

1 Q. **Reference: Reliability and Resource Adequacy Study 2022 Update, Volume III, page 19, lines**  
 2 **18-23.**

3 Describe and detail the basis for the statement that structure upgrades to 2 percent of the LIL  
 4 structures would be required if the value assessment completed by Haldar and Associates were  
 5 used and what monitored weather conditions will set the replacement criteria.

6

7 A. A summary of the Haldar & Associates reports<sup>1</sup> findings under the Damage Limit State Scenarios  
 8 reflecting the increased combined wind and ice loading (85/40), impact of wind speed up  
 9 (“WSU”), and the cumulative effects of the two is provided in Table 1.

**Table 1: Summary of Haldar Report Findings**

	Baseline	Increased Wind + Ice (85/40)	Wind Speed-Up	Cumulative Effects
Probability of Failure (RRA <sup>2</sup> Inputs)	1.1%	4.1%	1.57%	10%
Return Period	73	24	39	10
Critical Towers		59	7	62

10 The results indicate that the cumulative effect of combined wind + ice at the more extreme  
 11 85/40 level and wind speed-up results in a probability of failure of 10%. This probability of  
 12 failure is directly based on the fact that there are several towers in Zone 3a that are vulnerable  
 13 due to local topography effects coupled with CSA 22.3 No. 60826-10<sup>3</sup> increased combined  
 14 wind + ice load events.

15 In total there are 3,223 structures on the Labrador-Island Link with 62 of them exceeding 100%  
 16 load under the governing extreme wind + ice load case (85/40) within Zone 3A; as such, this  
 17 results in only 2% of the total quantity.

<sup>1</sup> "Assessment of Labrador Island Transmission Link (LIL) Reliability in Consideration of Climatological Loads," Haldar & Associates Inc., rev. April 11, 2021 (originally issued March 10, 2021) and "Assessment of Labrador Island Transmission Link (LIL) Reliability in Consideration of Climatological Loads - Phase II," Haldar & Associates Inc. December 12, 2021.

<sup>2</sup> Reliability and Resource Adequacy ("RRA").

<sup>3</sup> Canadian Standards Association. (2010). CSA 22.3 No. 60826-10, *Design Criteria of Overhead Transmission Lines* is a national standard that specifies the loading and strength requirements of overhead lines derived from reliability-based design principles.

- 1 Newfoundland and Labrador Hydro will continue to monitor infrastructure in the critical areas
- 2 through established operating procedures and look for trends in increased wind + ice
- 3 accumulation as well as any failures that may occur during the infancy stages of its operation.