

1 Q. **Reference: Assessment of Labrador Island Transmission Link (LIL) Reliability in Consideration**
2 **of Climatological Loads, March 10, 2021 (Haldar Report) by Dr. Asim Haldar, Ph.D., P. Eng.**

3 Newfoundland and Labrador Hydro filed a report, dated March 12, 2021 that provided an
4 overview of the Haldar Report and Hydro's conclusions with respect to the findings. On page 3 it
5 is stated that, "To Hydro's knowledge, consideration of full line length was not a standard design
6 consideration pre-CSA 60826 and it remains unclear how widely adopted such an approach is at
7 present." Explain why, in Dr. Haldar's opinion, consideration of the LIL full line length is
8 appropriate to gain a full understanding of the reliability of the LIL.

9

10

11 A. *The following response has been provided by Haldar and Associates.*

12 Consideration of the Labrador-Island Link ("LIL") full line length is appropriate to gain a full
13 understanding of the reliability of the LIL because the vulnerability of LIL is dependent on the
14 significant distance that LIL traverses and the line's exposures to temporal and spatial variation
15 of various weather factors and the extreme climatic weather regions. Based on a novel
16 approach presented in Haldar Report, the result of our analysis revealed two bounds on the
17 overall LIL reliability (Cases 1 and 4 in Table 6.2 under DLS). These POF bounds are
18 approximately separated by a factor of five.

19 The author is fully aware of the fact that this was not considered in the original LIL design nor
20 the mutual exclusivity of the two icing types in assessing the design failure rate. By considering
21 these effects, the Haldar Report provides a more realistic assessment of LIL reliability and this
22 should be understood against one severe failure event that the line has already experienced in
23 one of the four regions (Labrador) and this only occurred in the three-year operational life of the
24 line. Therefore, our data in Table 6.2 should be validated against future outage events
25 (monopole or bipole) due to mechanical failure of LIL under other DLS events. These bounds
26 should also be considered in studying the customer impact as indicated in PUB NLH-184 in the
27 assessment of any new generation expansion to the existing Newfoundland and Labrador Hydro

1 system using the probabilistic planning model.¹ Future LIL performance will show whether the
2 LIL reliability level as provided in the original design is adequate or not against the several
3 findings of Halder Report.

¹ Halder, Asim 2009 Assessment of Optimum Design Return Period of a \pm 450kv HVDC Line, Nalcor Report ##, WTO# 1081, Prepared for LCP project.