

1 Q. Please confirm that the proposed N-2 redundancy at Charlottetown and Pinsent's Arm is a
2 temporary measure and that Hydro will revert back to N-1 redundancy for these communities
3 upon the completion of a long-term solution for the supply of power. If not, please explain why
4 Hydro would continue using N-2 redundancy.

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7 A. Newfoundland and Labrador Hydro's "Long-Term Supply for Southern Labrador –Phase 1"
8 application notes that a redundancy requirement of N-2 is required to prevent the reliability of
9 southern Labrador from decreasing following the interconnection of the region.¹ This is
10 discussed further in Hydro's response to PUB-NLH-030 of that application, attached as PUB-NLH-
11 001, Attachment 1.

¹ "Long-Term Supply for Southern Labrador – Phase 1," Newfoundland and Labrador Hydro, July 16, 2021, sch. 1, att. 1, app. C.

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?

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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.¹ 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.²

19 b) Of the other utilities who are members of the Off Grid Utilities Association³ (“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:

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

² 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.

³ 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.