its own semi-annually in May and November.
[9] An example of Hydro's efforts is a Purchase Power Agreement entered into between Muskrat Falls and Hydro for the purchase and sale of residual block energy. Under this Agreement, Labrador Rural and Industrial customer load, previously serviced with Recapture Energy from Churchill Falls, is now serviced with energy from the Muskrat Falls Hydroelectric Generating Facility. Entering into this Agreement has allowed additional Recapture Energy exports to external markets and enabled Muskrat to realize additional revenue and avoid spillage. This helped to ensure maximum value from the organization's hydrological resources.

This analysis will be included in the next update to the Resource Adequacy Plan.

2.2 Newfoundland Power

2.2.1 Applications for additional capacity

In the update to the Resource Adequacy Plan, Hydro will consider the replacement of the Holyrood Thermal Generating Station ("Holyrood TGS") and the Hardwoods Gas Turbine capacity as part of the Island Interconnected System expansion plan analysis, including:

- What cost and reliability benefits an earlier replacement of the Holyrood TGS and the Hardwoods Gas Turbine would have for customers;
- What least-cost options might be available to replace some or all Holyrood TGS and Hardwoods Gas Turbine capacity; and
- A timeline for any new capacity additions.

The expansion plan will consider the least-cost generation options, including Hydro's recommendation to proceed with the lowest-cost supply alternatives to meet the projected load forecast requirements under a range of scenarios.

2.2.2 LIL as an energy-only line

In its update to the Resource Adequacy Plan, Hydro will include an analysis that compares the customer reliability consequences of the LIL against the incremental cost of mitigating LIL reliability impacts. This analysis will inform the balance of cost versus reliability when considering the LIL as an energy-only line.

2.2.3 Hydro's probabilistic analyses

Calculated planning reserve margins, coupled with probabilistic analysis, have been an industry standard used by planners for decades as a relative indication of supply adequacy. Hydro has been using probabilistic analysis as the basis for generation expansion since the 1980s, consistent with the industry standard, when the Island was an isolated system and now that it is interconnected.

Hydro is committed to ensuring, at a minimum, the same level of reliability criteria on the Island Interconnected System that has been experienced post-2014 and does not recommend relaxing this methodology. In the next update to the Resource Adequacy Plan, Hydro commits to providing an update of the six-week LIL shortfall analysis, which accounts for the possibility of an extended outage of the LIL, and will recommend if the "severe" or "average" case requires justification for backup and/or how much shortfall is deemed appropriate, if any. It is important to note that the six-week LIL shortfall analysis does not subscribe to any particular planning criteria; however, the results in the 2022 Update were consistent with the planning reserve margin that was calculated probabilistically.

2.2.4 Near-term sources of capacity

Hydro's near-term sources of capacity include investing in the Holyrood TGS and Hardwoods Gas Turbine until such time that their capacity can be adequately replaced. Other near-term options under evaluation include capacity assistance programs, a focus on demand management, and the potential to extend the Stephenville Gas Turbine if required. These alternatives will be included in the update to the Resource Adequacy Plan, including what measures or

opportunities may be available to mitigate customer outages in the event of an extended LIL outage.

2.3 Island Industrial Customer Group

2.3.1 An updated load forecast, including detailing the sensitivities that affect the reliability of the load forecast and the implications of a range of electrification scenarios to the load forecast

Hydro confirms that update to the Resource Adequacy Plan will be based on the 2023 load forecast, which includes a high case and reference (base) case load forecast scenarios for both the Island Interconnected System and the Labrador Interconnected System. A more aggressive electrification scenario compared to the reference (base) case scenario is reflected in the high load forecast scenario for each region.

2.3.2 Confirmation with respect to whether an aggressive electrification plan remains in the best interest of ratepayers given the forecast reliability and resource adequacy issues currently facing Hydro. The analysis should include consideration of the optimum level and type of electrification for reducing overall costs on the Island system

Electrification and the transition away from fossil fuels is a public policy initiative of both the provincial and federal governments, in order to limit the negative effects of global warming. These policies are driving change in corporate offerings and consumer choices, both in the transportation and space heating sectors. In both sectors, societal energy needs are transitioning away from fossil fuels to renewable sources of electricity.

