

1 **Q. (Reference Application, 3.1 Gander-Twillingate Transmission System Planning**  
 2 **Study, page 4) It is stated “the results of a system power transformer**  
 3 **contingency assessment, which indicates the potential for substantial**  
 4 **customer outages following the loss of system power transformer COB-T2.”**  
 5 **Do most transformers on NP’s system have backup supply redundancy in the**  
 6 **event that the transformer is forced out of service? Specifically, what is NP’s**  
 7 **planning criteria relating to loss of a power transformer?**

8  
 9 A. Newfoundland Power operates both distribution power transformers as well as system  
 10 power transformers. Distribution power transformers convert transmission voltages to  
 11 distribution voltages and serve the Company’s distribution networks, whereas system  
 12 power transformers provide transformation from one transmission-level voltage to  
 13 another. In the case of distribution power transformers serving the Company’s  
 14 distribution networks, no substation with multiple distribution power transformers  
 15 provides full backup redundancy in the event of a transformer being forced out of  
 16 service.<sup>1</sup> However, many of the distribution networks within Newfoundland Power’s  
 17 service territory have redundant load transfer capabilities from one distribution feeder to  
 18 another, particularly in urban centres.

19  
 20 In the case of Newfoundland Power’s transmission system, which is supplied by system  
 21 power transformers, increased levels of redundancy exist due to larger number of  
 22 customers that may be impacted by transmission-level outages. For example,  
 23 Newfoundland Power’s transmission system includes several looped transmission lines,  
 24 which provide multiple sources of supply to substations in the event of a particular  
 25 transmission line or system power transformer being forced out of service.

26  
 27 The level of redundancy and backup requirements for the transmission system is  
 28 assessed on an individual basis and considers: (i) the reliability of the supplying  
 29 transmission lines or system power transformers including repair and response times;  
 30 (ii) the amount of load supplied; (iii) the availability of local and mobile backup  
 31 generation; and (iv) the availability of mobile substations or spare transformers.

32  
 33 Of Newfoundland Power’s 13 system power transformers that supply portions of the  
 34 Company’s transmission network, nine are considered to have redundant backup  
 35 availability.<sup>2</sup>

---

<sup>1</sup> This excludes the redundant nature of the Long Pond (“LPD”) Substation which was fully funded by the customer and approved through Order Nos. P.U. 5 (2019), P.U. 14 (2023), and P.U. 2 (2024) and which supplies a customer-owned distribution network.

<sup>2</sup> The Company’s transmission network is also supplied by Newfoundland and Labrador Hydro-owned system power transformers that also include various levels of redundancy.

1 Table 1 shows the Company’s system power transformers and their backup capabilities.  
2

Table 1 Newfoundland Power’s System Power Transformers Backup Capabilities	
Transformer ID	Backup Supply Redundancy <sup>3</sup>
BLK-T1	Yes
BRB-T2	Yes
BRB-T3	Yes
CAT-T1	Yes
CLV-T2	No
COB-T2	No
GAM-T2	No
GAN-T2	No
GOU-T1	Yes
GFS-T1	Yes
RBK-T3	Yes
SPO-T4	Yes
SPO-T5	Yes

3 In the case of a loss of system power transformer COB-T2, or any other system power  
4 transformer without direct backup capability, the Company would rely on a mobile  
5 substation, spare transformer, or mobile generation. See the response to Request for  
6 Information NLH-NP-019 for more information.  
7

8 Following the work outlined in the report *3.1 Gander-Twillingate Transmission System*  
9 *Planning Study*, both COB-T2 and the new GAN-T2 installed at Boyd’s Cove Substation  
10 would both be considered as having full backup supply redundancy.

<sup>3</sup> Refers to whether or not sustained customer outages would occur following an unexpected, forced outage during peak demand. In some cases, such as transmission systems with normally open points, switching may be required to mitigate outages following a transformer outage.