

1 Q. **Reference: Schedule 1, Page 4, lines 25 to 27.**

2 In consideration of the Long-Term Asset Plan for Bay d’Espoir, and compounding
3 outage impacts on the Island Interconnected System, Hydro’s Long-Term Asset
4 Planning team has identified the 2027 construction season as the optimal
5 window for refurbishment work.

6 a) Provide a copy of the Long-Term Asset Plan for Bay d’Espoir. If a separate document does
7 not exist, please provide the detail of the Long-Term Asset Plan for Bay d’Espoir.

8 b) Please describe how the proposed Penstock 3 project fits into Hydro’s overall Long-Term
9 Asset Plan for Bay d’Espoir with respect to other major capital projects schedule and outage
10 planning.

11

12

13 A. a) Newfoundland and Labrador Hydro’s (“Hydro”) current five- year capital plan was filed
14 pursuant to the Capital Budget Application Guidelines (Provisional) in Hydro’s 2026 Capital
15 Budget Application.¹ That capital plan outlines Hydro’s planned capital expenditures for the
16 five-year period 2026–2030 for all its assets, including those at the Bay d’Espoir
17 Hydroelectric Generating Facility (“Bay d’Espoir”).

18 A summary of Hydro’s current five-year capital plan for its generating assets, including Bay
19 d’Espoir, is provided as PUB-NLH-005, Attachment 1.

20 An updated five-year capital plan will be provided with Hydro’s 2027 Capital Budget
21 Application, scheduled for filing in July 2026, and will include information on planned capital
22 expenditures for the period 2027–2031, including any planned expenditures for Bay d’Espoir
23 during that period.

¹ “2026 Capital Budget Application,” Newfoundland and Labrador Hydro, July 15, 2025, sch. 4.
<http://pub.nl.ca/applications/NLH2026Capital/app/From%20NLH%20-%202026%20Capital%20Budget%20Application%20-%20Volume%20-%202025-07-15.PDF>

b) Hydro's proposed Penstock 3 Weld Refurbishment and Section Replacement Project ("Penstock 3 Project") is a key component of the broader long-term asset plan for the Bay d'Espoir System. It is being marginally advanced in consideration of overall system reliability, cumulative asset risk, outage coordination, and resource availability across Hydro's generation fleet.

In 2024, Hydro's consultant recommended that Penstock 3 be refurbished within the next five years based on its condition assessment.² Hydro is proposing to advance the refurbishment to 2027, due to the increasing risk profile associated with repeated weld failures, including failures of previously repaired welds, as well as coordination with other ongoing and upcoming work on Hydro's generating assets within Bay d'Espoir and across the system. Hydro considers it prudent to address the asset risk as soon as practical. The repeated findings of weld indications, along with failures of prior repairs, indicate that the asset is at or nearing its end of life. Advancing the work reduces the risk of a more significant unplanned outage and supports the continued safe and reliable operation of Bay d'Espoir.

The scheduling of the Penstock 3 Project must be considered in the context of several other significant generation projects planned across Hydro's system through 2031. These projects collectively impact generation availability, outage planning, overall system reliability, and project execution capacity. Major planned projects include:

Table 1: Ongoing and Upcoming Major Generation Projects

Project	Timing of On-Site Construction³	Generation Impact (MW)
Bay d'Espoir Penstock 3 Weld Refurbishment and Section Replacement	2027	150
Bay d'Espoir Unit 7 Life Extension	2028	154
BDE Unit 8	2028–2031	154 (New)
Upper Salmon Turbine and Generator Major Refurbishment	2029	84
Holyrood Combustion Turbine Major Overhaul and Rotor Replacement	2029	124
Bay d'Espoir Penstock 2 Weld Refurbishment and Section Replacement	2030	150
Hinds Lake Turbine Refurbishment	2032	75

² Please refer to Hydro's response to PUB-NLH-002 of this proceeding.

³ For all projects listed, detailed design and procurement are not complete; as such, significant risk to the planned schedule still exists. Due to the constraints outlined in this response, a significant change to the schedule of one project can have a material impact on the schedule of other projects. The dates listed are based on the information available at the time of filing.

1 Hydro must manage cumulative risk across these assets while maintaining overall
2 system reliability. In addition to Penstock 3, Penstock 2 has also reached end-of-life and
3 will require refurbishment in the near future. Similarly, BDE Unit 7 requires major
4 refurbishment work, while the Holyrood Thermal Generating Station is reaching end-of-
5 life, as demonstrated by its reliability challenges in recent years.