Hydro acknowledges the risks and opportunities electrification will bring to the utility sector. Electrification represents a potentially significant revenue opportunity. Therefore, Hydro believes enabling investments such as public electric vehicle charging infrastructure can support both customer rate minimization and environmental benefits from reduced greenhouse gas emissions. Reducing greenhouse gas emissions will have long-term rate benefits for customers by minimizing utility asset risk associated with global warming (i.e., reduced frequency and severity of forest fires, flooding, and other weather events).

In order to realize these benefits, Hydro will seek to make strategic investments in electrification including programming in partnership with both levels of government that enables electric vehicle ownership, such as electric vehicle infrastructure and rebates towards the purchase of electric vehicles. Utility programming, which manages the impacts of electrification through demand response and energy efficiency, is a priority for Hydro.

Hydro will continue to monitor technology and consumer responses to electrification in order to meet its obligation to deliver safe, reliable, least-cost electricity in an environmentally responsible manner.

2.3.3 Options to mitigate negative impacts of electrification of heating, including options to minimize impact at peak times (e.g., encouraging/requiring customer redundancy that is non-electric) and ability to enter interruptible arrangements with large end users

Hydro is actively working to manage the electrical system impacts associated with the electrification of space heating. Space heating electrification on the Island Interconnected System is primarily being driven by increases in home heating fuel prices and government rebates for switching away from fossil fuels. Hydro continues to work closely with the Government of Newfoundland and Labrador on programming that is efficient for the electrical system, such as encouraging more heat pump installations versus resistance heat. Hydro is also

exploring the use of electric thermal storage heating units, which can shift heating loads up to 12 hours for customers whose homes are not conducive to heat pump installations. Updates will be provided in the next Resource Adequacy Plan filing.

2.3.4 Development of options for energy conservation and demand management that could significantly mitigate peak loads or reliability risk

In addition to the aforementioned electric thermal storage, Hydro is working with Newfoundland Power on its Electric Vehicle Load Management Pilot Project, which seeks to shift electric vehicle charging loads outside peak hours. Updates will be provided in the next Resource Adequacy Plan filing.

2.3.5 Options, including an analysis of potential contractual terms and system savings, for industrial capacity assistance that would provide more sustained assistance than the capacity assistance agreements used in recent years

Hydro continues to evaluate the cost and value proposition brought by industrial capacity assistance agreements. Such agreements will be considered as Hydro continues to work through its RRA Study Review proceeding.

2.3.6 Continued review of options to mitigate the duration of Labrador Island Link outages including increased investment in critical spare equipment and remote line repair capabilities

With respect to the outage duration for the LIL, Hydro has prepared, with the help of an external consultant, various estimated repair timelines for failure scenarios for the overland portion of the LIL.[10] Hydro continues to review its ability to respond to failure events from an emergency response perspective to, as best possible, limit outage durations for a given scenario.

As more or new information is gathered on the LIL, Hydro will provide an assessment of its options to mitigate the duration of the LIL outages in subsequent Resource Adequacy Plan filings.

2.3.7 Analysis of the rate impacts, by customer class, of potential additional generation options, including the proposed Unit 8 at Bay d'Espoir, for the Island System

As part of the expansion plan analysis for the Island Interconnected System, Hydro will assess the impact of new generation additions, including Bay d'Espoir Unit 8, on domestic rates. The rate input will be based on what is currently known of the government's rate mitigation plan, which is not yet finalized.

3.0 Conclusion

Hydro appreciates the input from the parties regarding the issues and information that are of particular concern. As noted herein, considerations will be incorporated in Hydro's review for the next update to the Resource Adequacy Plan, proposed for filing in the spring of 2024. Hydro anticipates that that filing, which will contain the results of Hydro's ongoing analysis including that noted herein, will support decisions regarding new supply based on good utility practice and Hydro's commitment to continue to meet customer's expectations.

[10] Please refer to "*Reliability and Resource Adequacy Study Review* – Additional Considerations of the Labrador-Island Link Reliability Assessment and Outcomes of the Failure Investigation Findings," Newfoundland and Labrador Hydro, December 22, 2021, att. 2, sec. 5.0.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

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