Q. (Reference Application, 2025 Capital Budget Overview, Appendix E, page 2) It is stated "*Transmission Line 146L plays a critical role in the Central Newfoundland 138 kV transmission system. An outage to Transmission Line 146L results in two sections of the Central Newfoundland 138 kV transmission system becoming radial. When these sections are radially supplied, any single failure on one of these transmission lines could result in outages to between 1,700 and 8,700 customers downstream of the affected line.*"

a) Is it typical on NP's system that when there is an outage of a transmission line one or more sections of the transmission system become radial? Is this not in fact how NP's transmission system is designed?

b) Does NP plan its transmission system to an n-1 or n-2 criterion?

c) For the past 20 years, please provide a table showing all outages including duration of transmission line 146L.

d) For the past 20 years, please provide a table showing all coincident outages and duration for transmission line 146L and one of the two sections that become radial when 146L is forced out of service.

e) What is the probability that transmission line 146L will be forced out of service both before and after completion of the renewal project?

f) What is the probability of the coincident failure of transmission line 146L and one of the two sections that become radial when 146L is forced out of service both before and after completion of the renewal project?

A. a) The *Transmission Line 146L Rebuild* project was included as a multi-year project in Newfoundland Power's *2024 Capital Budget Application*. The Board approved the *Transmission Line 146L Rebuild* project in Board Order P.U. 2 (2024) where the Board noted that it was not addressed in intervenor submissions.[1] The project is proceeding as approved. Newfoundland Power has confirmed that there has been no change in its scope, nature or magnitude. In Board Order P.U. 2 (2024), the Board concluded:

> *"… that Newfoundland Power's proposed renewal expenditures are justified, appropriate and necessary to ensure the delivery of power to its customers at the lowest possible cost, in an environmentally responsible manner, consistent with reliable service."*[2]

As stated in the response to Request for Information ("RFI") CA-NP-101 in relation to Newfoundland Power's *2024 Capital Budget Application*:

> *"The ability for the Central Newfoundland 138 kV looped transmission network to be able to withstand a single contingency event without customer outages is considered a basic characteristic of looped transmission systems. However, the resulting split of the network into two radial systems following the loss of Transmission Line 146L is*

[1] See Order No P.U. 2 (2024), page 13, lines 17-35.
[2] Ibid., page 14, lines 29-31.

considered an emergency event and should be minimized to avoid further risk to customers."

b) Newfoundland Power notes that this RFI is substantively identical to part b) of RFI CA-NP-101 in relation to the Company's *2024 Capital Budget Application*. See the response to part b) of RFI CA-NP-101 in relation to Newfoundland Power's *2024 Capital Budget Application*.

c) Table 1 shows all outages along with their durations on Transmission Line 146L over the last 20 years.[3]

Table 1:
146L Outage Statistics
(2004-2023)

Date	Duration (Hours)
March 2005	21.7
June 2006	288.1
July 2007	1.0
March 2009	5.0
August 2009	1.5
October 2009	100.4
December 2010	8.9
April 2011	6.4
December 2011	10.0
September 2014	337.6
July 2017	10.1
November 2018	3.5
December 2019	29.8
July 2022	44.2
January 2023	0.5

d) There have been no coincident outages on Transmission Line 146L and one of the two sections that became radial when Transmission Line 146L is out of service.

[3] Outages due to loss of supply or maintenance on substation infrastructure have been excluded.

However, there have been a number of instances where a component of the Central Newfoundland 138kV Transmission Network has been out of service and an outage occurred on the system resulting in direct outages to customers.

For example, in December 2022, Transmission Line 124L experienced an outage while the 124L breaker at Gambo Substation was out of service for maintenance. This configuration resulted in Transmission Line 124L being radially supplied from Clarenville Substation. The subsequent outage to Transmission Line 124L resulted in an outage to 3,766 customers supplied by Port Blandford, Terra Nova and Glovertown substations.

Furthermore, in July 2007, Newfoundland and Labrador Hydro was completing maintenance work on its Sunnyside substation bus structure, requiring it to be isolated, which resulted in the Bonavista and Burin Peninsulas being connected radially from Gander. While in this configuration, Newfoundland Power's Transmission Line 146L tripped, resulting in an outage to 30,747 customers.

e) For a risk assessment associated with the rebuild of Transmission Line 146L, see Newfoundland Power's *2024 Capital Budget Application*, report *3.1 2024 Transmission Line Rebuild*, page 7. As stated in the Company's *2025 Capital Budget Application, Capital Budget Overview, Appendix C,* page 1, Newfoundland Power does not currently have the software or data necessary to calculate the risk mitigation or reliability improvement values of capital expenditures. For more information, see the response to Request for Information PUB-NP-045.

f) See part e).