6 The above projects impact large generating units and significantly impact generation
7 availability. For example, if the Penstock 3 Project and the Bay d'Espoir Unit 7 Life
8 Extension Project were executed in the same construction season, it would result in
9 over 300 MW of generation being offline concurrently for an extended period on the
10 Bay d'Espoir system, in addition to other minor generation outages, which poses a risk
11 to reliability by limiting available system reserves. Furthermore, the removal of over
12 300 MW of generation from the Bay d'Espoir System presents water management
13 challenges and increases the risk of spilling, should there be insufficient capacity to
14 release water through the turbines in the event of a period of high inflows.

15 Outage planning is a critical consideration when planning large generation projects.
16 Hydro must carefully sequence projects, which requires the removal of significant
17 generation resources from service to maintain reliable system operation and ensure
18 sufficient generation is available while resources are out of service, particularly heading
19 into the Winter Readiness season. While Hydro plans and makes every effort to execute
20 these projects in advance of the Winter Readiness season, the magnitude of work
21 involved in these projects presents some inherent risk of delays during project
22 execution, which could result in the extension of unit outages into the Winter Readiness
23 period. Executing multiple major generation-related projects concurrently increases the
24 risk that one or more units are unavailable for a portion of the Winter Readiness period,
25 posing risk to near-term winter reliability.

26 The proposed timing of the Penstock 3 Project also reflects the need to coordinate work
27 efficiently at the Bay d'Espoir site. Multiple major projects occurring within a relatively
28 short timeframe create resource and logistical constraints related to engineering and
29 construction resource availability, site access, staging areas, accommodations, and

1 construction coordination. Projects with shared work fronts, such as the Bay d’Espoir
2 Unit 7 Life Extension and Unit 8 Projects, create significant interface risks that can
3 impact safety, cost, and schedule. Sequencing the projects appropriately improves
4 overall executability and reduces operational complexity on the system.

5 As detailed design and procurement are not completed on these projects, significant
6 procurement and execution risks remain. This is especially true for the Bay d’Espoir
7 Unit 7 Life Extension and Bay d’Espoir Unit 8 projects, where the current market for
8 turbine generator vendors is such that availability of these resources is creating
9 significant procurement challenges. Delays or changes to those project schedules could
10 impact the timing of future outages and resource requirements. Timely execution of the
11 Penstock 3 Project increases Hydro’s flexibility to accommodate potential schedule
12 shifts while continuing to optimize overall project sequencing, executability, and system
13 reliability.

14 If project schedules shift, Hydro will continue to optimize the overall capital plan and
15 outage schedule to balance executability, resource availability, and system reliability,
16 while ensuring the continued safe and reliable operation of the provincial electricity
17 system.⁴

18 Overall, the proposed Penstock 3 Project is consistent with Hydro’s long-term asset
19 management strategy and supports the safe, reliable, and coordinated execution of
20 major generation assets across the Newfoundland and Labrador System.

⁴ Hydro will ensure that any necessary notifications and/or applications will be made to the Board pursuant to the *Public Utilities Act* and the “Capital Budget Guidelines (Provisional),” Board of Commissioners of Public Utilities, January 2022.

