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 approval of capital expenditures for the life extension of Unit 7 at the Bay d'Espoir Hydroelectric Generating Facility, pursuant to subsection 41(3) of the **Act**.

PUBLIC UTILITIES BOARD
REQUESTS FOR INFORMATION

PUB-NLH-001 to PUB-NLH-026
REDACTED
Issued: October 30, 2025

PUB-NLH-001 Life Extension Application, Schedule 1, page 6, lines 3-5.

"In addition, Unit 7 also provides synchronous condensing capability to provide the necessary voltage support to the system during periods when power generation from the unit is not required."

(a) Provide the number of times per year, for the last 10 years, that Unit 7 operated as a synchronous condenser. In the response include the duration for each synchronous condensing event.
(b) Does Hydro have other hydroelectric generators that provide synchronous condensing capability? If yes, provide the location and designation for each generator with synchronous condensing capability.
(c) Has Hydro undertaken a study into the synchronous condensing requirements of the Island Interconnected System? If yes, provide a copy of the study. If not, provide the reasons a study has not been completed.

PUB-NLH-002 Life Extension Application, Schedule 1, page 7, lines 9-11.

"Hydro is proposing the next PM9 for Unit 7 in its 2026 Capital Budget Application; the scope of this work will be expanded to include short-term remediation work to address deficiencies identified during the 2023 Condition Assessment as being urgent and unable to delay until 2028."

Provide a list of the deficiencies identified during the 2023 Condition Assessment as being urgent and unable to delay until 2028 and also identify items that are not planned to be included in the PM9 work.

PUB-NLH-003 Life Extension Application, Schedule 1, page 7, Table 1.

(a) Table 1 provides a list of past investments such as refurbishment, replacement, and condition assessment activities completed during the in-service life of Bay d'Espoir Unit 7. Expand Table 1 to include a column for the costs incurred for each item listed in the table.
(b) Other than preventative maintenance and the investments listed in Table 1, provide additional detail on the annual operational history of the unit, including issues or concerns.

PUB-NLH-004 Life Extension Application, Schedule 1, page 14, lines 1-8.

"Additional scope necessary to support long-term reliability that Hydro proposes to be clustered with the life extension work to minimize future outage time and recommissioning activities are as follows:

- Install dust collection system;
- Design and install turbine pit monorail and hoist;

- Modernization of excitation system controls to address obsolescence;
- Conversion of turbine governor from mechanical to modern digital control; and
- Modernization of the unit control system to address obsolescence and improve asset monitoring".

(a) Provide the cost estimate for each of the five items of additional scope.
(b) Which of these five items of additional scope require Unit 7 to be disassembled for completion?
(c) Has Hydro considered undertaking any of these five items of additional scope prior to the complete Unit 7 outage in 2028? Explain why or why not.

PUB-NLH-005 Life Extension Application, Schedule 1, page 16, lines 4-5.

"Due to the nature of turbine generator refurbishment projects, Hydro has adopted a proactive approach by including a dedicated "found work" scope item in the base estimate."

(a) Has Hydro included a dedicated "found work" scope item in the base estimate for previous applications for capital budget projects? If yes, provide details and examples. If no, explain how Hydro has previously addressed "found work" in approved capital budget projects and how Hydro has reported this work and spending to the Board.
(b) How did Hydro determine the amount to be included in the "Found Work Allowance" component of the estimated costs?

PUB-NLH-006 Life Extension Application, Schedule 1, page 18, lines 10-11.

"The cost estimate was developed by Hydro based upon estimated costs in the 2023 Condition Assessment report. "

What is the basis for the increase in the cost estimate of $48 million provided in the five-year capital plan of the 2025 Capital Budget Application to $85.3 million in the Life Extension Application?

PUB-NLH-007 Life Extension Application, Schedule 1, page 22, lines 1-3.

"It is an industry standard practice to include management reserve in project estimates especially for large complex projects."

(a) Is Hydro aware of whether other Canadian regulatory jurisdictions have approved management reserve in capital project budget proposals? Provide details of approvals in other jurisdictions that incorporated management reserve.

(b) Provide any information that Hydro may have on how, historically, management reserve has been used internally by Hydro and other utilities to quantify the risk associated with overspending budget estimates for major capital projects.

PUB-NLH-008 Life Extension Application, Schedule 1, page 22, lines 3-5.

