Q. Further to the response to PUB-NP-040, please confirm that Newfoundland Power does not believe that capital/operational spending can be reduced while ensuring SAIDI is comparable with the Atlantic Canadian average.

A. ***A. Introduction***

It is confirmed. Newfoundland Power does not believe that capital or operating spending can be reduced while ensuring SAIDI is comparable to the Atlantic Canadian average. Newfoundland Power considers its current levels of capital and operational investment to be consistent with the provision of least-cost, reliable service to customers. This view is informed by the Company's experience in managing customer reliability over the last two decades, as well as an assessment of future risks to the current level of reliability experienced by customers.

In the Company's view, allowing reliability performance to degrade over time would not be prudent for two reasons. The first reason is that upcoming risks to the Company's ability to manage system reliability underscore the importance of maintaining current levels of reliability performance experienced by customers. The second reason is that intentionally allowing system reliability to degrade would not contribute to the delivery of least-cost electrical service to customers.

B. Newfoundland Power's Reliability Performance

As one of Electricity Canada's most commonly used indicators of electrical system reliability, SAIDI serves as one measure that helps reflect the actual reliability of the electrical system that provides service to customers, as well as the Company's operational response when outages occur.[1] In addition to SAIDI, SAIFI and CAIDI are also used to indicate electrical system reliability.[2] As SAIDI is proportionally related to SAIFI, any change in SAIFI will have a direct effect on SAIDI. As a result of this interrelation, in Newfoundland Power's view, it is reasonable to consider both SAIDI and SAIFI when assessing system reliability.[3]

Figure 1 shows the Company's SAIDI performance under normal operating conditions from 2003 to 2023.

[1] SAIDI refers to the amount of outage hours *the average customer* experiences.

[2] SAIFI refers to the amount of service interruptions *the average customer* experiences and CAIDI refers to the *average duration of an outage* experienced by a customer. SAIDI is equal to the product of SAIFI and CAIDI.

[3] For additional information, see the responses to Requests for Information PUB-NP-149 and NLH-NP-117.

Figure 1: SAIDI
SAIDI Under Normal Conditions
2003 to 2023

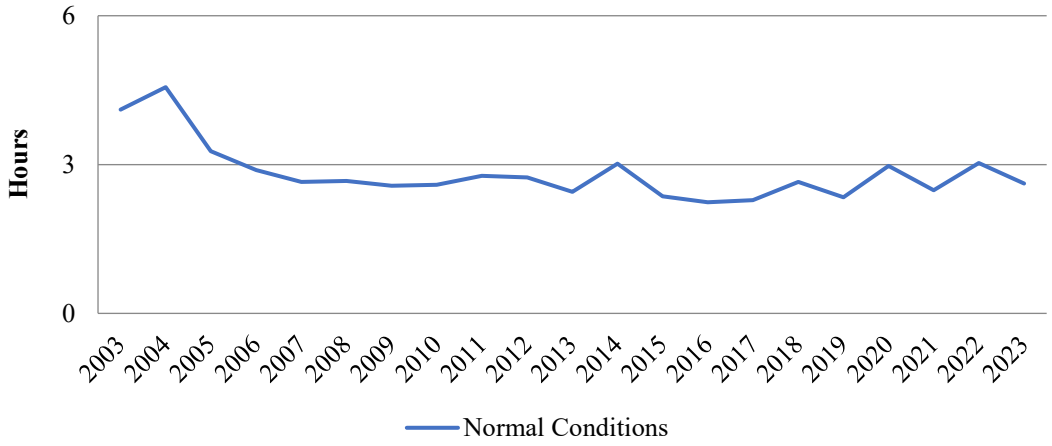
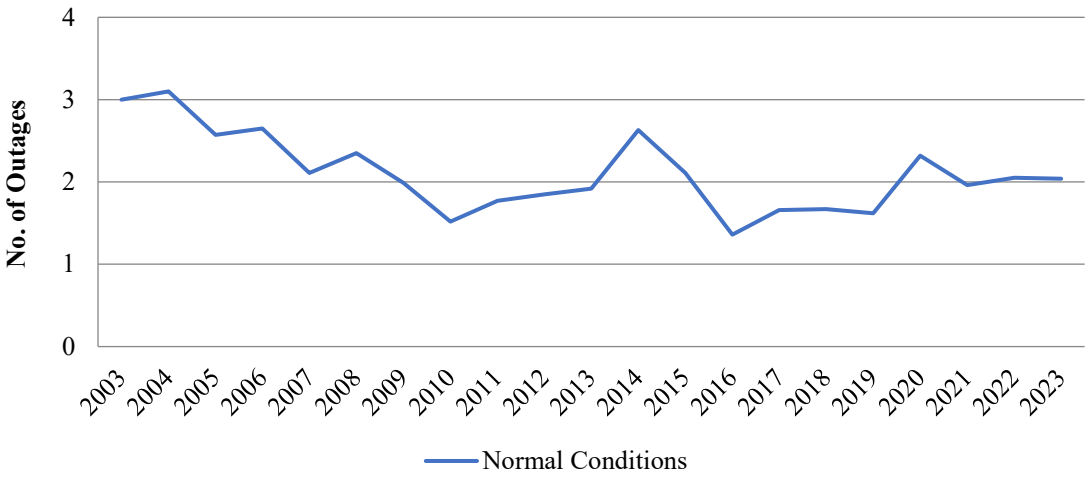


