

1 Q. **Reference: Hydro’s March 13, 2026 letter Re: Application for Approval of Capital Expenditures**
2 **for Section replacement and Weld Refurbishment for Bay d’Espoir Hydroelectric Generating**
3 **Facility Penstock 3**

4 Additionally, awaiting the completion of the Penstock 1 project allowed lessons
5 learned from that project to be incorporated into the planned execution of
6 Penstock 3 and enabled Hydro to maximize efficiencies, reducing costs and risks
7 to benefit the customer.

8 Please describe the lessons learned and efficiencies gained through experience with the
9 Penstock 1 project that Hydro intends to apply to the proposed Penstock 3 project to reduce
10 costs.

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13 A. Through the execution of the Bay d’Espoir Penstock 1 Weld Refurbishment and Section
14 Replacement Project (“Penstock 1 Project”), Newfoundland and Labrador Hydro (“Hydro”)
15 identified a number of lessons learned, or opportunities for improvement, that can be
16 incorporated into the proposed Penstock 3 Weld Refurbishment Project and Section
17 Replacement (“Penstock 3 Project”). A summary of lessons learned that will be considered for
18 the Penstock 3 Project is provided herein.

19 **Constructability**

20 • Experience on the Penstock 1 Project demonstrated that the allowance for site layout,
21 parking, laydown, and access during peak construction was not optimal and potentially
22 reduced efficiency and created congestion. For the Penstock 3 Project, site planning will be
23 based on peak staffing and equipment assumptions, with increased buffer space for parking
24 and material laydown. This reduces potential productivity losses, safety risks, and the need
25 for mid-project reconfiguration.

26 • Penstock 1 Project execution indicated vulnerabilities associated with temporary works and
27 weather events, including inadequate bulkheads and incomplete isolation of powerhouse
28 interfaces. For the Penstock 3 Project, engineered and properly sealed bulkheads, early

1 installation of impervious plugs, and clearly defined isolation requirements will be
2 implemented at the outset, reducing the risk of water ingress, operational impacts, and
3 unplanned repair costs.

4 **Construction Management**

- 5 • The Penstock 1 Project highlighted the importance of interface management and clear
6 communication between Hydro, the EPCM Contractor,¹ and the Construction Contractor.
7 Although this did not create a significant delay in the Penstock 1 Project, it is an opportunity
8 for improvement that could mitigate the risk of delays and potentially provide efficiencies.
- 9 • To mitigate schedule risk, Hydro will look for opportunities to open more work fronts earlier
10 in the schedule, including the replacement and refurbishment work fronts. During the
11 Penstock 1 Project, early construction was mainly focused on the replacement section, as
12 this was seen as the most challenging; however, as the project progressed, the risks that
13 materialized were more in the refurbishment scope. Opening additional work fronts to start
14 the refurbishment work quicker will allow more time in the schedule for schedule risks such
15 as weather delays.

16 **Contracts and Contract Administration**

- 17 • Lessons from the Penstock 1 Project will be directly incorporated into the Penstock 3
18 Project's contracting approach. Contract language will be enhanced to remove ambiguity
19 related to soil disposal, road maintenance, dust control, access, parking, and temporary
20 works. Tender documents will more clearly define contractor responsibilities and include
21 requirements for contractor-provided engineering support to address field changes
22 efficiently and reduce reliance on Owner or EPCM resources.
- 23 • Submittal requirements will also be clarified to require coordinated drawing packages rather
24 than piecemeal submissions, reducing administrative burden and review timelines.

25 **Engineering**

- 26 • Several cost and schedule impacts on the Penstock 1 Project were influenced by the clarity
27 of specifications and information available at Tender. For the Penstock 3 Project, technical

¹ Engineering, Procurement, and Construction Management ("EPCM").

1 documents will be strengthened to clarify weld repair categories, thickness ranges,
2 construction tolerances, drainage requirements, and applicable standards. Pre-construction
3 investigations will address known unknowns that were previously left to the contractor,
4 improving the information available during the bid process and reducing potential changes,
5 contingency pricing and opportunities for contractor claims.

- 6 ● The Penstock 3 design also incorporates drainage interfaces with adjacent penstocks and
7 facilities, informed by issues observed on Penstock 1, reducing the likelihood of rework or
8 operational constraints during construction or operation.

9 **Health, Safety, and Environment (“HSE”)**

- 10 ● A number of Penstock 1 Project lessons relate to HSE planning and execution. For the
11 Penstock 3 Project, contractor HSE deliverables will be fully implemented prior to and early
12 in construction, supported by earlier engagement of EPCM safety resources. Clearer
13 expectations for reporting, incident investigation, and working conditions (including heat
14 and cold stress controls) will reduce potential for lost time incidents, delays, and indirect
15 frequency. Constructability reviews focused on local site hazards (e.g., weather events,
16 working around energized lines) and considering issues seen during construction for the
17 Penstock 1 Project will aid in minimizing the safety risks associated with the execution of the
18 Penstock 3 Project.

19 **Quality**

- 20 ● Although the overall quality of work completed on Penstock 1 was very good and as
21 specified by the engineer, there were quality control challenges that resulted from
22 fragmented submittals and work associated with tracking of deficiencies. For Penstock 3,
23 coordinated fabrication submittals, defined review cycles, and formal deficiency tracking will
24 be required, reducing rework and improving schedule and cost certainty.

25 A number of the lessons learned also relate to certain key risks that were identified for the
26 Penstock 1 Project, including coating quality and application, unexpected subsurface conditions,
27 and availability of steel plate for penstock fabrication. These risks and associated controls were
28 incorporated into the design and execution planning for the Penstock 3 Project.

1 These learnings will be utilized throughout the progression of the Penstock 3 Project to drive
2 efficiency with the goal of least-cost, on-time completion of the Penstock 3 Project, and are
3 being incorporated by the EPCM Contractor. In particular, the learnings are informing ongoing
4 discussions with the EPCM Contractor on specification development for both engineering and
5 construction works. In addition, learnings related to contracts and contract administration from
6 the Penstock 1 Project have been incorporated and are expected to support improved
7 procurement processes and a clearer, more effective interface with contractors throughout
8 project execution.