Section 2: Customer Operations/Capital Expenditures

Q. Volume 1, Section 2, pages 2-21 to 2-22. Newfoundland Power notes that major weather related events have become more commonplace over the last decade which is consistent with the frequency of extreme events across Canada. At the same time, Newfoundland Power notes that its electrical system is not constructed to fully withstand the impact of extreme weather conditions.

a) Having recognized the heighted (sic) impact of extreme weather events, what capital plans does Newfoundland Power have to mitigate the impact of an increased frequency of extreme weather events?

b) How is Newfoundland Power incorporating more frequent extreme weather events into its operational and reliability planning processes?

c) What can Newfoundland Power's customers expect from a reliability perspective based on Newfoundland Power's plans to mitigate the impact of extreme weather as noted in response to a).

A. a) Newfoundland Power recognizes the amount of capital investment required to restore service to customers following severe weather is highly variable and presents a risk to Newfoundland Power's customers and its forecast expenditures.[1] This risk highlights the importance of ensuring the electrical system is resilient and designed to standards that reflect local climatic conditions, as well as the importance of maintaining effective emergency response capabilities through measures such as electrical system automation.

Capital expenditures resulting from severe weather conditions are generally recovered through either:

(i) The annual *Reconstruction* capital program, which addresses high-priority deficiencies and in-service failures on the distribution system;[2]

(ii) The annual *Transmission Line Maintenance* capital program, which addresses high-priority deficiencies and in-service failures on the transmission system;[3]

(iii) The *Allowance for Unforeseen Items* capital project, which permits the Company to act expeditiously in responding to events affecting the electrical system without seeking specific approval of the Board;[4] or

[1] The Federal Government has recognized the importance of adapting the Atlantic energy sector to climate change. The Federal Government states *"Adaptation to climate change by the energy sector in the Atlantic provinces will require re-examination of design standards for transmission and distribution infrastructure, to enable it to better withstand extreme weather events."* See *From Impacts to Adaptation: Canada in a Changing Climate 2007*, Government of Canada, page 154.

[2] See the *2024 Capital Budget Application, Schedule B,* page 29 *et seq.*

[3] Ibid., page 84 *et seq.*

[4] Ibid., page 137 *et seq.*

(iv) Supplemental capital budget applications when amounts exceed the *Allowance for Unforeseen Items*.[5]

Newfoundland Power's reliability performance over the last two decades is attributable to a number of factors including: (i) design and construction standards; (ii) asset management practices; and (iii) operational response.

Newfoundland Power incorporates current design standards in its execution of its capital program each year. Newfoundland Power's transmission lines and distribution feeders are designed and constructed to meet design standards at the time of construction. The principle design standard for transmission and distribution line design in Canada is the *CSA Standard C22.3 No. 1-15, Overhead Systems* (the "CSA Standard").[6] In 2001, the CSA Standard loading criteria for the Avalon and Bonavista Peninsulas was updated from "Heavy" to "Severe".[7] A more robust design and construction criteria enables Newfoundland Power's transmission and distribution system to better withstand the challenging environmental conditions that can be experienced in the Company's service territory.

In recent years, Newfoundland Power has been incorporating climate adaptation and resilience strategies in its operation, maintenance and design practices to prepare its infrastructure for the impacts of a changing climate. For example, the Company uses enhanced physical loading and design criteria for transmission structures, and upgraded design requirements for insulators on distribution lines.[8] Newfoundland Power's distribution feeders and transmission lines are designed to meet or exceed the deterministic weather loads contained in the CSA Standard for overhead systems.

In 2023, Newfoundland Power introduced a new transmission load case that examines maximum icing conditions under a 40% maximum wind load. This additional load case is being implemented to help mitigate the impact of significant weather events caused by climate change. This load case was included in Newfoundland Power's design criteria in response to the expected increase in severe weather events caused by climate change. Including this specific load case ensures the Company's

---

5 Order No. P.U. 17 (2010) approved a supplementary amount to the *Allowance for Unforeseen Items* following a severe ice storm. Order No. P.U. 35 (2010) approved a supplementary amount to the *Allowance for Unforeseen Items* following Hurricane Igor.

6 Efforts by the Canadian Standards Association ("CSA") Standards Group are underway to identify the leading risks and impacts of climate change, gaps in the current applicable codes and practices in climate change action in the electricity sector, and potential actions for consideration in future editions of the Canadian Electrical Code - CEC Parts I, II, and III. For example, a revision made by the CSA Group in the latest version of the Canadian Standards Association, *CSA C22.3 No. 1:20 Overhead Systems* includes requirements to address climate change adaptation in overhead systems design and construction.

7 The CSA Standard recognizes four classifications of weather load conditions for ice accumulation, wind loading, and temperature. These are: (i) medium loading B; (ii) medium loading A; (iii) heavy; and (iv) severe. Newfoundland Power's service territory has heavy and severe loading classifications. Only two other provinces are identified as having severe weather loading areas. These are: (i) parts of northern and southern Manitoba; and (ii) rural parts of eastern Quebec, including the Gaspe Peninsula.

8 *CSA Standard C22.3 – Overhead Systems* cautions that consideration should be given to local areas that have higher icing and/or wind forces than the severe and heavy weather design loading.

transmission lines are designed to withstand harsh weather situations that include a buildup of significant amounts of ice on transmission line conductor with simultaneous windy conditions. A distribution wind-span design tool has also been developed and implemented to more accurately design distribution structures to withstand extreme wind loading exceeding CSA standards.

