Q. With respect to the Holyrood TGS, the central question is, if the HRD TGS remains open through 2035, would the Avalon CT be needed? The bullets that follow ask for evidence around that main question.

a) Please provide a table showing the annual cost of the Holyrood TGS from 2021 to 2025 and forecasts for 2026 to 2030, assuming the current mode of operation continues. Please include forecasts for high, medium, and low fuel cost scenarios.

b) Please provide a table showing annual HRD costs and forecast system reliability criteria from 2026-2030 for the following scenarios: (1) one HRD unit retired; and (2) 2 HRD units retired.

c) Please provide a table showing the estimated annual cost to continue operation of Holyrood TGS from 2031 through 2035 if no new capacity additions are in place before 2036. Please identify the annual capital, operation, maintenance and fuel cost, and indicate how many Holyrood units are assumed to be retired or on standby.

d) Given the current LIL assumptions, through 2035, what HRD forced outage rate would be required for the system to not the stated reliability criterion?

A. **a)** Actual annual costs for the period 2021–2025 and forecasts for the period 2026–2030 are provided in Table 1 and Table 2, respectively. Newfoundland and Labrador Hydro ("Hydro") purchases fuel price forecasts from S&P Global Energy and does not have access to a low and high fuel cost forecast.

Table 1: Holyrood TGS[1] Costs 2021–2025 ($ Millions)

	2021	2022	2023	2024	2025
Capital	30.8	15.6	29.2	34.0	39.2
Fuel	98.1	163.5	150.0	140.7	117.6
Operating	22.4	21.3	23.6	24.0	24.7
Total	**151.3**	**200.4**	**202.8**	**198.7**	**181.5**

[1] Holyrood Thermal Generating Station ("Holyrood TGS").

Table 2 demonstrates Holyrood TGS forecast costs assuming current operation and transition to post-steam in March 2030. Should Hydro determine that extension beyond March 2030 is required, the costs would be much more material as demonstrated in Table 5.

Table 2: Holyrood TGS Forecast Costs 2026–2030 ($ Millions)

	2026	2027	2028	2029	2030
Capital[2]	31.2	36.0	31.6	4.1	0.4
Fuel[3]	84.4	62.6	67.4	71.5	34.4
Operating[4]	28.8	29.5	30.2	31.0	7.9
Total	**144.4**	**128.1**	**129.2**	**106.6**	**42.7**

b) The Holyrood TGS is an aging thermal facility with increasingly unpredictable performance. The advanced age of the asset introduces a heightened risk of failure and increased costs associated with maintaining its operation. Over the last five years, as a result of annual reliability analysis to inform Hydro's near-term reliability analysis, Hydro has revised its base and sensitivity forced outage rate assumptions from 15% and 20% to 20% and 34%, respectively, indicating a trend of worsening reliability. Hydro anticipates this trend will continue as the asset continues to age and operate beyond its intended design life, consistent with the "Bathtub Curve" model of equipment failure, which predicts higher and accelerating rates of failure at or near the end of an asset's useful life, despite continued capital investment.[5] As reported in Hydro's Quarterly Reports on Asset Performance in Support of Resource Adequacy ("Rolling 12 Report"),[6] the DAFOR[7] statistics for Holyrood TGS for all thermal units (weighted DAFOR) and DAFOR by individual unit for the past five years is shown in Table 3.

[2] Based on Hydro's current five-year capital plan, assuming end of generation at Holyrood TGS in 2030.
[3] Fuel costs through 2030 are based on January 2026 five-year forecast and may differ from those provided within the 2026 General Rate Application ("GRA") for 2026F and 2027 Test Year. Estimates are based on a point-in-time forecast and are subject to change, such as in the event of incremental maintenance requirements or changes in operating regime.
[4] Operating costs through 2030 are based on January 2026 five-year forecast and may differ from those provided within the 2026 GRA for 2026F and 2027 Test Year. Estimates are based on a point-in-time forecast and are subject to change, such as in the event of incremental maintenance requirements or changes in operating regime.
[5] "2024 Resource Adequacy Plan – An Update to the Reliability and Resource Adequacy Study," Newfoundland and Labrador Hydro, rev. August 26, 2024 (originally filed July 9, 2024), 2024 Resource Plan Overview, p. 16.
[6] Hydro's quarterly Rolling 12 Reports can be accessed at http://www.pub.nf.ca/indexreportspages/12MonthRollingAverage.php.
[7] Derated Adjusted Forced Outage Rate ("DAFOR").

