

1 Q. **Reference: 2025 Capital Budget Application, Program 4, Distribution System In-Service**
2 **Failures, Miscellaneous Upgrades and Street Lights (2025), page i, lines 23 to 24.**

3 Please explain the rationale for proposing the purchase of a spare substation power
4 transformer. Please explain how Hydro determines the requirement for a spare transformer,
5 including its size and configuration. Does Hydro have plans to purchase any additional spare
6 transformers in its five-year plan?

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9 A. Newfoundland and Labrador Hydro (“Hydro”) has ten substations within its distribution systems
10 with pad-mounted power transformers installed, six of which are used to directly supply
11 customers.¹ The reliability of these six pad-mounted distribution transformers is critical, as there
12 is no other redundancy available at those substations. The consequences of a pad-mounted
13 transformer failure would be the long-term use of temporary generation to supply customers, or
14 the loss of stationary grid-connected generation, depending on the location. Hydro’s capital
15 spare transformer inventory would be considered the backup for those critical assets;² there is
16 currently no mobile transformer available to Hydro that has the required voltage taps to be a
17 suitable replacement for these substation transformers and would be more costly to procure
18 than a single, flexible capital spare.

19 Requirements for spare distribution power transformers are determined systematically, and
20 derived from the listing of all in-service power transformers. In-service units are classified into
21 separate categories based on voltage, capacity and configuration. A spare requirement is then
22 determined for each category, cross-referenced between the requirement and the available
23 capital spares. If a deficiency is found due to consumption or deterioration, a new or refurbished
24 capital unit is requested. Hydro attempts to minimize its capital spare inventory to ensure
25 power delivery at the lowest possible cost, while also maintaining system reliability. In the case

¹ Hydro’s substations are used to integrate local generation sources or to supply distribution customers. Hydro has many other distribution substations in service; however, they utilize pole-mounted power transformers, as opposed to pad-mounted options.

² The spare transformers are referred to in Hydro’s Transmission and Rural Operations Emergency Plan documentation.

1 of this request, this would be considered the 'large' capital spare with a rating of over 4MVA;
2 Hydro has determined that only a single unit of this capacity is necessary.³

3 As per Hydro's Five-Year Capital Plan (2025–2029) provided in its 2025 Capital Budget
4 Application,⁴ Hydro does not have any further requirement for the purchase of spare
5 distribution pad-mounted power transformers at this time. Multiple small substation
6 transformers are available, and the medium substation transformer is currently in operable
7 condition without the need for refurbishment.

³ Variable high and low-voltage taps have been requested to ensure that a second large spare is not required and that a single unit can perform in a large variety of locations.

⁴ "2025 Capital Budget Application," Newfoundland and Labrador Hydro, July 16, 2024, sch. 2.