"Commissioner LeBlanc noted that "A reasonable reserve for strategic risk should have been included in the Project's cost estimate and made known to [the Government of Newfoundland and Labrador]."

(a) Confirm that this statement, which is Key Finding 41 in the Muskrat Falls Review report, applies to a reserve for strategic risk when communicating project cost estimates internally to its owner (Government of Newfoundland and Labrador) and does not specifically require the inclusion of a management reserve to apply to base cost and strategic risk when seeking approval from the Board.

(b) The Muskrat Falls Review report included nine key findings with respect to the Public Utilities Board. Confirm that the nine key findings did not include recommendations relating to management reserve in capital expenditure approvals by the Board.

PUB-NLH-009 Life Extension Application, Schedule 1, page 25, lines 6-9.

"The work is planned to be executed during the 2028 non-winter season, running from April through to November. The planned schedule indicates an ability to execute the work during that timeframe; however, given the tight timeline for the delivery of critical equipment, there is a risk of equipment not being available as required to meet project schedule."

Overarching Critical Path, Schedule 1, Attachment 3, pages 18-19 of 27.

[redacted]

(a) Has Hydro considered undertaking aspects of the Life Extension of Bay d'Espoir Unit 7 project prior to the complete Unit 7 outage in 2028? Explain why or why not.

(b) What is Hydro's contingency in the event that the refurbishment is not fully completed in the April to November outage window? Include detail on the contingency plan in relation to the timelines and comments provided in the Assumptions, Exclusions and Opportunities section and Overarching Critical Path section.

(c) Describe the impacts on the remainder of Hydro's generation assets if Unit 7 is not available for the following winter season.

PUB-NLH-010 Life Extension Application, Schedule 1, page 25, lines 18-20.

"Certain portions of the commissioning work, post remediation, for Bay d'Espoir Unit 7 requires interaction with the electrical grid. The project schedule has this work occurring prior to the winter period."

(a) Detail the portions of the commissioning work that would have interactions with the electrical grid.
(b) Explain the impact this work could have on the Island Interconnected System during the commissioning period.
(c) If project completion is delayed, are there concerns about the timing of commissioning work and impact on the Island Interconnection System?

PUB-NLH-011 Life Extension Application, Schedule 1, Attachment 1, Basis of Estimate, page 11 of 225.

"Spare Parts:
- Brake shoes and seals
- Bearing pads and springs
- Set of seals
- Slings
- Miscellaneous tooling."

Explain why Hydro has not included a set of spare stator windings on the list of spare parts.

PUB-NLH-012 Life Extension Application, Schedule 1, Attachment 1, Basis of Estimate, page 16 of 225.

"The estimate for Emergency Response is based on an estimate developed for the BDE Unit 8 project, with 1 ambulance, 2 paramedics, 1 fire truck, and 5 dedicated firefighters. The cost is shared across the projects at the Bay d'Espoir Facility, with the cost for BDE Unit 7 prorated based on BDE Unit 7 duration and construction crew size."

(a) Are the Emergency Response services on site at Bay d'Espoir under normal operations?
(b) Explain how the provision of Emergency Response services is considered a capital cost and not an operating cost.

PUB-NLH-013 Life Extension Application, Schedule 1, Attachment 1, Basis of Estimate, page 25 of 225, Table 7.

"Table 7 provides an estimate of cost for the various components of the Bay d'Espoir Unit 7 Life Extension project, which includes amounts for (i) Found Work Allowance, (ii) Contingency and (iii) Management Reserve."

(a) Describe in detail, including examples, the direct and indirect costs that would be included in each of the three components.
(b) Detail the process that Hydro has implemented to ensure that costs can not be included in more than one of the three components.
(c) What percentage of the total project cost (Authorized Budget) is attributed to Found Work Allowance, Contingency and Management Reserve? Provide the percentage of total project cost for each allowance and the total for the three allowances combined.
(d) Will the inclusion of a found work allowance in a project budget reduce the amount in the contingency allowance or the management reserve?

PUB-NLH-014 Life Extension Application, Schedule 1, Attachment 1, Basis of Estimate, page 81 of 225.

"The long-term recommendation by Voith in 2019 was to perform a similar rehabilitation of the removed bearing as performed in 2019 for the spare bearing. Hatch agrees with Voith's recommendations so that NL Hydro will have a fully functional spare bearing that will reduce risks to extended unplanned outages related to the turbine guide bearing."