Table 3: Thermal Weighted DAFOR

Generating Unit	Maximum Continuous Unit Rating (MW)	12 months Ended Mar 2026 (%)	12 months Ended Mar 2025 (%)	12 months Ended Mar 2024 (%)	12 months Ended Mar 2023 (%)	12 months Ended Mar 2022 (%)	Five-year Average (%)	Near-Term Planning and Resource Planning Analysis Value (%)
All Thermal Units – Weighted	**490**	**27.76**	**31.92**	**43.07**	**12.67**	**33.84**	**29.85**	**20.00**
Thermal Units								
Holyrood TGS Unit 1	170	20.27	77.01	9.05	23.78	33.40	32.70	20.00
Holyrood TGS Unit 2	170	14.34	22.77	84.22	0.67	31.67	30.73	20.00
Holyrood TGS Unit 3	150	72.84	3.41	23.22	17.35	37.15	30.79	20.00

Hydro has stated that all three units would remain available through the Bridging Period, should they be required to mitigate against the potential for a Labrador-Island Link ("LIL") bipole outage as discussed in Hydro's response to part a) of CA-NLH-007 of this proceeding. In the 2024 Resource Adequacy Plan Settlement Agreement, filed as Schedule 2 to the 2025 Build Application, the parties agreed that the Holyrood TGS and the Hardwoods and Stephenville gas turbines are required as part of the Bridging Plan until new generation has been reliably integrated into the Island Interconnected System.

For the past three winters, a unit at the Holyrood TGS has been unavailable for all or a portion of the winter season due to forced extensions to planned outages as a result of found work or complications from repairs.[8] Utilizing any of the three units enables Hydro to have the flexibility to provide system generation despite unplanned outages and reliability issues that arise. The operational dependency on the Holyrood TGS is directly linked to overall system reliability: continued reliance on this aging thermal facility beyond 2030 increases exposure to unplanned outages, resulting in the increased likelihood of customer outages.

[8] As reported in Hydro's Winter Readiness Planning reports, Unit 2 was unavailable during the winter of 2023–2024. During the winter of 2024–2025, Unit 1 was unavailable until mid-February 2025. Most recently, during the winter of 2025–2026, Unit 3 was unavailable until mid-February 2026.

Given the unpredictable performance of Holyrood TGS units in recent years as shown in Table 3, Hydro does not feel confident that remaining units can maintain a DAUFOP[9] of 20% through the Bridging Period should one unit retire. In addition, Hydro's 2025 Near-Term Reliability Report demonstrated that Holyrood TGS at a DAUFOP of 34% results in the violation of the 2.8 LOLH[10] planning criteria in four of five years from 2026 to 2030, as discussed in detail within part (d) of this response.[11] Hydro will reassess its forced outage rate assumptions for the Holyrood TGS in the 2026 Near-Term Reliability Report.

Hydro ran a sensitivity of retiring units at the Holyrood TGS between 2026 and 2030, using the current reliability planning assumption of 20% DAUFOP and LIL biPole EqFOR[12] of 1% and 3%. The early retirement of two units at Holyrood TGS without replacing them with new generation would result in the violation of the 2.8 LOLH planning criteria as shown in Table 4.

The LOLH[13] by year can be found in Table 4.

