

1 Q. **Reference: Reliability and Resource Adequacy Study 2022 Update, Volume III, page 48, lines**  
2 **10-14.**

3 It is stated that Bay d’Espoir Unit 8 would provide only incremental capacity, and no incremental  
4 energy. Describe and estimate:

5 a) any circumstances that may exist under which total generation from Bay d’Espoir would be  
6 reduced (as compared with current dispatch methods and criteria) in order to preserve the  
7 ability to serve the need identified for a Unit 8;

8 b) if the most severe hydrological conditions in the most recent 10 and 20 year periods were to  
9 recur, the amount of any reduction; and

10 c) for the most severe hydrological conditions in the most recent 10 and 20 year periods, the  
11 portion of reduced Bay d’Espoir generation that would be made up by thermal generation.

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14 A. The impact of the addition of Unit 8 at the Bay d’Espoir Hydroelectric Generating Facility (“Bay  
15 d’Espoir Unit 8”) on firm and average energy availability can be seen in the report “Hydrology  
16 and Feasibility Study for Potential Bay d'Espoir Hydroelectric Generating Unit No. 8.”<sup>1</sup>

17 a) Two factors could potentially effect the available energy on the Bay d’Espoir System, spill  
18 and efficiency, both of which are addressed in the report referenced above.

19 As identified in the report, the addition of Bay d’Espoir Unit 8 resulted in a small increase in  
20 the probability of spill at the North Salmon Bypass Spillway. With the addition of Bay  
21 d’Espoir Unit 8, there is expected to be bypass in 1.1% of years as opposed to 0.6% of years  
22 without Unit 8. This results in a small decrease in available generation from the Upper  
23 Salmon Hydroelectric Generating Station

24 The addition of Bay d’Espoir Unit 8 also had an effect on the efficiency of the Bay d’Espoir  
25 Hydroelectric Generating Facility and Upper Salmon Hydroelectric Generating Station. The

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<sup>1</sup> "Reliability and Resource Adequacy Study - 2022 Update," Newfoundland and Labrador Hydro, October 3, 2022, vol. III, att. 6.

1            addition of Unit 8 is expected to reduce the efficiency of the Upper Salmon Hydroelectric  
2            Generating Station slightly in 2.3% of years while increasing the efficiency of the Bay  
3            d’Espoir Hydroelectric Generating Facility by 0.08%.

4            In combination, these factors increased the available energy on the Bay d’Espoir system by  
5            0.67% on average, or about 22 GWh.

6            **b)** The report does not include an annual breakdown of the results. However, the analysis was  
7            done using 70 years of hydrological data, which includes the most recent 10- and 20-year  
8            periods available at the time of the study. In the most severe hydrological sequence, from  
9            1959 to 1962, storage in the Bay d’Espoir system was able to stay above its minimum,  
10           according to the results of the simulation. This does not change with the addition of Bay  
11           d’Espoir Unit 8.

12           **c)** The current Energy Criteria would require Newfoundland and Labrador Hydro (“Hydro”) to  
13           be able to supply all of its native load requirements in the worst hydrological sequence,  
14           without using combustion turbine generation. Any reduction in available energy would be  
15           because of spill, which would occur in the higher inflow scenarios. Therefore, since Hydro  
16           would not need to rely on thermal generation in higher inflow scenarios, we can assume  
17           that any reduction in available energy due to spill would reduce export potential rather than  
18           creating a need for thermal generation.