Figure 2 shows the Company's SAIFI performance under normal operating conditions from 2003 to 2023.

Figure 2:
SAIFI Under Normal Conditions
2003 to 2023



As shown in Figures 1 and 2, both SAIDI and SAIFI improved over the 2003 to 2010 period and have been reasonably stable since. Newfoundland Power has successfully maintained consistent levels of system reliability since about 2010.

C. Future Risks to Reliability

Newfoundland Power observes that, going forward, there is an increasing importance of maintaining the reliability performance of the electrical system due to a number of factors that pose a risk to the current level of reliability experienced by customers. These factors

include: (i) aging utility assets; (ii) increasing weather events; (iii) uncertainties around supply adequacy and bulk transmission reliability; and (iv) electrification of energy. Each of these factors are discussed below.

(i) Aging Infrastructure

As outlined in the response to Request for Information PUB-NP-047, the age of the Company's assets poses an increased risk to the reliability performance of the system. As Newfoundland Power's distribution system ages, the overall strength of the distribution system can be expected to decline. Issues associated with aging infrastructure, and related risks to current levels of reliability, are recognized across North America.[4] Newfoundland Power is exposed to an increasing risk of equipment failure going forward due to the age of its electrical system.[5]

As stated in the response to Request for Information PUB-NP-040, it is costlier to respond to unplanned outage events.[6] Newfoundland Power's practices enable the Company to identify and correct equipment-related issues and prevent customer outages *before* they occur. Failing to address aging assets in a planned fashion would lead to an increase in unplanned failures. This could lead to an increase in unplanned outages to customers and have a negative impact on SAIFI performance.

Capital and operating investments to inspect, replace and refurbish assets which are approaching, or already beyond, their expected useful service lives in a planned manner will continue to be required to maintain reliable service for customers.

(ii) Weather Events

Hurricanes, blizzards and ice accumulation have long posed a risk to distribution reliability for Newfoundland Power. Weather conditions that are less than extreme can also have a material effect on distribution reliability performance. For the Company's aerial distribution systems, the most common weather feature affecting customer reliability tends to be wind. Wind speeds in excess of 100 km/hr occur routinely in Newfoundland Power's service territory. For example, over the 2014 to 2021 timeframe, wind speeds in excess of 100 km/hr averaged 50 days per year. Compared to other electric utilities, Newfoundland Power's service territory is subject to some of the most severe wind and ice conditions for populated regions of Canada.

