

1 **Q. (Reference CA-NP-045a) Why is Newfoundland Power proposing that the**
2 **Lookout Brook Plant power transformer replacement be advanced from being**
3 **in service in 2032 to 2029? Has there been an event with the power**
4 **transformer since Newfoundland Power's 2024 CBA that led to this proposed**
5 **three-year advancement?**

6 **A) Provide a dated chronology since the 2024 analysis of inspections, oil**
7 **and electrical tests, maintenance and condition assessments, showing**
8 **each result and change from the information supporting 2032.**

9 **B) Identify the criteria and thresholds used to advance the date, and**
10 **provide any reassessment of retaining 2032.**

11 **C) Provide the scope, cost, outage and life extension of repairing the cited**
12 **corrosion, bushing, sealing and leakage issues, and the comparison**
13 **supporting replacement. State if no repair estimate or quantitative**
14 **comparison exists.**

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16 **A. a)** See the response to Request for Information PUB-NP-018 for condition data for
17 LBK-T1.

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19 The replacement year of 2032 was filed as part of Newfoundland Power's *2024*
20 *Capital Budget Application*, report *4.1 Lookout Brook Hydro Plant Refurbishment*,
21 Appendix A: Lifecycle Cost Analysis of the Lookout Brook Hydro Plant. This was
22 based on an assumed service life of approximately 70 years strictly as a
23 placeholder for economic analysis and was not based on the condition of the
24 transformer, as this predated the development of the *Substation Power*
25 *Transformer Strategy*. The assumption was based on industry experience
26 indicating an expected service life of between 30 and 50 years, with a sharp
27 decline for in-service transformers beyond 70 years of age.¹

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29 b) See the *2027 Capital Budget Application*, report *2.2 Substation Power*
30 *Transformer Strategy*, Appendix B, section 2.0 Engineering Assessment for the
31 criteria used. As discussed in section 4.0 Assessment of Alternatives of the same
32 report, deferral is not a viable alternative due to the deteriorated condition of the
33 transformer.

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35 c) LBK-T1 is a 64-year-old power transformer manufactured by English Electric and
36 is deteriorated. The scope of deficiencies and the physical condition assessment
37 supporting replacement are provided in Appendix B of the *Substation Power*
38 *Transformer Strategy*.

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40 Newfoundland Power considered the alternative of continued operation with
41 repairs. Repairing the deficiencies would require significant refurbishment work
42 on a power transformer operating beyond its expected useful life and would
43 introduce additional safety and execution risks associated with cutting, grinding,
44 and welding on an oil filled power transformer. Cost estimates to remediate the

¹ See the *2027 Capital Budget Application*, report *2.2 Substation Power Transformer Strategy*, section 2.1.

1 unit are more than \$750,000, nearly half the cost of a replacement transformer,
2 and would take approximately 3 months to complete.² External repairs would not
3 improve the internal condition of the transformer and, due to the condition of the
4 transformer, these repairs are not guaranteed to prevent leaks in the future. This
5 would result in high repair costs with no guarantee of extending the
6 transformer's service life.

² Remediation work required is outlined in the *Substation Power Transformer Strategy*, Appendix B, section 2.0 *Engineering Assessment*.