

1 Q. **Reference: Application, Schedule 3, Holyrood Thermal Generating Station Overview, page 12.**

2 It is stated *“An alternate source of heat is required to prevent freeze-up of the plant and*
3 *consequential severe damage to critical generation equipment should all three boilers at*
4 *Holyrood TGS be unavailable for operation simultaneously during cold weather.”*

5 a) In the past, what has been the heating source at Holyrood and why is it no longer
6 available?

7 b) Have all three boilers ever been unavailable for operation simultaneously during cold
8 weather? If so, what was the extent of damage to critical generation equipment?

9 c) Is there reason to believe that the likelihood of such an event will be greater from 2026
10 to 2030 than in the past?

11 d) Please provide an estimated probability of such an event occurring during 2026 to 2030?

12 e) Please confirm that the proposed cost of the heating system is \$901,300 in 2026 and
13 \$9,594,000 in 2027 as given in Appendix B, page B-1.

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16 A. a) Originally, the Holyrood Thermal Generating Station (“Holyrood TGS”) included two heavy
17 oil-fired auxiliary boilers designed to provide auxiliary steam for faster start-up of units, and
18 also provide heat to the plant when none of the generating unit boilers were in service. An
19 assessment of the auxiliary boilers in 1992 concluded that their condition had deteriorated
20 significantly. Rather than replacing these boilers, Newfoundland and Labrador Hydro
21 (“Hydro”) decided to retire them under the assumption that there would always be at least
22 one thermal unit online during cold weather. Since 1992, the Holyrood TGS has been heated
23 in the cold months by steam taken from one or more of the unit boilers.

24 Once the generating units are retired, a heating solution that does not rely on the unit
25 boilers will be required to enable the continued operation of Unit 3 as a synchronous
26 condenser. Hydro has recommended that all three Holyrood TGS units and the Hardwoods
27 and Stephenville Gas Turbines are to remain available through the “Bridging Period” while

- 1 Hydro seeks to develop new long-term sources of supply.¹ Having an alternate source of
2 heat through the bridging period will enable Hydro to place thermal units in cold standby
3 when backup generation is not required.
- 4 **b)** All three boilers have not been simultaneously unavailable during cold weather to date;
5 however, given the age of the assets, Hydro believes that it is prudent to plan for the risk of
6 multiple unit outages which could impact plant heating, particularly given the potential
7 impact of the loss of plant heating, which could result in extensive damage and render the
8 plant inoperable.
- 9 **c)** The continued aging of the boilers means that the risk of a boiler failure, such as a tube leak
10 (which may take two to three weeks to repair), is an increasing possibility. Hydro completes
11 annual assessments and inspections of boiler components, including tubes; however, due to
12 size and complexity, full inspection is not possible.
- 13 **d)** The probability of a three-unit simultaneous failure is difficult to estimate. Hydro believes
14 that this likelihood is low; however, a failure to one or more units while the remaining units
15 are on standby is also a potential issue. As the units continue to age, either or both
16 scenarios become more probable. The impact of either situation could be very severe with
17 all three units being rendered unavailable for days or weeks until units can be brought
18 online and/or repaired. The new plant heating system will mitigate the risk of damage due
19 to equipment freezing if the plant loses its source of steam. If the powerhouse and pump
20 houses are not heated, the water systems required to operate the plant will freeze and fail.
21 This could prevent the operation of all three generating units and cause significant damage
22 to generation equipment and controls, which may result in significant repair costs.
23 Therefore, Hydro believes that it is prudent to advance this project to install a heating
24 system that does not rely on the operation of the thermal units to mitigate this risk going
25 forward.

¹ Hydro considers the Bridging Period to be from 2023 to 2030. During the Bridging Period, the system would rely primarily on existing sources of generation capacity to maintain reliability while new generation capacity is being built. The primary, readily available supply options in this period are extending the retirements of the Holyrood TGS, Stephenville Gas Turbine and the Hardwoods Gas Turbine until their capacities can be adequately replaced.

- 1 **e)** Hydro confirms that this is the capital cost estimate for an electric-powered air-handling
2 unit solution. Based on Hydro’s preliminary engineering analysis, this alternative has low
3 operating and maintenance costs compared to fuel-fired air handling units, and electric or
4 fuel-fired boilers.