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4 For example, in the Province of Ontario, the Mowat Centre's Report on the Ontario Energy Sector notes an average of $15 billion a year will need to be invested over the next two decades just to maintain current service levels. See Mowat Centre, *Background Report on the Ontario Energy Sector,* December 2016.

5 The effect of age on the condition of Newfoundland Power's electrical system can be observed through its recent experience with equipment failures. An average of approximately 1,200 equipment failures per year were experienced on the distribution system from 2018 to 2022, which represents a 34% increase compared to the previous five-year period.

6 See also the response to Request for Information PUB-NP-017, footnote 5.

Changing climate conditions can be expected to pose challenges to the reliability of the grid into the future.[7] The Atlantic Provinces Economic Council has stated that a greater occurrence of severe weather events is currently impacting the electricity industry and are presenting system planning and operational challenges for utilities.[8] The council also notes that a future risk of climate change is an increasing need to build reliable electricity systems as the climate becomes more unpredictable.[9]

Maintaining the electrical system to withstand increased weather events requires continued capital investments to replace and refurbish deteriorated or failed equipment, ensuring the system is constructed to national design and construction standards, and operating investments in longstanding maintenance practices, such as vegetation management.

(iii) Bulk Transmission Reliability

The reliability of bulk electricity supply from Newfoundland and Labrador Hydro ("NL Hydro") affects the reliability experienced by Newfoundland Power's customers. Potential outages resulting from a failure on the Labrador Island Link ("LIL") and the Holyrood thermal generating station could place additional strain on the distribution system if rotating power outages were required.[10] For example, rotating power outages require more frequent operation of distribution equipment such as breakers and downline reclosers and cause higher loads on distribution lines than normal due to cold-load-pickup.[11] The operation of the distribution system during such periods is not routine. A reliable distribution system supports Newfoundland Power's ability to respond should such an event occur in the future.[12]

Given the seriousness of the potential reliability consequences, capital investments in the maintenance of an adequately reliable distribution system, coupled with operations that enable the Company to respond to customer outages in an efficient manner, will continue to be required into the future to maintain reliable service for customers.

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7 For example, as provided in the Canadian Institute for Climate Choices report *Enhancing the resilience of Canadian electricity systems for a net zero future*, page 5, powerlines, poles and towers can be downed or damaged by severe weather events that may become more frequent as a result of climate change.

8 See Atlantic Provinces Economic Council's report, *An Overview of Atlantic Canada's Coming Economic Transition,* October 2022, page 4.

9 Ibid.

10 #DarkNL in 2014 demonstrated that the ability to rotate distribution feeders, while not standard practice, becomes a necessary emergency capability in times of supply shortfall. Rotating outages create considerable challenges to customers and Newfoundland Power's operation of the distribution system. The extent to which customer load is rotated and the duration of customer load rotations are dependent on a number of dynamic factors including availability of supply, customer load and weather conditions.

11 Cold-load-pickup refers to high electrical loads experienced on a transmission or distribution line following a sustained customer outage during cold weather. Higher loads on distribution lines can lead to conductor failure when trying to restore power to customers.

12 In NL Hydro's *Reliability and Resource Adequacy Study, 2022 Update* (the "2022 Update"), NL Hydro indicated that varying degrees of rotating outages could be expected in the event of a six-week outage of the LIL (see Volume III of the 2022 Update, page 30). In their response to Request for Information NP-NLH-087 of the same proceeding, NL Hydro estimated that a 150 MW outage would affect 40,000 to 50,000 customers, on average.

(iv) Electrification

The Provincial Government has committed to taking actions to address climate change, including advancing electrification in the province.[13] Actions to electrify space heating and the transportation sector increase customer reliance on electricity and have impacts on Newfoundland Power's distribution system and customer reliability.

