

1 Q. **Reference: Schedule 1 – Upgrade Report – Penstock 1 Life Extension – Bay d'Espoir.**

2 Table 7 on page 23 outlines the project's overall \$50,606,700 capital cost estimate. Lines 3-8 of
3 the same page states that the estimate includes Kleinschmidt's construction costs from the
4 perspective of a general contractor operating under a fixed-priced contract as well as Hydro's
5 estimates for its own project management, project engineering, detailed design engineering,
6 site representatives, and speciality QA/QC testing related activities.

7 **a)** Please confirm that Kleinschmidt's construction cost estimate is \$33,990,000 as detailed
8 within Appendix M, page 55 of 219, Table 3.3.

9 **b)** Please detail the primary reasons that Hydro's overall estimate is lower than Kleinschmidt's
10 estimate of \$52,354,600 (2021 dollars) as detailed within Appendix K, page 19 of 187, Table
11 3.1.

12 **c)** Kleinschmidt acknowledges in Appendix K, page 21 of 187, the high demand for contractors
13 within the current large-scale construction industry as well as the recent price increases in
14 steel, concrete and timber yet, for the purposes of determining the costs for this project,
15 has assumed to be in a market with historically adequate contractor supply and standard
16 profit margins. Has Hydro made the same assumptions as Kleinschmidt in deriving its
17 \$50,606,700 estimate?

18 **d)** Does Hydro anticipate any difficulty in securing a general contractor under a fixed-priced
19 contract as described by Kleinschmidt in Appendix M, page 24 of 219, to complete this
20 project? Please explain.

21 **e)** What alternatives, and their estimated costs to implement, are available to Hydro in the
22 event that Hydro is unable to secure a general contractor operating under a fixed-price
23 contract to complete this project?

- 1 A. a) Newfoundland and Labrador Hydro (“Hydro”) confirms that Kleinschmidt’s construction cost
2 estimate, developed in 2021 in Appendix M,¹ was \$33,990,000. Hydro escalated
3 Kleinschmidt’s construction cost estimate to 2022 values, which is reflected in Hydro’s
4 \$50,606,700 capital cost estimate.
- 5 b) The estimate Kleinschmidt developed within Appendix K² was an AACE³ class 4 estimate
6 with an expected accuracy of -30%/+50%. This estimate was developed to assist Hydro in
7 the decision-making process for the appropriate refurbishment option.
- 8 The estimate Kleinschmidt developed within Appendix M was an AACE class 3 estimate with
9 an expected accuracy of -20%/+30%. This estimate focused on Option 3 and included
10 updated responses from qualified fabricators. In line with industry practice, Hydro based its
11 final estimate on the AACE class 3 estimate.
- 12 c) The estimate and assumptions Kleinschmidt developed within Appendix K were for an AACE
13 class 4 estimate, the end use of which is for project study and feasibility. This report was
14 used to determine that Option 3 provided the required asset integrity and reliability for the
15 penstock. From this, a class 3 estimate, suitable for project authorization and control, was
16 developed for Option 3 only. The assumptions associated with the class 3 estimate are
17 found in Appendix M.⁴ Hydro is of the opinion that the assumptions used by Kleinschmidt
18 outlined in Appendices K and M are reasonable for the class of estimate for which they were
19 developed.
- 20 d) During the development of the class 3 estimate, Kleinschmidt reached out to fabricators to
21 obtain budgetary quotations and construction methodologies. Kleinschmidt contacted five
22 fabricators, two of whom provided positive responses. In addition to these positive
23 responses, Hydro has also received inquiries from local contractors interested in executing

¹ “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. M, s. 3.3, p. 27.

² “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. K.

³ Association for the Advancement of Cost Engineering (“AACE”).

⁴ For example, Le Group Lar provided a conceptual program and budgetary price for the supply, fabrication, and delivery of the 5.2 metre replacement section of Penstock is provided in “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. M, s. 3.3, 4, p. 28.

- 1 this work. Given this level of interest, Hydro does not anticipate difficulty in securing a
2 general contractor.
- 3 e) Hydro does not anticipate issues securing contract resources on a fixed-price contract. As
4 part of the class 3 estimate and supporting schedule development, Kleinschmidt held a risk
5 workshop with Hydro personnel to identify and evaluate the risks associated with various
6 aspects of the project execution activities. A summary of the risk response items is detailed
7 in Table 6.2 within Appendix N. The first item listed in Table 6.2, Contracting Early, details
8 the main mitigation factor and states, "Contracting early for design and fabrication phases
9 to ensure sufficient time for development, review, risk management, material purchase, and
10 to mitigate unexpected delays. Early contracting facilitates early delivery and extra lead
11 time."⁵ This combined with the positive response from fabricators and local contractors has
12 led Hydro to this conclusion. As such, estimates for alternative contracting methods have
13 not been developed.

⁵ "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. N, s. 6.2, p. 51, Table 6.2.