

1 Q. **Reference: Application, Schedule 1: Upgrade Report – Penstock 1 Life Extension – Bay**
2 **d'Espoir, Appendix H, Page 26 of 76.**

3 Complete replacement poses considerable challenges as some of the existing
4 sections are virtually irreplaceable or replaceable at great cost. These locations
5 include the intake thimble, surge tank tee, sections under the substation, and
6 sections under the powerhouse. Due to the challenges associated with
7 complete replacement it was determined that the replacement option would
8 not include these sections.

9 a) What is Hydro's overall plan to address the entire length of all three aging steel penstocks
10 supplying water to Powerhouse 1 including eventual replacement of the 15 foot and 13.5
11 foot sections? In the response please describe the anticipated scopes of work for the entire
12 length of each penstock, the year(s) in which Hydro plans to undertake the work, and at
13 what cost.

14 b) Given the challenges of replacing the 13.5 foot and 15 foot diameter sections of penstock,
15 has Hydro assessed whether there are other solutions that could be implemented now to
16 extend the useful life of those sections beyond 30-50 years?

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19 A. a) The proposed capital investment in the weld refurbishment and recoating of the 13.5- and
20 15-foot diameter penstock sections is anticipated to extend the life of these assets by
21 approximately 30 to 50 years. Newfoundland and Labrador Hydro's ("Hydro") current capital
22 planning practices plan for a 20-year cycle; as such, these scenarios have not yet been
23 assessed. Hydro will continue with regularly scheduled inspections and recoating
24 applications as required to maintain asset integrity. At an appropriate time in the future,
25 Hydro will investigate options and available technologies for eventual replacement or
26 further life extension.

1 **b)** Hydro has assessed a variety of life extension alternatives with varying service life
2 extensions and costs.¹ Hydro strives for an investment level with an appropriate balance
3 between cost and reliability while remaining cognizant of the rate impact of capital
4 investments on customers. Given that Option 3 provides a significant life extension of 30 to
5 50 years, Hydro believed that recommending higher-cost options with the potential for
6 greater life extension was not appropriate at this time.

¹ Please refer to "Application for Approval of Capital Expenditures for Section Replacement and Weld Refurbishment for Bay d'Espoir Hydroelectric Generating Facility Penstock 1," Newfoundland and Labrador Hydro, December 7, 2022, sch. 1, app. H, for this analysis.