

1 **Reference: 3.1 2024 Transmission Line Rebuild**

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3 **Q. What action has Newfoundland Power taken since the Transmission Line**  
4 **Rebuild Strategy was introduced in 2006 to assess whether the strategy has**  
5 **been effective and is consistent with good utility practice?**

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7 **A. A. *Transmission Line Rebuild Strategy***

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9 The *Transmission Line Rebuild Strategy* (the "Strategy") originally submitted with  
10 Newfoundland Power's *2006 Capital Budget Application* outlined a multi-year plan for  
11 rebuilding the Company's aging and deteriorated transmission lines.

12  
13 The Strategy was developed in response to the fact that many of the Company's  
14 transmission lines were constructed in the 1940s, 50s and 60s, and not designed to any  
15 particular standard. These transmission lines were not engineered to withstand local  
16 environmental conditions and are therefore susceptible to failure.

17  
18 The Strategy recognized the important role transmission lines play in providing reliable  
19 service to a large number of customers. It outlined a structured approach to rebuilding  
20 the Company's oldest and most deteriorated transmission lines and established that  
21 required rebuild projects would be prioritized based on: (i) the physical condition of  
22 lines; (ii) the risk of failures; and (iii) the impact a failure would have on customers.

23  
24 This Strategy continues to be reviewed as part of the Company's annual capital budget  
25 application to prioritize rebuild projects based on the methodology outlined in the plan  
26 while incorporating updated inspection data.

27  
28 **B. *Effectiveness of the Strategy***

29  
30 The effectiveness of the Strategy can be demonstrated in the remaining transmission  
31 lines in the Strategy which were not designed to any particular standard. Newfoundland  
32 Power owns and operates 111 transmission lines, which span approximately 2,100  
33 kilometres. In 2006, there were 34 transmission lines identified in the Strategy which  
34 were constructed in the 1940s, 50s and 60s, and not designed to any particular  
35 standard. This equates to approximately 31% of transmission lines not designed to any  
36 particular standard. At the end of 2024, approximately 85%, or 29 transmission lines,  
37 will have been completed under the Strategy. There are five transmission lines  
38 remaining to be addressed under the Strategy, which equates to approximately 5% of  
39 transmission lines not designed to any particular standard.

40  
41 The effectiveness of the Strategy can also be demonstrated in the age profile of the  
42 Company's transmission assets, particularly wooden support structures. As a result of  
43 the Strategy, the age profile of wooden support structures on the transmission system is  
44 favourable, with approximately 2% having exceeded the industry expected useful  
45 service life of 58 years.<sup>1</sup> The execution of the Strategy has improved the age profile of

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<sup>1</sup> See Newfoundland Power's *2024 Capital Budget Application, 2024-2028 Capital Plan*, page 11.

1 transmission wooden support structures through a structured approach to addressing  
2 the Company's oldest and most deteriorated transmission lines.

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4 The Strategy includes expenditures related to rebuilding sections of line and the  
5 selective replacement of deteriorated components. The selective replacement of  
6 deteriorated components is routinely conducted as part of the Company's annual  
7 inspection and maintenance practices. In some cases, the selective replacement of  
8 deteriorated components allows for life extension of transmission lines. As examples,  
9 the useful service lives of both transmission lines 302L and 49L were extended by  
10 approximately a decade through annual inspections and the selective replacement of  
11 deteriorated components. While such efforts can extend the useful service lives of  
12 transmission lines, they do not result in a line being constructed to current standards.

13  
14 The Strategy has also been effective in ensuring the reliable operation of the Company's  
15 transmission lines in serving customers. Transmission lines are the backbone of the  
16 electrical system and are maintained to operate to a high standard of reliability. In the  
17 five-year period from 2018 to 2022, transmission and substation outages combined have  
18 contributed to an annual average of less than 30 outage minutes per customer. This  
19 reliability performance is the result of the execution of the Strategy and the annual  
20 implementation of the Company's *Transmission Inspection and Maintenance Practices*.<sup>2</sup>

21  
22 Overall, the Strategy has allowed Newfoundland Power to maintain its electrical system  
23 in a manner consistent with the least-cost delivery of reliable service to customers.

### 24 **C. Good Utility Practice**

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26  
27 Newfoundland Power's transmission lines are inspected annually and follow the  
28 Company's *Transmission Line Inspection and Maintenance Practices*. These inspections  
29 identify preventative and corrective maintenance necessary to ensure the reliable  
30 operation of critical transmission assets.<sup>3</sup>

31  
32 National construction standards are applied to ensure the Company's electrical system is  
33 constructed and maintained to withstand local climatic conditions. Newfoundland Power  
34 designs transmission lines to meet Canadian Standards Association ("CSA") standards

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<sup>2</sup> Over the five-year period from 2003 to 2007, around the beginning of the implementation of the Strategy, transmission and substation outages combined contributed to an annual average of approximately 1 hour.

<sup>3</sup> The most recent review of Newfoundland Power's asset management strategies was conducted in 2014 by The Liberty Consulting Group ("Liberty"). Liberty concluded, "*Inspectors appropriately prioritize deficiencies, and assign repairs in accordance with them. They verify the condition of wood transmission poles through sound and reasonably complete examination practices.*" See Liberty's *Report on Island Interconnected System to Interconnection with Muskrat Falls addressing Newfoundland Power Inc.*, December 17, 2014, page 50. Liberty also concluded, "*Newfoundland Power annually budgets various rebuild and modernization capital projects to address transmission, distribution, and substation reliability issues and to proactively address aged equipment condition and obsolescence issues. Annual capital strategies include measures (Transmission Rebuild Strategy, Rebuild Distribution Lines Projects, Distribution Reliability Initiative, and Substation Refurbishment and Modernization Strategy) well targeted to the needs of its equipment. Asset management strategies have promoted improved system reliability since 1998, while keeping annual capital T&D expenditures under control.*" See Liberty's *Report on Island Interconnected System to Interconnection with Muskrat Falls addressing Newfoundland Power Inc.*, December 17, 2014, page 51.

1 and guidelines outlined in *CSA standard C22.3 – Overhead Systems*. This standard  
2 designates Newfoundland Power’s service territory as either severe or heavy weather  
3 loading areas.

4  
5 Newfoundland Power’s transmission design criteria ensures its transmission lines are  
6 adequately designed and constructed to provide reliable service to its customers,  
7 including the consideration of historical major weather events experienced within its  
8 service territory.<sup>4</sup>

9  
10 Newfoundland Power actively participates in several technical interest groups such as  
11 the Centre for Energy Advancement through Technological Innovation to maintain  
12 awareness and alignment with industry best practices.

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<sup>4</sup> For additional details, see the response to Request for Information NLH-NP-019.