

1    **Q.     Reference: Program 2 - Overhaul Unit 2 Turbine and Valves (2023) - Holyrood**

2           Hydro states on page i, lines 13-14, that the Unit 2 turbine and valves are due for overhaul in  
3           2023 according to the established overhaul cycles. Hydro states on page 2, lines 25-26, that a  
4           condition assessment conducted by Hatch Ltd. in 2021 determined that the Unit 2 turbine and  
5           valves were in good condition, indicating that these components may have shown signs of  
6           slightly defective or deteriorated components but were overall functional. Given the magnitude  
7           of the proposed capital expenditure (\$9.7 million), the assessment by Hatch Ltd., and that Unit 2  
8           will only be in operation for approximately four months once the project is completed based  
9           upon Hydro’s current end of generation date for the Holyrood TGS, does Hydro intend to re-  
10          evaluate the need for this project based on the performance of the Unit 2 turbine and valves  
11          over the 2022-2023 winter season?

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14    **A.**     The requirement for the proposed project is based on established overhaul frequencies that are  
15           proven to provide safe and reliable operation. The internal condition of critical components such  
16           as valves, which control the admission of steam to the turbine and prevent over speed and  
17           water induction failures, and turbine blades that rotate at 60 times per second, can only be  
18           assessed through completion of the overhaul, which includes disassembly of all critical  
19           components. The assessment completed by Hatch Ltd., through which they determined that the  
20           turbine and valves were in good condition, was based on a review of maintenance records  
21           (including the reports from the completion of regular overhauls) and operating history, along  
22           with an external inspection of the equipment. The unit was not available for internal inspection  
23           in 2021.

24           Failure of any of these components in service can result in the loss of 170 MW of power for  
25           many months. Depending on the nature of the failure, extensive damage to the operating unit  
26           could result, as well as collateral damage to other assets and hazards to personnel safety. To  
27           illustrate the importance of completing planned overhauls, during the 2021 planned overhaul of  
28           the Unit 1 turbine, which is a sister unit of Unit 2 having similar operating and maintenance  
29           history, a crack was discovered on one of the largest blades on the turbine. This crack was

1           successfully repaired. A similar condition could be developing on the Unit 2 turbine and an  
2           overhaul is required to evaluate.

3           As a result of the above, Newfoundland and Labrador Hydro does not intend to re-evaluate the  
4           need for this project based on performance of the equipment over the 2022–2023 winter  
5           season. It is confirmed that this planned overhaul is required to be completed in 2023 to ensure  
6           reliable operation, despite the high cost and potentially short operating period post overhaul.