

Q. Reference: Newfoundland Power's 2027 Capital Budget Application, Section 2.2, Substation Power Transformer Strategy

For power transformer replacements, explain whether Newfoundland Power evaluated system-based alternatives including, but not limited to, increasing transformer capacity at adjacent substations, improving load-transfer capability or reconfiguring feeder supply following a transformer failure.

A. Newfoundland Power routinely considers system-based alternatives when assessing power transformer replacements. These include increasing transformer capacity at adjacent substations and evaluating the potential for load transfers, which may or may not require reconfigurations to existing distribution and/or transmission lines.

System-based alternatives are often excluded as viable alternatives in the preliminary stages of assessing replacement transformers, largely due to cost. For example, due to geographical constraints, transferring load to adjacent substations may often involve long line extensions and further upgrades which may be cost prohibitive. When such system reconfigurations are not readily identified as cost prohibitive, the Company undertakes detailed system planning studies that examine alternatives which may require capital expenditures spanning multiple asset classes. System planning studies are also used to evaluate and ensure that any proposed system-based alternative adheres to the Company's distribution and transmission planning guidelines.

The most recent system planning study filed with the Board was the *Gander-Twillingate Transmission System Planning Study*, which was filed as part of the Company's *2025 Capital Budget Application*.¹ This study was triggered, in part, due to GAN-T2 power transformer requiring replacement. The result of the study was to retire both GAN-T2 and Transmission Line 108L and instead procure a replacement transformer to be installed at Boyd's Cove Substation, as well as to construct a new transmission line between Lewisporte and Boyd's Cove substations. The study also recommended the retirement of Johnathan's Pond ("JON") Substation power transformer JON-T1, and for JON Substation customers to instead be supplied through a distribution feeder extension from Cobb's Pond Substation. This system reconfiguration was determined to be least cost and will also result in improved transmission-level voltages to customers in Central Newfoundland.

A similar approach was undertaken for Humber ("HUM") Substation as part of the Company's *2022 Capital Budget Application*. Rather than replacing HUM-T2 which was at end of life, and HUM-T3, which was approaching end of life, on a like-for-like basis, Newfoundland Power evaluated alternatives that included continued operation of the 4.16 kV system and conversion of the area to a 12.5 kV system.² The analysis determined that retiring the existing 4.16 kV system, converting customers to the 12.5 kV system, reconfiguring the associated feeder network, and installing a new larger

¹ See the *2025 Capital Budget Application*, report 3.1 *Gander-Twillingate Transmission System Planning Study*.

² See the *2022 Capital Budget Application*, report 2.1 *Substation Refurbishment and Modernization Appendix B*.

1 power transformer was the least-cost alternative. This approach enabled the retirement
2 of 4.16 kV infrastructure and HUM-T2 while consolidating the substation load onto a
3 single transformer. As a result, Newfoundland Power avoided the need for like-for-like
4 replacement of both power transformers while also improving operational flexibility and
5 load transfer capability.

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7 For the power transformers proposed in the Company's *2027 Capital Budget Application*,
8 Newfoundland Power determined that no system-based alternatives were economically
9 or technically viable.