

1 **Q. (Reference Application Schedule B, Transmission Line 55L Rebuild, page 107)**
 2 **It is stated "Transmission Line 55L is a radial line that serves as the sole source**
 3 **of supply for 3,419 customers in the Placentia area."**
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- 5 **a) Why is there no backup source of supply?**
 6 **b) Would a backup source of supply such as distributed generation provide**
 7 **benefits to other customers on the Island Interconnected System?**
 8 **c) Was consideration given to removing Line 55L and supplying the area**
 9 **with a renewable technology?**
 10 **d) What is Newfoundland Power's policy with respect to determining when**
 11 **a backup supply source is required for supply to a specific region of the**
 12 **province?**
 13

14 A. a) Newfoundland Power's transmission system includes both looped and radial
 15 transmission lines throughout its service territory. Looped transmission lines are
 16 generally found in more urban centers while radial transmission lines tend to
 17 exist in rural areas.¹
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19 The level of redundancy and backup generation requirements for the
 20 transmission system is assessed on an individual basis and considers: (i) the
 21 reliability of the transmission line including repair and response times; (ii) the
 22 amount of load supplied; (iii) the availability of local and mobile backup
 23 generation; and (iv) the availability of mobile substations.
 24

25 Transmission Line 55L is a radial transmission line originally built in 1971 that
 26 supplies approximately 3,400 customers served by Placentia Junction, Dunville,
 27 Clarkes Pond and Quartz substations.² Newfoundland Power utilizes its mobile
 28 generation units to provide service to customers during planned and unplanned
 29 outages when the duration of the outage warrants the cost of transporting and
 30 operating mobile generation. This approach has provided a reasonable level of
 31 service to the customers supplied by Transmission Line 55L and has been least
 32 cost relative to building a second transmission line or installing local backup
 33 generation.
 34

35 b) Distributed generation is not a viable source of backup generation for
 36 Transmission Line 55L due to the load requirements and cost for the generation
 37 capacity that would be required.³ See the response to Request for Information
 38 CA-NP-101 for more information on Newfoundland Power's assessment of

¹ Looped transmission systems allow for power to be supplied to customers from two or more different supply points. A looped transmission system corresponds to a substation being fed by two or more transmission lines. Should an outage occur on one transmission line, service is maintained through an alternate transmission line. Radial transmission systems correspond to a substation being fed by a single transmission line. An outage to a radial transmission line is more likely to cause an extended outage to customers than a looped transmission line.

² See the *2023 Capital Budget Application*, report 3.1 *2023 Transmission Line Rebuild*, page 1.

³ The peak load on Transmission Line 55L is approximately 15 MVA. In 2021, Newfoundland Power determined that the cost to replace the 6 MVA of generation capacity at the Sandy Brook Hydro Plant with similar sized solar/battery generation facility was estimated at approximately \$43 million. See the response to Request for Information CA-NP-158 from Newfoundland Power's *2022 Capital Budget Application*.

- 1 distributed generation and other non-wires alternatives as compared to
2 traditional electrical system infrastructure. If distributed generation was a viable
3 option to provide a backup source for Transmission Line 55L then it would also
4 be able to provide benefits to the others customers on the Island Interconnected
5 System.
6
- 7 c) No, consideration was not given to removing Transmission Line 55L and
8 supplying the area with a renewable technology. Removing Transmission Line
9 55L would create an isolated electrical system similar to other isolated electrical
10 systems located in the province supplied by Newfoundland and Labrador Hydro.
11 Given the much higher cost and technical limitations of supplying customers on
12 isolated systems with renewable generation sources, such an arrangement is not
13 considered a viable alternative.
14
- 15 d) See the response to part a) above.