

1 Q. **Newfoundland and Labrador Hydro - EFLA Consulting Engineers Report - *Structural Capacity***
2 ***Assessment of the Labrador Island Transmission Link, April 30, 2020 ("EFLA" Report)***

3 With respect to the phrase "the design exceeded some of the basic requirements in the
4 standard" cited on page 5 of the April 30, 2020 EFLA report, please:

- 5 a. Explain in detail what is meant by this statement.
- 6 b. Define specifically what those requirements are and where they are cited or explained in the
7 standard.
- 8 c. Explain qualitatively and for all cases if, where, and how requirements other than these
9 were applied.
- 10 d. Provide a table listing all quantified values comprising these basic requirements and provide
11 in that table a one-to-one comparison of all values other than those comprising these basic
12 requirements used in assessing LIL structural capacities as part of the EFLA analysis.
- 13 e. Identify where in the study report return periods or other quantified measures of LIL
14 structural capacities with respect to wind and ice loadings are presented. If not so
15 presented, provide them measured against all values (basic requirements and others)
16 analyzed as part of the EFLA work, at the greatest level of detail (tower, conductor, and any
17 others employed) analyzed.

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20 A. a. As described in Chapter 3.3, page 26 of the EFLA Consulting Engineer's ("EFLA") report, the
21 design of the Labrador-Island Link ("LIL"), was in some areas based on higher wind speed
22 and more icing than specified in the CSA standard.

23 b. The requirements referred to in this question are the climatic loads (ice and wind) that are
24 outlined in Section 6 of the Canadian Deviations for CSA 60826. The section includes design
25 information related to return periods for both ice and wind loading based on geographical
26 area.

1 c. For the purpose of this response, it is assumed that the question is asking where EFLA
2 utilized different design criteria than that outlined as requirements of the standard. Please
3 refer to Chapter 3.3 of the EFLA report for a detailed explanation, specifically Figure 18
4 regarding wind load and Figure 20 regarding ice load. This section highlights the values used
5 for the design of the LIL and the values used by EFLA for the assessment and clearly show
6 where they deviated from each other.

7 These variations were primarily due to interpolations with regards to contour lines shown
8 on CSA Standard weather maps. Specifically;

- 9 • Reference wind speed in zones 2a, 2b, 2c, 5, 7a, 7b, 7c and 9 is considerably higher in
10 “as-designed” than the CSA wind speed; and
- 11 • The glaze ice used in the design is higher than the CSA-150 loading criteria for the
12 majority of the line. In total, there is only 70 km (zones 3a, 3b, 4b, 4a and 6) where glaze
13 ice is higher in the CSA-150 loading than the “as-designed” line loading.

14 d. Please refer to Newfoundland and Labrador Hydro’s response to NP-NLH-012.

15 e. This information was provided in Chapter 4 of the EFLA report, results of analysis of the
16 report.