Has Hydro performed rehabilitation of the bearing removed in 2019 to provide a spare bearing as recommended by both Voith and Hatch?

PUB-NLH-015 Life Extension Application, Schedule 1, Attachment 1, Basis of Estimate.

In its Bay d'Espoir Unit 7 Condition Assessment Report, Hatch identified numerous items involving monitoring unit performance and other maintenance recommendations to limit failure and maximize life extension. Provide a table listing each of these recommendations for monitoring and maintenance activities, addressing the current status of each activity, including when these recommendations were acted upon or when Hydro intends to act upon the remaining items.

PUB-NLH-016 Life Extension Application, Schedule 1, Attachment 1, Bay d'Espoir Unit 7 Condition Assessment Condition Report, page 145 of 225.

"Overall, Bay D'Espoir Unit 7 is in fair condition. There are a few urgent conditions that need to be addressed, but Hatch expects there are a few more years remaining before major overhauls of the turbine and generator are required. Hatch recommends continued monitoring of known deficiencies and to consult the Hatch Uprate Report in addition to this Condition Assessment Report when planning future operations work,

major maintenance, and capital improvements. Based on the Uprate Report and the assessed condition of the unit, Hatch recommends overhauling the generator, including a rewind of the stator, refurbish the rotor and to replace the runner with a more efficient and more cavitation resistant design."

The Bay d'Espoir Unit 7 Condition Assessment Condition Report was prepared by Hatch throughout 2023 and approved and filed with Hydro on May 3, 2024. Do the conclusions made by Hatch with respect to the condition assessment of Unit 7 still apply?

PUB-NLH-017 Life Extension Application, Schedule 1, Attachment 2, Project Charter, page 8 of 14.

"The key objective of the Bay d'Espoir Unit 7 Life Extension project is to complete the required work scope by 2028 in order to ensure continued safe and reliable operation while providing the best value to stakeholders."

How does this statement in the Project Charter align with the conclusions reached in the Hatch Condition Assessment Condition Report?

PUB-NLH-018 Life Extension Application, Schedule 1, Attachment 3, Basis of Schedule, page 12 of 22.

"Completing the BDE Unit 7 Project in 2028 reduces the risk of unplanned outages to the unit and associated system impacts. Importantly, completion in 2028 aligns with the 5-year recommendation set out in Hatch's Bay d'Espoir Unit 7 Condition Assessment Condition Report, supporting responsible life cycle management and system reliability. If BDE Unit 8 is approved, there will be interdependencies with the construction of BDE Unit 8. The execution of the BDE Unit 7 Project must be completed by the end of 2028. Delays beyond this would introduce overlapping work in Powerhouse 2, leading to productivity and scheduling challenges, including shared access to the overhead crane, laydown space, and tailrace channel."

Hydro, at Schedule 1, page 3, lines 1 and 2, advised that Hatch determined that the timeline for required intervention could be extended by an additional five years, to 2029. Absent the interdependencies with the construction of BDE Unit 8, explain in detail why the execution of the BDE Unit 7 Project must be completed by the end of 2028.

PUB-NLH-019 Life Extension Application, Schedule 1, Attachment 3, Basis of Schedule. Explain the risks associated with potentially delaying the life extension project of Bay d'Espoir Unit 7 to 2029, 2030 or 2031 to undertake the

detailed feasibility assessment and engineering analysis to quantify their present-day impacts:

(a) Without consideration of the installation of Unit 8.
(b) With consideration of the installation of Unit 8.

PUB-NLH-020 Bay d'Espoir Unit 7 Additional Analysis Report, September 23, 2025, page 2, lines 20-23.

"In this scenario, Unit 7 is uprated by approximately 20 MW to 174 MW rated capacity. As a result of system hydrology on the Bay d'Espoir system and the optimized maximum capacity addition to the system of 150 MW, the uprating of Unit 7 may necessitate lowering the nominal capacity of Unit 8 by approximately 20 MW to 130 MW."

(a) Has Hydro completed any hydrology studies to confirm that the 20 MW uprate for Unit 7 would result in the lowering of the nominal capacity of Unit 8 by approximately 20 MW? If so, provide a copy of the study.
(b) Has Hydro analyzed the benefits of an additional 20 MW from the Unit 7 uprate at a significantly lower cost on a per MW basis than the proposed Unit 8 project?

