

Q. (Reference Schedule B, Portable Substation)

Page 69 states "Increasing usage of the Company's portable substation inventory is forecast as a result of an aging power transformer fleet, extended deployment durations following in-service failures, and growing demands associated with planned maintenance and capital programs."

- a) Please provide a comparison of the average age of the transformer fleet in 2010, 2015, 2020 and 2025.**
- b) What are the reasons for the "extended deployment durations" following in-service failures?**
- c) Why are the demands associated with planned maintenance and capital programs increasing?**
- d) Given that delivery, installation, testing and commissioning is to be completed in 2029 (page 68), will it be 2030 before the portable substation will be available for deployment?**
- e) How many power transformers are expected to be replaced/repaired between now and when the new portable substation is expected to be available for deployment?**
- f) Has Hydro's P2 unit been deployed for NP's purposes? If so, please provide details.**
- g) Has there been any occasions when all portable substations, including Hydro's P2 portable substation, have been deployed simultaneously?**

- A. a)** Table 1 provides a comparison of the average age of in-service power transformers in 2010, 2015, 2020 and 2025.

Table 1 Power Transformer Average Age Comparison by Year				
	2010	2015	2020	2025
Average Age	35	38	40	42

- b) Portable substations are used as an immediate response to power transformer failures and associated outages and are typically intended for short-term usage. However, there have been instances in the last 10 years where a spare unit was not available in response to transformer failure, which resulted in extended deployments of portable substations. As examples, there were no spare units available following the failure of power transformer BVA-T1 in 2018 or transformer RVH-T1 in 2017, which resulted in portable substations being deployed for between 10 and 11 months in both cases. Power transformer delivery times have increased since 2017 and 2018, with present lead times estimated between 18 and 36 months.

c) The Company's use of portable substations related to capital programs is increasing due to the planned replacement of approximately three power transformers per year, with each power transformer replacement expected to require a portable substation to remain in service for approximately four to ten weeks. Each duration depends on the scope of work involved with replacing a specific power transformer. Additional requirements to facilitate replacements can further extend the duration of portable substation deployment.

The Company's use of portable substations related to planned maintenance activities is increasing due to the need to use them to maintain service to customers while critical substation equipment is removed from service for inspection, maintenance, or replacement. Examples include maintenance or replacement of major substation components such as power transformers, disconnect switches, and other high-voltage equipment where outages cannot be accommodated through normal system configuration. As the Company's substation assets continue to age and maintenance requirements increase, the demand for portable substations to facilitate planned work while minimizing customer impacts is also increasing.

d) Yes, the new portable substation is not expected to be available for deployment until 2030 as testing and commissioning will not be completed until the end of 2029.

e) Ten power transformer replacements are planned between now and 2030 as per Table 2.¹ Additionally, a repair of the power transformer BLK-T2 on-load tap changer is planned during the *Blaketown Substation Refurbishment and Modernization* project in 2027-2028.² Routine maintenance of power transformers will also be ongoing in this time frame.

Table 2 Power Transformer Replacements by Planned Installation Year			
2026	2027	2028	2029
PUL-T2	MOL-T2	KBR-T3	LBK-T1*
LOK-T1	GAN-T2	MOP-T1	HAR-T1*
-	-	LAU-T1*	RRD-T3*

**These power transformer replacements are proposed as part of Newfoundland Power's 2027 Capital Budget Application. See report 2.2 Substation Power Transformer Strategy.*

¹ Replacement of power transformers PUL-T2, LOK-T1, and GAN-T2 were approved as part of the *2025 Capital Budget Application*. Replacement of power transformers MOL-T2, KBR-T3, and MOP-T1 were approved as part of the *2026 Capital Budget Application*.

² See *Newfoundland Power's 2027 Capital Budget Application*, report 2.1 *Substation Refurbishment and Modernization Strategy*, Appendix A, page 4 for more details.

- 1 f) Yes, Hydro's portable substation ("P2") has been deployed on two occasions to
2 support Newfoundland Power operations. From August 23, 2007 to October 23,
3 2007, P2 was installed at Newfoundland Power's Goulds ("GOU") Substation to
4 facilitate maintenance activities on transformer GOU-T1. Subsequently, from
5 November 10, 2015 to December 3, 2015, P2 was installed at Newfoundland
6 Power's Bishop's Falls Substation in support of an in-service failure response.
7
8 g) Newfoundland Power does not track Hydro's deployment of its own portable
9 substation assets. As a result, the Company cannot confirm whether there have
10 been occasions when all portable substations, including Hydro's P2 portable
11 substation, were deployed simultaneously. Additional information on Newfoundland
12 Power's utilization of its portable substations is provided in the response to Request
13 for Information NLH-NP-002.