Table 4: LOLH by Year – Holyrood Unit Retirement Sensitivity

	2026[14]	2027	2028	2029	2030
One Holyrood Unit Retired (Assuming DAUFOP 20%, LIL Bipole EqFOR 1%)	1.6	0.7	0.7	0.9	1.1
Two Holyrood Units Retired (Assuming DAUFOP 20%, LIL Bipole EqFOR 1%)	**4.9**	2.6	2.5	**2.9**	**3.4**
One Holyrood Unit Retired (Assuming DAUFOP 20%, LIL Bipole EqFOR 3%)	**3.7**	2.2	2.1	2.6	**3.3**
Two Holyrood Units Retired (Assuming DAUFOP 20%, LIL Bipole EqFOR 3%)	**11.7**	**7.6**	**7.3**	**8.4**	**9.9**

Based on the above results, should the Holyrood TGS DAUFOP increase beyond 20%, or the LIL EqFOR is greater than 1%, the retirement of one Holyrood TGS unit would likely result in the system exceeding the LOLH criteria. It is important to note that these results do not

[9] Derated Adjusted Utilization Forced Outage Probability ("DAUFOP").
[10] Loss of Load Hours ("LOLH"). LOLH is the expected number of hours per year when a system's hourly demand is projected to exceed the generating capacity.
[11] Please refer to "Reliability and Resource Adequacy Study Review – 2025 Near-Term Reliability Report," Newfoundland and Labrador Hydro, November 20, 2025, sec. 4.2, p. 36.
[12] Equivalent Forced Outage Rate ("EqFOR").
[13] Based on the 2025 Reference Case Load Forecast with a 1% LIL EqFOR and a 20% Holyrood TGS forced outage rate.
[14] LOLH is elevated in 2026 due to scheduled outages.

reflect Hydro's recommendation to extend the life of Holyrood TGS through the Bridging Period to mitigate against the impacts of a LIL shortfall event.[15]

In summary, the reliability of all three units at Holyrood TGS has been unpredictable, and to retire a specific unit would increase dependency of the broader system on the reliability of the remaining units and the LIL. Hydro considers the retirement of any unit at Holyrood TGS before new generation capacity is online to be imprudent, as it would be operationally impractical and pose significant risk to the system.

In conclusion, due to the reliability of Holyrood TGS, Hydro believes that maintaining the availability of all three units at Holyrood TGS through the Bridging Period is critical to system reliability until new generation is online. As a result, Hydro has not provided annual costs reflecting the retirement of units prior to 2030.

c) The 2024 Resource Adequacy Plan demonstrated that retirement of the Holyrood TGS cannot be fully enabled until both the Avalon Combustion Turbine and Bay d'Espoir Unit 8 are in service. The extension of the Holyrood TGS operations will result in combined fuel, capital, and operating costs exceeding $100 million per year, as shown in Table 5.

While the Holyrood TGS is constrained by federal *Clean Electricity Regulations* which preclude its operation beyond 2035, Hydro's position is that the Holyrood TGS should be retired earlier than 2035. That is not solely due to the costs that would be incurred. Hydro's mandate requires the balance of least-cost, reliability, and environmental responsibility in providing electricity service to customers. In addition to the material financial risk and environmental considerations, the reliability risk of continued reliance on the Holyrood TGS is growing.

Holyrood TGS is an aging thermal facility with increasingly unpredictable performance. The advanced age of the asset introduces a heightened risk of failure and increased costs associated with maintaining its operation. Over the last five years, as a result of annual reliability analysis to inform Hydro's near-term reliability analysis, Hydro has revised its base

[15] Actual forced outage rates for the Holyrood TGS and LIL for 2025 were 27% and 1%, respectively.

and sensitivity forced outage rate assumptions from 15% and 20% to 20% and 34%, respectively, indicating a trend of worsening reliability.[16,17] Hydro anticipates this trend will continue as the asset continues to age and operate beyond its intended design life, consistent with the "Bathtub Curve" model of equipment failure, which predicts higher and accelerating rates of failure at or near the end of an asset's useful life.[18]

The operational dependency on the Holyrood TGS is directly linked to overall system reliability: continued reliance on this aging thermal facility increases exposure to unplanned outages, resulting in the increased likelihood of customer outages. Despite continued maintenance efforts and ongoing sustaining capital investments, Hydro's recent experience in late January 2026 has demonstrated that the reliability performance of the Holyrood TGS is erratic due to the age, condition, and inherent limitations of the facility. Reliance on an asset with decreasing reliability but increasing costs would not be consistent with good utility practice.