Newfoundland Power's asset management practices for its transmission, distribution, and substation assets enables the Company to identify and correct equipment related issues and prevent customer outages before they occur. Examples of projects, programs and strategies that were implemented in late 1990s to mid-2000s that, over time, improved and helped maintain Newfoundland Power's overall reliability performance are as follows:

- In 1998, the *Distribution Reliability Initiative* capital project was introduced to target the replacement of deteriorated poles, conductor, and hardware to improve reliability for customers served by specific distribution feeders or sections thereof.[9]

- In 2004, the *Rebuild Distribution Lines* program was introduced as a preventative maintenance program that involves the planned replacement of deteriorated distribution structures and electrical equipment identified through inspections or engineering reviews. The program is a cornerstone of the Company's overall distribution reliability management practices.

- In 2006, the *Transmission Line Rebuild Strategy* was introduced, which outlined a multi-year plan for rebuilding the Company's aging and deteriorated transmission lines.[10]

- In 2007, the *Substation Strategic Plan* was introduced to outline how substation capital projects were to be planned and executed in part to manage the Company's aging substation equipment.[11]

Newfoundland Power's capital plan reflects continued investment in its longstanding asset management practices which have been shown to be consistent with good utility practice, are reviewed and updated annually, and contribute to the delivery of least-cost, reliable service.

Newfoundland Power's operational response has contributed to an improvement in reliability and overall consistent level of reliability since 2004. This can largely be attributed to advancements in technology. This includes: (i) the installation of equipment that provides a level of electricity system automation; and (ii) the

[9] See the response to Request for Information PUB-NP-051 for additional information on the *Distribution Reliability Initiative*.

[10] See the response to Request for Information PUB-NP-051 for additional information on the *Transmission Line Rebuild Strategy*.

[11] See the response to Request for Information PUB-NP-051 for additional information on the *Substation Strategic Plan.*

deployment of technology that allows Newfoundland Power to respond to customer outages more quickly. The use of automation has improved the ability of Newfoundland Power to address customer outages. This includes the automation of the substation feeder breakers and reclosers. By 2019, all substation breakers and reclosers were automated. The deployment of automated downline reclosers on distribution feeders provides similar benefits during customer outages, particularly during major events.[12]

Newfoundland Power centralized the management of its field response in 2014 using its Workforce Management System ("WFMS").[13] A Central Dispatch team located in St. John's is now responsible for scheduling, dispatching and monitoring the completion of all field work throughout the Company's service territory, including the response to customer outages.[14] In addition to the WFMS, Central Dispatch uses integrated Outage Management System ("OMS"), Geographic Information System ("GIS"),[15] and Automatic Vehicle Location ("AVL")[16] systems to provide an efficient and effective response to customer outages while serving an increased number of customers.[17]

Newfoundland Power's capital plans reflect continued investment in electrical system automation to continue enabling an efficient response time, as well as continued investment in operational technologies, as detailed in the response to Request for Information PUB-NP-049.

b) Newfoundland Power's operational response requires the deployment of a skilled workforce throughout its service territory.[18] Newfoundland Power's operations are focused on maintaining current levels of service reliability for customers under normal operating conditions. Newfoundland Power is also ensuring new and upgraded infrastructure is constructed to withstand updated climatic loading as defined by industry standards to improve resiliency during major events. The Company ensures resources are deployed quickly and efficiently to minimize restoration time of all outages.

---

[12] Downline reclosers are pole-mounted devices that operate automatically to restore service to customers and can be controlled remotely by the System Control Centre. Because downline reclosers are operated remotely, field crews can focus on restoring service to customers. Restoration efforts also become more efficient as the sectionalizing of feeders means portions no longer need to be patrolled to identify the cause and location of the outages.

[13] See Newfoundland Power's *2022 Capital Budget Application, report 7.3 Workforce Management System Replacement* for information on Newfoundland Power's existing workforce management system.

[14] Prior to implementing Central Dispatch, these functions were completed separately for each of the Company's area offices.

[15] The GIS contains the location of the Company's electrical system equipment throughout its service territory.

[16] The AVL provides real-time information regarding the location of Newfoundland Power's field resources.

[17] When an outage is reported, the integrated Central Dispatch system completes an automated outage assessment, dispatches the appropriate field staff to the assessed location, and completes coordinated customer communications.

[18] See the *2025/2026 General Rate Application, Volume 1, Application, Company Evidence and Exhibits, Section 2.3.1 Operations Overview*.

Newfoundland Power's emergency preparedness and response plans ensure it is capable of and ready to respond to major weather events regardless of the frequency at which they occur. The Company's *System Restoration Manual* outlines the processes followed to monitor major events in the days leading up to the event,[19] respond to the event, and conduct a post event review to ensure the effectiveness of the Company's response. The *System Restoration Manual* is reviewed and updated annually to revise emergency restoration standards, requirements, policies and objectives and program documentation. The review may incorporate findings from post event reviews, drills and exercises, advances in technology and new equipment.

d) Newfoundland Power's objective is maintaining current levels of overall service reliability for its customers.[20] The Company's capital plans, as described above, reflect the capital investment anticipated in the next five years to maintain current levels of reliability for its customers.

[19] Newfoundland Power proactively monitors and assesses the impact of potential major events in its service territory. For example, in September 2023, Hurricane Lee was identified as a potential major event in the Company's service territory. In the days leading up to the event, information regarding the latest weather forecasts and track for the hurricane was communicated to operations staff. As the storm progressed, updated information was shared. This ensured that staff had access to the most up to date information when preparing to respond to the storm.

[20] For additional information regarding how Newfoundland Power sets reliability performance targets and evaluates its performance, see the response to Request for Information PUB-NP-038.