

-
- 1 Q. Please refer to “Labrador Interconnected System Network Additions Policy Summary Report” at
2 6-7, which states: “EUE is a measure of the amount of customer demand not served due to
3 capacity shortfalls. For the purposes of Network Additions Policy analysis, EUE is valued using
4 the approximate cost of backup generation based on the projected costs of gas turbine fuel.
5 Such approach serves as a proxy for reliability to customers.”
6
- 7 a. Please explain how the upgrades included in the LIS Transmission Expansion Plan would
8 affect reliability for industrial and retail customers.
9
- 10 b. Please explain how the upgrades included in the calculation of the Expansion Cost per kW
11 would affect reliability for industrial and retail customers.
12
13
- 14 A. a. The upgrades included in the Labrador Interconnected System Transmission Expansion Plan
15 would improve reliability for customers as there would be adequate system capacity to meet
16 peak load. In western Labrador, for example, customer interruptions would not be required over
17 peak when all equipment is in service or when there are outages to system components such as
18 power transformers, capacitor banks, or synchronous condensers.
19
- 20 With only Newfoundland and Labrador Hydro’s existing transmission system components in
21 service, supply interruptions in western Labrador would be required whenever system load
22 exceeds the peak system capacity of 350 MW. Based on load forecasts for the period ranging
23 from 2020–2043, the number of customer interruptions is expected to continue to increase. For
24 the 2020–2021 winter season, 8 interruptions are expected with durations ranging between 4
25 and 49 hours. In 2043, 51 interruptions are expected with durations ranging between 4 and 122
26 hours.
27
- 28 Reliability analysis was also performed to quantify customer impact as a result of equipment
29 outages. Expected Unserved Energy (“EUE”) was determined for both the 2020–2021 and 2045–

1 2046 cases based on the Canadian Electricity Association’s 2018 annual equipment reliability
 2 report¹, and is presented in Table 1.

3
Table 1: EUE due to the Unavailability of Equipment

Year	EUE Capacitor (MWh)	EUE Transformer (MWh)	EUE Sync Condenser (MWh)
2020–2021	21.1	378.8	2,500

4 With the proposed transmission system upgrades, the customer impact described above would
 5 be eliminated.

6
 7 **b.** The upgrades included in the calculation of the Expansion Cost per kW would only be
 8 triggered by incremental load growth above the baseline forecast. The specific system upgrade
 9 requirement and associated reliability impacts would be dependent on the quantity of
 10 incremental load and detailed information of the interconnecting customer. As a result, the
 11 quantification of such impacts is not possible without performing a system impact study based
 12 on these specific details.

¹ Forced Outage Performance of Transmission Equipment.