

Q. Reference: Newfoundland Power's 2027 Capital Budget Application, Schedule B 2027 Capital Projects and Programs – Over \$750,000

- a) Explain why Distribution Feeder Refurbishment projects are required in addition to existing programs that have historically relied on inspections, corrective maintenance, preventative rebuild work, and poor-performance reliability initiatives to address distribution capital maintenance needs.**
- b) Confirm whether the current seven-year inspection cycle for distribution feeders remains appropriate.**
- c) For each proposed feeder refurbishment, provide the date of the most recent inspection, deficiencies identified at the time, work completed under other programs in the last seven years, and reliability performance data.**

A. GENERAL

Overview of the Distribution System

Newfoundland Power operates approximately 300 distribution feeders and maintains a distribution system that includes approximately 227,000 wooden support structures and overhead conductor on 9,800 kilometres of distribution line.¹ Due to the age of the distribution system, the Company is exposed to an increasing risk of equipment failure going forward. Approximately 16% of wooden support structures have exceeded the average expected service life of 54 years, while an additional 19% will reach this age over the next decade. Similarly, approximately 24% of overhead conductor has exceeded the average expected service life of 50 years, and a further 16% is expected to reach this age within the next decade.² As increasing quantities of distribution assets exceed their expected service lives, the probability of asset deterioration and in-service failures increases.³

The Distribution asset class accounts for approximately 40% of proposed capital expenditures in 2027. Approximately 46% of these expenditures relate to the refurbishment of distribution assets through preventative and corrective maintenance programs and targeted distribution feeder refurbishments.⁴

¹ See the *2027 Capital Budget Application*, Schedule B, page 50.

² See the *2027 Capital Budget Application*, *2027-2031 Capital Plan*, section 2.4.2.

³ For example, over the period 2021 to 2025, equipment-related failures on the distribution system accounted for an average of over 29,000,000 customer minutes of interruption annually. See the *2027 Capital Budget Application*, Schedule B, page 41.

⁴ See the *2027 Capital Budget Application*, *2027 Capital Budget Overview*, section 3.2 *2027 Capital Budget by Asset Class*.

1 Additionally, investments in Distribution assets are expected to increase over the next
2 five years to address deteriorated infrastructure.⁵

3
4 The distribution system is maintained through a combination of preventative and
5 corrective maintenance programs and long-term asset management strategies including
6 the *Distribution Reliability Initiative* and dedicated feeder refurbishments, which are
7 described in more detail below. The maintenance of the distribution system is critical to
8 ensuring the delivery of safe and reliable service to customers. The combination of
9 maintenance programs and long-term asset management strategies constitutes a holistic
10 and complementary framework for managing the distribution system. By coordinating
11 inspections, planned maintenance, and targeted refurbishments, the Company can
12 efficiently deploy resources to address identified deficiencies, and manage capital
13 expenditures to those necessary to continue providing safe and reliable service to
14 customers at the lowest possible cost and to ensure that customers continue to have
15 equitable access to an adequate supply of power.

16
17 ***Newfoundland Power's Distribution Inspection Practices***

18
19 Newfoundland Power inspects its distribution lines on a seven-year cycle, in accordance
20 with the criteria outlined in the Company's *Distribution Inspection and Maintenance*
21 *Practices* (the "Practices"). The Practices establish that:

- 22
23 (i) All key components of a distribution feeder shall be inspected in accordance with
24 the established guidelines. For example, poles are inspected for their condition,
25 including any splits, cracks or rot.
26
27 (ii) Deficiencies identified for correction are to be recorded in the Company's asset
28 management information system.
29
30 (iii) Inspection personnel must assign a maintenance priority for each deficiency
31 identified for correction, indicating whether the work is required immediately,
32 within the current year, or within the next budget cycle.

33
34 The Practices, including the seven-year inspection cycle, remain appropriate and
35 consistent with good utility practice. Recent benchmarking assessments show that
36 Canadian utilities have an average overhead line patrol frequency of five years.⁶ In
37 addition, utilities in Prince Edward Island and Ontario inspect distribution infrastructure

⁵ Over the last five years, Newfoundland Power completed 8 distribution feeder refurbishment projects at a cost of approximately \$4.8 million. Over the 2027 to 2031 planning period, the Company is planning to refurbish 18 feeders at an estimated cost of \$24.6 million, reflecting the increasing refurbishment requirements associated with an aging distribution system.

