

1 **Q. Reference: "2027 Capital Budget Application," Newfoundland Power Inc.,**
2 **May 29, 2026, Supporting Materials, Substations: 2.2, Appendix A, LAU-T1**
3 **Power Transformer Replacement, pp. 5-7.**

4
5 **Newfoundland Power states that three portable substations can be installed**
6 **as a short-term emergency response to offload LAU-T1, and that three spare**
7 **power transformers are available for medium-term replacement of LAU-T1.**
8 **Newfoundland Power further states that maintaining condition-based**
9 **monitoring and deferring replacement until failure occurs is not considered a**
10 **viable long-term strategy for LAU-T1.**

11
12 **a) Given the availability of three suitable portable substations and three**
13 **suitable spare transformers for emergency response to an in-service**
14 **failure of LAU-T1, please explain why replacement of LAU-T1 is**
15 **required beginning in 2027.**

16 **b) Please explain how Newfoundland Power considered the availability of**
17 **suitable portable and spare transformer resources in determining the**
18 **timing and priority of the LAU-T1 replacement relative to other**
19 **proposed transformer replacements, and for transformer replacements**
20 **in general.**

21
22 **A. a)** While Newfoundland Power has portable substations and spare transformers
23 available to respond to an in-service failure of LAU-T1, those resources are
24 intended to provide emergency response capability and do not eliminate the
25 underlying reliability risk associated with continued operation of a deteriorated
26 transformer. The Company's Substation Power Transformer Strategy is based on
27 replacing aging and deteriorated transformers in a planned fashion to reduce the
28 probability of failures, while maintaining portable substations and spare
29 transformers to reduce the consequences of failures that occur. As indicated in
30 the Substation Power Transformer Strategy, approximately three power
31 transformers are anticipated to be replaced on an annual basis through 2052.¹

32
33 LAU-T1 is a 50-year-old transformer and condition assessments have identified
34 that this transformer is deteriorated. The on-load tap changer on the transformer
35 deteriorated, the transformer exhibits signs of physical deterioration, and has a
36 PTX Normal Degradation Index approaching the threshold that indicates it is no
37 longer capable of providing reliable service. Newfoundland Power determined
38 that the condition of the transformer justifies planned replacement beginning in
39 2027.

¹ See the 2026 Capital Budget Application, report 2.2 Substation Power Transformer Strategy, page 12.

Newfoundland Power has a limited number of portable substations and spare transformers available to support its fleet of 191 in-service power transformers. Present power transformer delivery lead times are estimated to be between 24 and 36 months. Consequently, a transformer failure could require long-term deployment of a portable substation while a suitable replacement transformer is procured and installed. This would reduce the availability of portable substations for future equipment failures, capital projects, and maintenance activities elsewhere on the system.

Spare transformers 200219, 200220, and 200385 are suitable for medium-term replacement for LAU-T1. 200219 is a 10 MVA, 56-year-old transformer with a de-energized tap changer. 200220 is a 13.3 MVA, 56-year-old transformer with a de-energized tap changer presently installed at SLA Substation. 200385 is a 2-year-old, 25 MVA transformer with an on-load tap changer.²

Newfoundland Power does not consider 200219 and 200220 to be suitable long-term replacements because they do not provide the functionality of LAU-T1 as they have de-energized tap changers. Additional items including voltage regulators, structures, foundations, high voltage switches, site work and supporting infrastructure would be required to integrate either of these 56-year-old units into LAU for permanent installation. These spare transformers are older than the existing LAU-T1. Additionally, transformer 200220 is presently installed at SLA Substation as a backup to the 4.16 kV distribution system.

Power transformer 200385 has a larger capacity than LAU-T1 and is intended to support emergency response requirements elsewhere on the system if possible. By utilizing the only spare transformer available for this voltage rating and capacity, and with power transformer delivery times ranging from 24 to 36 months, there would be limited resources to respond to any additional power transformer failures in the short to medium term for larger capacity transformers.

In determining the timing and priority of transformer replacements, Newfoundland Power considers a combination of factors including transformer condition assessments, age, probability of failures, customer and system impacts associated with failure, transformer procurement lead times, and the availability of portable substations and spare transformers. The availability of emergency response resources is therefore considered as part of the overall assessment of risk; however, it does not replace the need to replace deteriorated transformers in a planned fashion. The replacement of LAU-T1 beginning in 2027 aligns with Newfoundland Power's Substation Power Transformer Strategy and will allow the Company to manage reliability risks while maintaining emergency response capabilities for the broader transformer fleet.

² See the *2027 Capital Budget Application*, report 2.2 *Substation Power Transformer Strategy*, Appendix A, page 5.

1 b) The availability of portable substations and spare transformers is one of the
2 factors considered as part of Newfoundland Power's Substation Power
3 Transformer Strategy. Portable substations are intended to be utilized as short-
4 term solutions for the immediate response of a power transformer failure and are
5 not intended for planned medium or long-term service.

6
7 The availability, suitability, and operational impacts of using spare transformers
8 are also considered when evaluating transformer replacement priorities. Where
9 technically compatible spare transformers are available and their deployment can
10 be accommodated while maintaining adequate emergency response capability,
11 they may be used as part of the response to a planned replacement.

12
13 As discussed in part a), three spare power transformers are available for the
14 emergency response to a failure of LAU-T1. Two of these transformers, 200219
15 and 200220, do not provide the same functionality as LAU-T1 and are therefore
16 not suitable for long-term replacements. The remaining spare transformer,
17 200385, is a newer 25 MVA unit that provides emergency response capability for
18 other larger transformers on Newfoundland Power's system. Long-term utilization
19 of this spare transformer at LAU Substation would reduce Newfoundland Power's
20 ability to respond to future transformer failures elsewhere on the system.

21
22 The availability of portable substations and spare transformers is considered in
23 establishing the timing and priority of transformer replacements, but it is only
24 one component of the overall assessment. Newfoundland Power's replacement
25 priorities are based on a combination of transformer condition assessments,
26 asset age, probability of failure, customer and system impacts associated with
27 failure, transformer procurement lead times, and the availability of emergency
28 response resources. Newfoundland Power's approach is to maintain adequate
29 emergency response capability while replacing deteriorated transformers in a
30 planned fashion before failure occurs, thereby reducing both the probability of
31 failure and the demand placed on portable substation and spare transformer
32 resources.