

1 Q. **Reference: Attachment 1 - Long-Term Supply for Southern Labrador - Economic and Technical**  
2 **Assessment: Appendix C – Southern Labrador Interconnection – Reliability Assessment**

3 Hydro states on page 6 that “A southern Labrador interconnection would improve the overall  
4 system performance of the southern Labrador isolated diesel systems as long as the regional  
5 diesel plant has a redundancy of N-2.”

6 a) What is the incremental cost to this proposal as a result of implementing this N-2  
7 redundancy as opposed to Hydro’s typical N-1 redundancy?

8 b) Is the use of N-2 redundancy a commonly accepted industry practice?

9 c) Is Hydro proposing that N-2 redundancy become the new rural planning standard for  
10 rural isolated systems?

11

12

13 A. a) A redundancy requirement of N-2 is required to prevent the reliability of southern Labrador  
14 from decreasing following the interconnection of the region.<sup>1</sup> A detailed Class 2 estimate  
15 was not developed for the option of N-1 redundancy as it was considered less reliable than  
16 the existing configuration; however, as a high-level approximation, Newfoundland and  
17 Labrador Hydro (“Hydro”) believes that moving to an N-1 redundancy would reduce the  
18 capital cost by approximately \$2.5 million.<sup>2</sup>

19 b) Of the other utilities who are members of the Off Grid Utilities Association<sup>3</sup> (“OGUA”), most  
20 have adopted a standard redundancy planning criteria of N-1 but there are many examples  
21 where additional redundancy is used. Some examples include:

---

<sup>1</sup> “Long-Term Supply for Southern Labrador – Phase 1,” Newfoundland and Labrador Hydro, July 16, 2021, sch. 1, att. 1, app. C.

<sup>2</sup> Based on the following savings: Genset \$1.67 million (including installation), Electrical \$0.05 million, Building \$0.35 million, Protection, Control and Communication (\$0.48 million). Estimate does not include savings associated with reduced contingency or interest during construction.

<sup>3</sup> Members of OGUA include ATCO Yukon, Hydro Quebec, BC Hydro, Manitoba Hydro, Quilliq Energy, ATCO Alberta, Cordova Electric Cooperative, and AVEC.

- 1                   ■ Manitoba Hydro uses N-2 redundancy given the very remote nature of its four  
2                   isolated sites;
- 3                   ■ ATCO Yukon uses N-2 redundancy for its largest six generator sites where parallel  
4                   operation of two or more units are required to provide community load. (similar to  
5                   Hydro's proposed southern Labrador interconnection);
- 6                   ■ ATCO Alberta used N-2 redundancy for its largest diesel plant that has four  
7                   generating units; and
- 8                   ■ Cordova Electric Cooperative strives to maintain N-2 redundancy.
- 9                   c) Hydro is not proposing that N-2 redundancy become the new rural planning standard for  
10                  rural isolated systems. As described in part a) of this response, the use of N-2 redundancy is  
11                  required for the southern Labrador interconnected system to ensure the reliability does not  
12                  decline due to the introduction of the distribution interconnection lines.