Project Title	Site	Timing	Existing/New
Combustion Turbine			
Replace Fuel Storage Tanks	Happy Valley	2026	Existing
Replace 125 Vdc Battery Bank	Hardwoods	2026–2027	Existing
Replace Air Dryer	Hardwoods	2026–2027	Existing
Replace dc Fuel Pump	Hardwoods	2026–2027	Existing
Upgrade Cooling	Hardwoods	2026–2027	Existing
Replace ac Fuel Pumps	Hardwoods	2027–2028	Existing
Avalon Combustion Turbine	Holyrood	2025-2030	New
Install Secondary Station Service Supply	Holyrood	2027–2029	Existing
Major Combustion Turbine Overhaul	Holyrood	2027–2029	Existing
Upgrade Gas Turbine Instrumentation	Holyrood	2027–2028	Existing
Upgrade Rotor	Holyrood	2027–2029	Existing
Replace Fuel Oil Water injection Pumps	Holyrood	2029	Existing
Inspect Fuel Storage Tanks	Holyrood	2030	Existing
Replace 250 Vdc Battery Bank	Stephenville	2025–2026	Existing
Replace Vibration System	Stephenville	2027–2028	Existing
Gas Turbine In-Service Failures	Various	2026	Existing
Gas Turbine In-Service Failures	Various	2027	Existing
Gas Turbine In-Service Failures	Various	2028	Existing
Gas Turbine In-Service Failures	Various	2029	Existing
Gas Turbine In-Service Failures	Various	2030	Existing
Hydro Generation			
Refurbish Intake 2	Bay d'Espoir	2025–2026	Existing
Bay d'Espoir Unit 8	Bay d'Espoir	2025–3031	New
Bay d'Espoir Unit 7 Life Extension	Bay d'Espoir	2026–2028	Existing
Penstock 3 Weld Refurbishment and Section Replacement	Bay d'Espoir	2026–2027	Existing
Perform Level 2 Condition Assessment - Penstock 4	Bay d'Espoir	2026	Existing
Upgrade Spherical Valve Controls	Bay d'Espoir	2026–2029	Existing
Intake Access Road Realignment	Bay d'Espoir	2027	Existing
Refurbish Draft Tube Deck - Phase 3	Bay d'Espoir	2027–2029	Existing
Refurbish Intake 4	Bay d'Espoir	2027–2028	Existing
Refurbish Spherical Valves - Units 1–6	Bay d'Espoir	2027–2032	Existing
Refurbish Phase 1 Exterior Precast Concrete Panel - Powerhouse 1	Bay d'Espoir	2028–2029	Existing
Replace Battery Bank 1 and 2 - Powerhouse 1	Bay d'Espoir	2028–2029	Existing
Penstock 2 Weld Refurbishment and Section Replacement	Bay d'Espoir	2029–2030	Existing
Refurbish Rip Rap on North Cutoff LD-2 and Salmon River Dam LD-2	Bay d'Espoir	2030–2031	Existing
Replace Diesel Gensets	Burnt Dam	2027–2030	Existing
Replace Emergency Diesel	Burnt Dam	2027–2028	Existing
Replace Emergency Diesel Genset	Cat Arm	2025–2027	Existing
Stabalize Powerhouse Slope	Cat Arm	2028	Existing
Replace 2000 Gallon Gasoline Tank	Cat Arm	2030–2031	Existing
Replace Battery Bank 1	Cat Arm	2030–2031	Existing
Refurbish Rip Rap on CD-4	Cat Arm Arm	2028–2029	Existing
Perform Level 2 Condition Assessment - Tubine and Generator	Cat Arm Arm	2029	Existing
Perform Level 2 Condition Assessment - Penstock Steel Liner	Cat Arm Arm	2030	Existing
Replace Battery Bank	Granite Canal	2026–2027	Existing
Replace Controllers	Granite Canal	2027–2030	Existing
Perform Level 2 Condition Assessment - Penstock	Granite Canal	2030	Existing
Install Carbon Dust Collection System	Hinds Lake	2025–2026	Existing
Rewind Stator	Hinds Lake	2025–2026	Existing
Perform Level 2 Condition Assessment - Penstock	Hinds Lake	2026	Existing
Install Low Pressure Compressor, Piping and Controls	Hinds Lake	2028–2029	Existing
Replace Battery Bank 1 and 2	Hinds Lake	2028–2029	Existing
Perform Level 2 Condition Assessment - Spillway	Hinds Lake	2029	Existing
Replace Diesel Genset	Hinds Lake	2029–2031	Existing
Refurbish Turbine	Hinds Lake	2030–2032	Existing
Refurbish Spillway	North Salmon Spillway	2028–2030	Existing
Replace Expansion Joint and Rock Scaling	Paradise River	2026–2027	Existing
Replace Walkway to Toe of Dam	Paradise River	2026–2027	Existing
Upgrade Excitation System	Paradise River	2026–2027	Existing
Perform Level 2 Condition Assessment - Steel Section	Paradise River	2027	Existing