Holyrood TGS costs for base load operation through 2035 were provided in Hydro's *Reliability and Resource Adequacy Study Review* – Holyrood TGS Capital Plan Refresh, filed on March 7, 2025.[19] Table 5 shows the forecast baseload operation costs as presented in this filing, which assumes three units available with two online through the winter period.

Table 5: Holyrood TGS – Baseload[20] Operation to December 31, 2035 ($ Millions)[21]

Cost Type	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	Total
Capita	51.9	27.1	14.6	13.1	17.9	24.7	33.3	33.1	32.8	10.6	**259.1**
Fuel	74.7	69.1	70.7	72.1	73.1	77.4	79.1	80.9	84.4	89.5	**770.9**
Operating	26.6	27.4	28.2	29.1	30.0	30.9	31.8	32.7	33.7	34.7	**305.1**
Total	**153.2**	**123.5**	**113.6**	**114.3**	**120.9**	**132.9**	**144.2**	**146.7**	**150.9**	**134.8**	**1,335.1**

[16] Holyrood forced outage rate assumptions were updated as part of the Reliability and Resource Adequacy Study 2022 Update. Please refer to "Reliability and Resource Adequacy Study 2022 Update," Newfoundland and Labrador Hydro, October 3, 2022, vol. III, att. 4. These assumptions will be revised in advance of the next Reliability and Resource Adequacy Study update.
[17] Near-term reliability assumptions are provided in Hydro's Near-Term Reliability Report, filed annually under the *Reliability and Resource Adequacy Study Review* proceeding.
[18] "2024 Resource Adequacy Plan – An Update to the Reliability and Resource Adequacy Study," Newfoundland and Labrador Hydro, rev. August 26, 2024 (originally filed July 9, 2024), 2024 Resource Plan Overview, p. 16.
[19] This report was also added to the record of the 2025 Build Application upon its filing.
[20] Baseload is to operate a generating unit at a minimum permissible capacity to ensure reliable operation. For example, Holyrood TGS units are operated at a baseload of 70 MW each.
[21] Numbers may not add due to rounding.

d) Hydro provided a sensitivity whereby Holyrood TGS DAUFOP was escalated to 34% in its 2025 Near-Term Reliability Report for 2026 to 2030, as shown in Table 6.[22] Hydro's probabilistic capacity planning criteria specify that the Island Interconnected System should have sufficient generating capacity to satisfy a LOLH expectation target of not more than 2.8 hours per year.

Table 6: Scenario 1A Sensitivity Annual LOLH Results (2025 Near-Term Reliability Report)

	2026[23]	2027	2028	2029	2030
Scenario 1A: Holyrood TGS DAUFOP = 34%	**4.1**	**3.0**	2.7	**3.4**	**3.6**

Scenario 1A results above indicate that increasing the DAUFOP for Holyrood TGS units from 20% to 34% significantly reduces system reliability. The risk of having a loss of load event more than doubles in 2026 compared to the reference case, with LOLH rising from 1.8 to 4.1. Elevated LOLH values persist through the study period. These results highlight the importance of Holyrood TGS Units' reliability during peak demand periods.

Based on the analysis above and the current operational data that indicates decreasing reliability of the Holyrood TGS as discussed in part b) of this response, it is reasonable to assume that LOLH values in excess of those in 2030 persist through 2035. For further information, please refer to Hydro's 2025 Near-Term Reliability Report.

[22] *Supra,* f.n. 11.
[23] LOLH is elevated in 2026 due to scheduled outages.