Electricity is the primary source of space heating for Newfoundland Power's residential customers. Customer outages, particularly during the winter season, can present a risk to the health and safety of the population.[14] With the ongoing electrification of customer heating systems, the Company's customer base is becoming more dependent on electricity to heat their homes and businesses.[15]

Electrification of the transportation sector will also result in an increased reliance on the electricity system.[16] A common theme in electrification transportation planning is that grid readiness measures, such as increased investments, will be required to reliably meet the increase in electric vehicle ("EV") related load.[17]

Electrification occurring concurrently with other utility challenges, such as aging infrastructure and climate change effects as described above, necessitates an approach that, at a minimum, maintains current levels of service reliability.

D. The Relationship Between Reliability and Cost

It is Newfoundland Power's view that maintaining current levels of service reliability experienced by customers requires expenditures to both maintain the condition of the electrical system and support the Company's operational response. The Company attributes its reliability performance over the past two decades to a number of factors including: (i) design and construction standards; (ii) asset management practices; and (iii) operational response.

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[13] See, for example, The Provincial Government's December 13, 2021 new release, *Provincial Government Establishes Net-Zero Advisory Council.*

[14] This is particularly true for vulnerable customers, such as senior citizens, as well as Newfoundland Power's critical customers. Critical customers are those with roles that are essential for the health, safety and welfare of the communities the Company serves. These would include, but not be limited to, hospitals, fire and police stations, seniors' homes and water pumping stations.

[15] On June 29, 2023, the Government of Newfoundland and Labrador announced incentives for customers to remove their oil heating systems in favour of electric heating systems. See Government of Newfoundland and Labrador's news release *Provincial and Federal Governments Launch New Oil to Electric Incentive Program*, June 29, 2023.

[16] As an example, Dunsky Energy Consulting ("Dunsky") provided an EV forecast in 2022 as part of NL Hydro's Reliability and Resource Adequacy Study. When considering all scenarios modelled by Dunsky, the number of light-duty EVs registered in the province is expected to range from 5,000 to 10,000 by 2025, increasing to 100,000 to 200,000 EVs by 2040.

[17] See, for example, the Government of Canada's publication, *What we heard: NRCan's request for information on grid readiness for electric vehicles*.

The Company submits that current capital and operational investments contribute to the least-cost delivery of reliable service to customers by:

i. Enabling the construction of electricity systems to current design standards;
ii. Enabling the identification, prioritization and addressing of identified deficiencies on the distribution system in a planned fashion versus a more costly unplanned fashion; and
iii. Enabling the deployment of resources, supported with appropriate technologies and processes, that allow crews to efficiently respond to customer outages.

The relationship between service reliability, utility investment and overall customer rates is not a direct one. While Newfoundland Power recognizes that reducing the amount of *planned* investment in the electrical system will result in a degradation in reliability performance, such measures would result in more frequent *unplanned* outages that require a costlier response. As a result, the Company believes that seeking an intentional degradation in SAIDI, or any other measure of reliability, will not serve to reduce overall capital or operating expenditures but would likely increase costs to customers.

The Company's capital planning processes and operational response are deliberate efforts to balance the cost and reliability of service provided to customers.[18]

E. Conclusion

There are upcoming challenges to maintaining reliability associated with aging assets, increasing weather events, uncertainties around reliability of supply and increasing public dependency on the electrical system related to electrification. In Newfoundland Power's view, an intentional degradation of system reliability is therefore imprudent. In addition, the Company submits that reducing capital or operating investments in order to obtain a particular outcome for a single reliability metric would degrade the Company's ability to maintain current levels of system reliability, would put increased pressure on customer rates and would not be consistent with the delivery of least-cost, reliable service to customers.

The Company's experience in managing customer reliability over the last two decades demonstrates that the Company's approach remains consistent with good utility practice and with the least-cost delivery of reliable service to customers. Newfoundland Power remains focused on maintaining the current level of reliability experienced by customers in a manner that is least cost.

[18] For additional information, see the responses to Requests for Information PUB-NP-040 and NLH-NP-118.