Project Title	Site	Timing	Existing/New
Replace Diesel Genset	Paradise River	2030–2032	Existing
Refurbish Structure	Salmon River Spillway	2027–2030	Existing
Replace Rip Rap on LD-5	Salmon River Spillway	2027	Existing
Perform Level 2 Condition Assessment - North Salmon Spillway	Upper Salmon	2026	Existing
Major Refurbishment Turbine & Generator	Upper Salmon	2027–2029	Existing
Perform Level 2 Condition Assessment - West Salmon Spillway	Upper Salmon	2027	Existing
Upgrade 600V and 208V Panelboard	Upper Salmon	2028–2029	Existing
Perform Level 2 Condition Assessment - Intake	Upper Salmon	2029	Existing
Perform Level 2 Condition Assessment - Penstock	Upper Salmon	2029	Existing
Refurbish Rip Rap on SD-2 -West Salmon Dam	Upper Salmon	2029–2030	Existing
Hydraulic In-Service Failures	Various	2026	Existing
Overhaul Hydraulic Units	Various	2026	Existing
Perform Dam Infrastructure Refurbishments	Various	2026	Existing
Hydraulic In-Service Failures	Various	2027	Existing
Overhaul Hydraulic Units	Various	2027	Existing
Perform Dam Infrastructure Refurbishments	Various	2027	Existing
Replace Annunciator Panel	Various	2027–2028	Existing
Hydraulic In-Service Failures	Various	2028	Existing
Perform Dam Infrastructure Refurbishments	Various	2028	Existing
Hydraulic In-Service Failures	Various	2029	Existing
Overhaul Hydraulic Units	Various	2029	Existing
Perform Dam Infrastructure Refurbishments	Various	2029	Existing
Hydraulic In Service Failures	Various	2030	Existing
Overhaul Hydraulic Units	Various	2030	Existing
Perform Dam Infrastructure Refurbishments	Various	2030	Existing
Refurbish Spillway	West Salmon Spillway	2030–2032	Existing

Thermal Generation

Refurbish Marine Terminal	Holyrood	2025–2026	Existing
Overhaul Major Pumps	Holyrood	2026	Existing
Overhaul Turbine Valves and Generator - Unit 2	Holyrood	2026	Existing
Perform Boiler Condition Assessment and Miscellaneous Upgrades	Holyrood	2026	Existing
Perform Level 2 Condition Assessment - Condenser and Condenser Tube	Holyrood	2026–2027	Existing
Refurbish Water Treatment Systems	Holyrood	2026–2027	Existing
Replace Parts of Stage 1: 129 Vdc Batteries and Battery Chargers	Holyrood	2026–2027	Existing
Thermal In-Service Failures	Holyrood	2026	Existing
Install Plant Heating System	Holyrood	2027–2029	Existing
Overhaul Generator and Upgrade Online Monitoring - Unit 3	Holyrood	2027	Existing
Overhaul Major Pumps and Associated Motors	Holyrood	2027	Existing
Overhaul Marine Terminal Loading Arms	Holyrood	2027	Existing
Overhaul Turbine Valves - Unit 1	Holyrood	2027	Existing
Overhaul Unit 2 and Unit 3 Boiler Stop Valves	Holyrood	2027	Existing
Perform Boiler Condition Assessment and Miscellaneous Upgrades	Holyrood	2027	Existing
Perform Level 2 Condition Assessment - Light Oil System	Holyrood	2027	Existing
Refurbish Stage I and II Cooling Water Sumps	Holyrood	2027–2028	Existing
Replace Air Compressor 1	Holyrood	2027–2028	Existing
Thermal In-Service Failures	Holyrood	2027	Existing
Overhaul Major Pumps and Associated Motors	Holyrood	2028	Existing
Overhaul Turbine Valves - Unit 3	Holyrood	2028	Existing
Perform Boiler Condition Assessment and Miscellaneous Upgrades	Holyrood	2028	Existing
Thermal In-Service Failures	Holyrood	2028	Existing
Upgrade Fire System	Holyrood	2028	Existing
Overhaul Major Pumps and Associated Motors	Holyrood	2029	Existing
Overhaul Turbine Valves - Unit 2	Holyrood	2029	Existing
Perform Boiler Condition Assessment and Miscellaneous Upgrades	Holyrood	2029	Existing
Replace Two 129 V Chargers - Stage 2	Holyrood	2029–2030	Existing
Thermal In-Service Failures	Holyrood	2029	Existing
Upgrade Exciter and Transformer - Unit 3	Holyrood	2029	Existing
Thermal In-Service Failures	Holyrood	2030	Existing