⁶ ATCO Electric filed its 2020 benchmarking assessment in 2024 as part of Proceeding 28300, *AUC Initiated Review under the Reopener Provision of the 2018-2022 Performance-Based Regulation Plans for the ATCO Utilities*. The benchmarking assessment indicated an average maintenance interval of every five years. ATCO Electric also referenced a 2021 industry survey, which indicated that overhead line patrols were completed on a frequency between one and 10 years, with an average of 4.5 years for Canadian utilities. See document titled ATCO-AUC-2023OCT16-001 as part of the above proceeding.

1 on a six-year cycle.^{7,8} Newfoundland Power's inspection frequency of seven years is
2 consistent with practices of Canadian utilities and is reasonable for identifying
3 deficiencies and maintaining the distribution system.

4 *Maintaining the Distribution System*

5
6 The *Reconstruction* and *Rebuild Distribution Lines* capital programs are the cornerstone
7 of the Company's maintenance of the distribution system. They have existed for
8 approximately two decades. These programs work together as part of the Company's
9 maintenance program that addresses deterioration and deficiencies on the distribution
10 system. They provide a structured basis to ensure distribution plant and equipment are
11 maintained.
12

13
14 The *Reconstruction* program is the Company's corrective maintenance program for the
15 distribution system that addresses high-priority deficiencies identified during inspections
16 as described above, or recognized during operational problems, including customer
17 outages and trouble calls.⁹ Items addressed under the *Reconstruction* program are
18 typically items that have failed, are at risk of imminent failure, or present a safety
19 hazard to employees and the public.
20

21 The *Rebuild Distribution Lines* program is the Company's preventative maintenance
22 program for the distribution system that involves the planned replacement of
23 deteriorated distribution structures and electrical equipment identified through
24 inspections as described above.¹⁰
25

26 Deficiencies identified during inspections are prioritized for correction based on severity.
27 High priority deficiencies that require correction within a month are addressed under the
28 *Reconstruction* program. Other deficiencies are addressed in a planned manner under
29 the *Rebuild Distribution Lines* program. For example, if a wood pole is inspected in 2026
30 and found to have a serious crack, it would be replaced within a week to a month under
31 the 2026 *Reconstruction* program. If a wood pole inspected in 2026 has rotted and
32 failed a core test or has severe woodpecker holes, it would be addressed in a planned
33 manner under the 2027 *Rebuild Distribution Lines* program.
34

35 *Distribution Capital Projects*

36
37 In addition to the routine inspections completed on the distribution system every seven
38 years, supplemental inspections or engineering reviews may occur on a more frequent

⁷ Maritime Electric submitted as part of Proceeding UE21505 *Application to Collect Operating and Capital Costs Related to Hurricane Fiona* that it completes distribution line inspections on a six-year cycle. See *Response to Interrogatories from EA Technology Ltd.*, IR-66, filed June 13, 2024.

⁸ The Ontario Energy Board provides Minimum Inspection Requirements as part of its Distribution System Code. For rural distribution feeders, the maximum interval for line patrols is six years. See Appendix C of the Distribution System Code.

⁹ See the *2027 Capital Budget Application*, Schedule B, page 39.

¹⁰ *Ibid.*, page 47.

1 basis. Planners, Professional Engineers, and Managers of Regional Engineering combine
2 existing inspection results, load forecasts, reliability information and operational
3 experience to identify and prioritize distribution feeders or sections of feeders for
4 additional review. Typically, distribution feeders that have a large quantity of
5 deficiencies identified during inspections are considered for standalone capital projects
6 as part of the annual capital planning process. These are generally referred to as
7 distribution feeder refurbishments and are identified and prioritized annually based on
8 inspection results and engineering reviews. Refurbishment projects typically have large
9 quantities of deterioration and deficiencies identified that are beyond the scope of what
10 can be addressed through the Company's maintenance programs.¹¹ In addition,
11 distribution feeder refurbishments are driven by the condition of the infrastructure,
12 rather than the reliability experienced by customers served by a particular distribution
13 feeder.

