Distribution

Q. Reference: "2024 Capital Budget Application," Newfoundland Power Inc., June 22, 2023, sch. B, Distribution Feeder OXP-01 Refurbishment, p. 25.

> **Equipment failure on distribution feeder OXP-01 is considered likely given the feeder's age and the significant quantity of deterioration identified during inspection.**

a) Please provide the System Average Interruption Duration Index ("SAIDI") and System Average Interruption Frequency Index ("SAIFI") statistics for OXP-01 for the last five years.

b) Please describe the improvements expected in terms of SAIDI and SAIFI due to the proposed refurbishment.

c) Please provide a copy of the engineering inspection.

A. a) Table 1 includes the SAIDI and SAIFI reliability statistics for distribution feeder OXP-01 for the period 2018 to 2022.

Table 1
OXP-01 Reliability Statistics
2018-2022

	2018	2019	2020	2021	2022	Average
SAIDI	0.48	1.36	0.72	0.65	0.50	0.74
SAIFI	1.18	1.05	0.44	0.62	0.27	0.71

b) It is not possible to predict the improvements in reliability for distribution feeder OXP-01 as a result of this project.

The *Distribution Feeder OXP-01 Refurbishment* project is not being brought forward as a result of historically poor reliability performance of the entire distribution feeder.[1] The project is being proposed to address deteriorated poles, conductor and hardware on distribution feeder OXP-01. A 3.2-kilometre section of three-phase trunk along Thorburn Road is primarily constructed of 1960s vintage infrastructure including sub-standard #4 Cu conductor. There have been numerous splices resulting from previous conductor failures and deficiencies. Repeated repairs of conductor failures and an excessive number of sleeves used to splice conductor can lower the overall strength of the conductor, making it more susceptible to failure.

[1] The Company's *Distribution Reliability Initiative* project identifies feeder refurbishments of the Company's worst performing feeders based on reliability performance.

In addition to the deteriorated conductor, this section of distribution feeder OXP-01 also has deteriorated poles and crossarms. A total of 32 poles, or 40%, require replacement due to deep cracks or rotting. A total of 35 crossarms, or 42%, require replacement due to severe splits and other deterioration. A total of 105 insulators, or 43%, are vintage porcelain insulators that are prone to failure due to separation from the pin which results in the conductor coming free from the crossarm or pole.[2]

c) Distribution feeder OXP-01 was inspected in accordance with the Company's *Distribution Inspection and Maintenance Practices*. The findings of the inspection are included in Newfoundland Power's *2024 Capital Budget Application*, *Schedule B*, pages 22 to 24.

[2] See Newfoundland Power's *2024 Capital Budget Application, Schedule B,* pages 22 and 23.