

1 **Q. Reference: “2026 Capital Budget Application,” Newfoundland Power Inc.,**  
2 **June 27, 2025, Supporting Materials, Substations: 2.2, p. 8.**

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4 **Over 60% of existing spare units are approaching end of life.**

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6 **a) How does the limited operating time of spare transformers impact the**  
7 **service life, compared to transformers continually in-service?**

8 **b) Have industry groups such as CIGRE or CEATI provided guidance on spare**  
9 **transformer service life? If so, please provide details on any such guidance.**

10 **c) Does Newfoundland Power complete the same preventative maintenance**  
11 **on its substation spare transformers as its in-service units?**

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13 **A.** a) Spare power transformers will experience less thermal and electrical stress than  
14 units that are continuously in service, which can slow degradation of insulation and  
15 winding components. A CEATI report indicates that while degradation of a unit in  
16 storage is typically small, it is a recognized challenge for utilities.<sup>1</sup> Spare units remain  
17 exposed to environmental factors, such as temperature fluctuations, humidity and  
18 sunlight exposure. Material aging, caused by the breakdown of rubber and plastics  
19 or the oxidation of metal components, impacts spare units. Risks of degradation  
20 include moisture ingress, oil oxidation and degradation, seal and gasket  
21 deterioration, and corrosion.

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23 The requirement to move spare transformers also introduces risk as they are  
24 vulnerable to mechanical stresses during lifting, loading or transport. For older units,  
25 age-related deterioration of insulation, seals and bushings can increase the likelihood  
26 of damage during transport.

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28 While spare transformers are subject to lower operational stress, risks associated  
29 with environmental exposure and handling continue to impact service life.

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31 b) Newfoundland Power is not aware of any guidelines from industry organizations,  
32 such as CIGRE or CEATI, specifically on predicting spare transformer service life.

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34 c) No, de-energized spare transformers do not undergo the same maintenance as in-  
35 service transformers. Spare units not in service are stored at Newfoundland Power’s  
36 Electrical Maintenance Center where they undergo visual inspections. Maintenance is  
37 completed on spare transformers as deficiencies are identified through visual  
38 inspections and prior to putting them in service.

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<sup>1</sup> See *CEATI Report No. T223700-30143, Guidelines for Spare Equipment Determination & Management*, section 6.1 *Deterioration*, page 43 for information on deterioration of spare power transformers.