

1 Q. **Reference: Midgard Consulting March 28, 2023 Report - Southern Labrador Communities –**  
2 **Integrated Resource Plan**

3 Midgard’s IRP Scenario G on page 74 of 103 includes a regional diesel plant to provide backup in  
4 the event of a transmission outage from Site 8C to the newly interconnected Southern Labrador  
5 system; a distance of approximately 10 kilometres according to the original July 2021 application  
6 (Long-Term Supply Study for Southern Labrador: Economic & Technical Assessment, Figure 2,  
7 page 8).

- 8 a) Please cost and evaluate this scenario without a regional diesel plant to provide backup.
- 9 b) Hydro’s proposed solution (Midgard’s IRP Scenario C) involves no local backup in any of  
10 the communities yet the distances involved are significantly longer than the distance  
11 from Site 8C to the Southern Labrador interconnection (e.g., distance from Port Hope  
12 Simpson to St. Lewis is approximately 50 kilometres). Please explain why Midgard  
13 determined it was necessary to include backup generation in its analysis whereas Hydro  
14 concluded that the deployment of a mobile generator in combination with a  
15 mobile/skid-mounted 4/25 kV generator step-up transformer was sufficient to serve as  
16 backup generation for all interconnected communities within its proposed solution.
- 17 c) Please detail Hydro’s emergency response plan for each community in the event of an  
18 extended outage on the distribution line interconnecting the communities including the  
19 location where the mobile generator and skid-mounted step-up transformer would be  
20 located when not deployed for emergency purposes.
- 21 d) Would Hydro re-evaluate its no-local-backup-generation view for its proposed solution if  
22 one or more of the communities was disconnected from the interconnected Southern  
23 Labrador grid without access to a mobile generator step-up transformer for several days  
24 during a winter season? Please explain.
- 25 e) Please cost and evaluate Midgard’s Scenario C with the assumption that local backup  
26 generation is present in each community.

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1 A. a) *This response has been provided by Midgard Consulting Inc. (“Midgard”).*

2 To clarify, the facility in Scenario G is not planned to replace Site 8C generation in the event  
3 of an interconnection outage along the 10 km of line between the plant and the proposed  
4 southern Labrador interconnection system. Rather, the purpose is to replace generation of  
5 the plant itself during forecast periods of non-generation due to lack of water. A scenario  
6 without the planned diesel backup would place Newfoundland and Labrador Hydro  
7 (“Hydro”) in a position of being unable to meet customer winter load requirements at all  
8 times in 28 of the 33 years of record. As such, this is not considered a viable scenario.

9 b) Please refer to Midgard’s response to part a).

10 c) Hydro maintains emergency response plans to respond to emergencies and outages in the  
11 communities it serves. The existing emergency response plans for the communities affected  
12 by the interconnection would be revised to reflect the change in electrical supply from their  
13 current arrangement. Hydro intends to revise the Emergency Response Plans in 2026, during  
14 the construction phase of the project schedule, in advance of the assets going into service.  
15 Hydro would ensure that sufficient resources are located in southern Labrador to enable  
16 Hydro to respond to a distribution outage quickly in the event of an unplanned outage.  
17  
18 Emergency supply to an affected community after a distribution damage event would be  
19 contingent on an evaluation of the extent of the distribution line damage. If required,  
20 mobile generation would be established on the distribution line servicing the community,  
21 isolated from the damaged section. The spare mobile(s) and transformer would be stored at  
22 the regional plant in Port Hope System for storage control and required maintenance. The  
23 exact location for installation of mobile gensets and transformers would be dependent on  
24 the location of the distribution issues, and will be considered during the development of  
25 emergency response plans.

25 Hydro also notes that with its selective alternative, the interconnection between  
26 communities would be designed in accordance with transmission standards, which are more  
27 robust than distribution standards; this serves to mitigate the risks of extended unplanned  
28 outages on the distribution system.

1           **d)** Hydro does not expect one or more of the communities in the proposed interconnection to  
2           be disconnected from the interconnected southern Labrador grid for several days during a  
3           winter season. The interconnection lines will be built along existing roadways and will utilize  
4           66 kV pole standards. Being constructed along existing roadways allows for faster  
5           troubleshooting and repair. The utilization of 66 kV pole standards increases the overall  
6           mechanical strength of the line. Hydro operates many distribution systems with 50 km  
7           distribution lines without end-of-line backup installed, and has not experienced outages  
8           lasting several days due to distribution line failure in communities accessible by road.<sup>1</sup> If  
9           Hydro experienced reliability issues with any long distribution lines, it would consider all  
10          reasonable alternatives to improve the reliability. This could include, but would not be  
11          limited to, installing end-of-line backup generation at the end of the distribution feeders, or  
12          locating temporary generation nearby for quick deployment as required. Hydro’s reliability  
13          analysis provided in its initial application concluded that interconnection with a regional  
14          diesel plant would not present a material change in in reliability.<sup>2</sup>

15          **e)** *This response has been provided by Midgard.*

16                A net increase in costs is expected when evaluating Midgard’s Scenario C with local backup  
17                generation, as any anticipated cost savings related to fewer individual gensets serving as  
18                backup are offset by the addition of the capital cost associated with the 25 kV  
19                interconnection system. The cost would be similar to Scenario B, which contemplates Hydro  
20                maintaining permanent operating stations in each community, and was ranked 20 of 28  
21                scenarios with an incremental net present cost of \$24 million to the preferred solution. The  
22                net increase in costs would further disadvantage this scenario relative to the preferred  
23                solution.

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<sup>1</sup> Bottom Waters distribution feeder (BW2) and sub feeder (BU4) together are approximately 50 km, the South Brook distribution feeder (SB7) is approximately 46 km, the St. Anthony distribution feeder (SA1) is approximately 51 km, the Grandy Brook distribution feeder (GB5) is 62 km, and the Barchoix distribution feeder (BA1) is approximately 50 km.

<sup>2</sup> “Long-Term Supply for Southern Labrador – Revision 1,” Newfoundland and Labrador Hydro, rev. May 31, 2023 (originally filed July 16, 2021), sch. 1, att. 1, app. C.