PUB-NLH-021 Bay d'Espoir Unit 7 Additional Analysis Report, September 23, 2025, page 3, lines 13-14.

"The total estimated incremental cost impact of the Unit 7 uprate is approximately $45 million."

(a) Hydro has previously identified hydroelectric generation alternatives including addition of a new unit (Unit 8) in Bay d'Espoir (154 MW), addition of a new unit (Unit 3) in Cat Arm (68.4 MW), Island Pond Development (36 MW), Round Pond Development (18 MW) and Portland Creek Development (23 MW). In a table provide the marginal cost of energy ($/MWHR) and capacity ($/MW) for Bay d'Espoir Unit 7 Refurbishment and each of the five opportunities identified here. Also include any other opportunities to increase hydroelectric generation that Hydro is currently considering.
(b) Has Hydro identified any other potential capital projects that could provide approximately 20 MW of nominal capacity for a similar cost on a $/MWHR? If yes, provide the details.

PUB-NLH-022 Bay d'Espoir Unit 7 Additional Analysis Report, September 23, 2025, page 4, lines 3-4.

"As neither Unit 7 nor Unit 8 provides any additional energy to the Bay d'Espoir system, a cost per MWh cannot be produced."

Explain how a refurbished Unit 7 runner with a more efficient design would not provide any additional energy to the Bay d'Espoir system.

PUB-NLH-023 Bay d'Espoir Unit 7 Additional Analysis Report, September 23, 2025, page 6, Figure 1. Confirm that both the GE Option 1 and GE Option 2 curves have higher Turbine Efficiency for all generator outputs.

PUB-NLH-024 Bay d'Espoir Unit 7 Additional Analysis Report, September 23, 2025, page 7 of 41.

"Unit 7 generator was designed and constructed with a floating rim. The term "floating rim" is just another way of saying that the spider is much less stiff than more conventional designs. This has caused problems several times in the past, requiring rebalancing following a unit trip and overspeed. We should consider that we have been fortunate in that we have been able to balance the unit to within acceptable (but on some occasions, less than desirable) limits quickly. We can expect this to occur again and we should also expect the situation to recur with sufficient severity that a significant delay would be experienced in returning the unit to service. This could have a detrimental affect on our ability to meet energy demands if such an event occurs during a peak production period."

(a) Will the problem with the floating rim design be addressed in the Life Extension of Bay d'Espoir Unit 7 project? If not, why not?
(b) If rebalancing is required following a unit trip and overspeed, how long will the rebalancing typically take before the unit can be returned to service?

PUB-NLH-025 Request for Additional Information – Hydro's Reply, October 16, 2025, page 2.

"The unit has experienced three overspeed events following load rejections in the last ten years. The latest two trips in 2017 and 2022 did not require rebalancing. Despite this performance improvement, the concerns regarding the floating rim design are still valid, as more frequent or longer duration overspeed events have the potential to result in similar balance issues."

(a) Has the operating regime for Bay d'Espoir Unit 7 changed in any way over the past 10 years? For example, has the increase in reserves implemented following DarkNL impacted the loading of Unit 7 and resulting overspeed events?
(b) Will the operation of Bay d'Espoir Unit 7 during an extended LIL outage where Bay d'Espoir generation will be required at increased production levels increase the risk for more frequent or longer duration overspeed events?
(c) When did the third overspeed event occur and how long was Unit 7 out of service to rebalance the generator during this event?

PUB-NLH-026 Request for Additional Information – Hydro's Reply, October 16, 2025, page 2.

"Despite this performance improvement, the concerns regarding the floating rim design are still valid, as more frequent or longer duration overspeed events have the potential to result in similar balance issues.

The 2004 GE Hydro Report uprate proposals included an estimate for a replacement spider designed to transmit the increased power generated by the uprated runner, and with a modern key system to maintain the balance during overspeed.

Hydro does not plan to replace the spider as part of the life extension project."

(a) Explain why Hydro does not plan to replace the spider as part of the life extension project, including the impact on the risk profile of Unit 7 if the spider were to be replaced.
(b) Provide a budget estimate for including the spider replacement as part of the life extension project.

DATED at St. John's, Newfoundland and Labrador this 30th day of October 2025.

BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

Per

Colleen Jones

Colleen Jones
Assistant Board Secretary