14
15 The *Distribution Reliability Initiative*, which has been in place since 1998, targets the
16 Company's worst performing feeders and sections of feeders for capital upgrades based
17 on five reliability metrics. This project is primarily justified based on the reliability
18 performance experienced by customers. The *Distribution Reliability Initiative* involves: (i)
19 calculating reliability performance indices for all feeders; (ii) analyzing the reliability data
20 for the worst performing feeders to identify the cause of the poor reliability performance
21 and (iii) completing engineering assessments for those feeders where poor reliability
22 performance cannot be directly related to isolated events that have already been
23 addressed.¹² The *Distribution Reliability Initiative* directs capital investments to areas
24 where customers receive particularly poor service reliability and aims to bring reliability
25 levels in line with the Company's corporate average.

26 27 **RESPONSE**

- 28
29 a) Distribution feeder refurbishment projects are required in addition to the
30 Company's existing *Reconstruction* and *Rebuild Distribution Lines* programs as
31 well as the *Distribution Reliability Initiative* as they address large quantities of
32 deteriorated infrastructure on an identified distribution feeder that exceed the
33 scope that can be addressed under preventative or corrective maintenance and
34 are not solely driven by reliability performance. See "Distribution Capital Projects"
35 above.
- 36
37 b) It is confirmed. See "Newfoundland Power's Distribution Inspection Practices"
38 above.
- 39
40 c) Table 1 shows the date of the most recent inspection, deficiencies identified,
41 work completed under other programs and the average System Average

¹¹ For example, the proposed *Distribution Feeder ILC-02 Refurbishment* project identified over 100 poles along a 157-pole section that require replacement. This percentage of poles requiring replacement is larger than what can be addressed under the *Rebuild Distribution Lines* program. See the *2027 Capital Budget Application*, Schedule B, page 20.

¹² See the *2027 Capital Budget Application*, report 1.1 *Distribution Reliability Initiative*, page 1.

Interruption Duration Index ("SAIDI") and System Average Interruption Frequency Index ("SAIFI") for each feeder with proposed refurbishments in 2027.

The Company notes that the information provided in this table pertaining to inspection year, completed work orders and reliability performance is at the feeder level and is not specific to the identified sections of feeder proposed for refurbishment in 2027. Information pertaining to deficiencies identified is specific to the proposed sections of distribution feeder for refurbishment in 2027.

Table 1 Distribution Feeder Data					
Distribution Feeder	Year of Most Recent Inspection	Deficiencies Identified	Completed Work Orders 2019-2026 ¹³	5-Year SAIDI ¹⁴	5-Year SAIFI ¹⁵
GBY-01	2024 ¹⁶	Severely leaning poles 11 kilometres of deteriorated and non-standard primary conductor ¹⁷	35	1.89	1.45
GDL-02	2023	Direct buried EPR primary conductor Increased equipment failures ¹⁸	84	1.32	0.95
ILC-02	2024 ¹⁹	103 poles requiring replacement 83 crossarms requiring replacement Insulators requiring replacement Deteriorated and non-standard conductor ²⁰	401	1.11	1.06
CAB-01	2024	30 poles requiring replacement 3.1 kilometres of under-sized and non-standard #4 Cu conductor ²¹	226	1.18	1.40

¹³ Completed work orders refers to deficiencies that have been addressed under *Rebuild Distribution Lines* and *Reconstruction*. Examples of work orders completed can include the replacement of poles, rusty transformers, brackets, and broken conductor.

¹⁴ For the five-year period ending December 31, 2025.

¹⁵ *Ibid.*

¹⁶ See the *2027 Capital Budget Application*, Schedule B, page 11.

¹⁷ *Ibid.*

¹⁸ *Ibid.*, page 33.

¹⁹ *Ibid.*, page 20.

²⁰ *Ibid.*, page 20.

²¹ *Ibid.*, page 28.