Reference: 2024-2028 Capital Plan

Q. Page 1. It is stated that Newfoundland Power's investment priorities over the next five years reflect an increased focus on the planned refurbishment of assets to extend their useful service lives. Please explain how this increased focus is reflected in the 2024-2028 Capital Plan and if the age of the asset is being given additional weight in the planning of capital programs and projects as a result of this increased focus.

A. **Considering Asset Age in the Capital Planning Process**

Newfoundland Power prepares a five-year capital plan to provide reasonable predictability of future investment priorities. The capital plan incorporates the best available information on future customer, operational and electrical system requirements. In general, Newfoundland Power does not complete detailed engineering condition assessments for potential capital projects in the five-year capital plan beyond those proposed for Board approval in the budget year, including multi-year projects. For future years, age is used as one indicator of the level of asset renewal that may be required beyond the budget year.[1]

As capital projects move from the future plan period to the budget year, they are examined in detail to further assess the scope and justification of the required work. Age is not considered as heavily in this assessment and has not been given an increased weight in the preparation of the *2024 Capital Budget Application*. Rather, condition assessments, inspection results and objective data are used to determine whether a capital expenditure may be necessary.[2] For additional details on the criteria Newfoundland Power uses in its annual capital planning process, see the response to Request for Information PUB-NP-008.

Renewal Investments

Significant portions of major equipment in the Distribution, Transmission and Substations asset classes have exceeded or are approaching the end of their useful service lives.[3] As such, Newfoundland Power is anticipating an increased proportion of capital expenditures to be related to asset replacement or refurbishment to extend the useful lives of these assets. For example, Renewal investments are forecast to account for approximately 56% of capital expenditures from 2024 to 2028, compared to

[1] Inspection results, such as the number of TD4 work requests created following annual inspections of Transmission Line 146L over the last 10 years in Table 1 of report 3.1, are also used as an indicator of the level of asset renewal that may be required beyond the budget year.

[2] The annual update of Newfoundland Power's capital plan may result in capital projects being deferred after being forecast in previous capital plans. For examples of capital project deferrals, see the response to Request for Information PUB-NP-007.

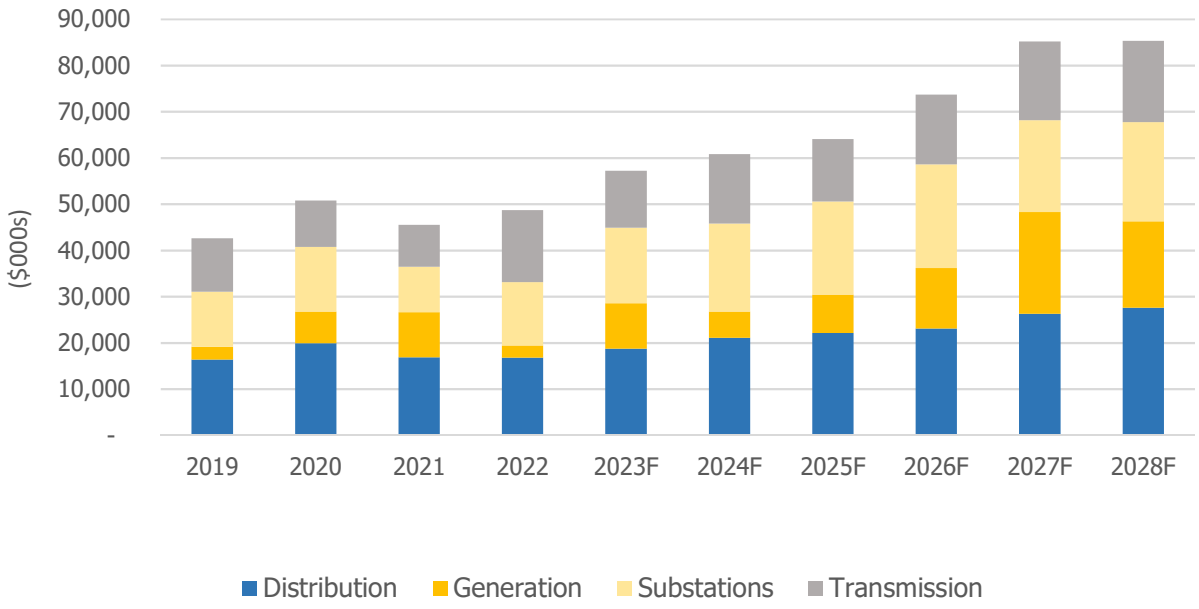
[3] See Newfoundland Power's *2024 Capital Budget Application, 2024-2028 Capital Plan, 2.4 Asset Condition Outlook*.

approximately 44% over the previous five-year period.[4] In this way, there is an increased focus of Company resources on Renewal investments than has been historically required.[5]

Newfoundland Power has also experienced a higher level of capital expenditures required for asset renewal in recent years. Given the age of the Company's assets, increasing Renewal capital expenditures are reflected in the 2024-2028 capital plan.

Figure 1 below shows historical and forecast capital expenditures in the Renewal investment classification from 2019 to 2028 by asset class.

Figure 1
Renewal Expenditures
2019-2028



[4] Investments in the Renewal classification are driven by the need to replace or refurbish assets that are deteriorated, deficient or fail in service. See Newfoundland Power's *2024 Capital Budget Application, 2024-2028 Capital Plan*, page 15.

[5] Aging infrastructure is a challenge recognized in the electric utility industry. See the response to Request for Information PUB-NP-002 for further information.

Renewal investments in the Distribution asset class include the continuation of longstanding corrective and preventative maintenance programs, as well as an increase in distribution feeder refurbishment projects.[6]

Renewal investments in the Transmission asset class reflect increases in the amount of work to be completed under the *Transmission Line Rebuild Strategy* (the "Strategy") over the forecast period.[7]

Renewal investments in the Substations asset class reflect increases in the amount of work to be completed under the *Substation Refurbishment and Modernization Plan* (the "Plan") over the forecast period.[8] The most critical equipment in substations are power transformers. Based on the current age profile, the Company's power transformers are exposed to a high risk of equipment failure.[9] The Company is forecasting the requirement to replace five substation power transformers over the next five years.[10] These transformers have been identified based on their age relative to the rest of the Company's fleet, and will be further evaluated through detailed condition assessments as they move from the forecast year to the budget year.[11]

Renewal investments in the Generation asset class reflect an increase in refurbishment projects for hydro plants, the planned replacement of the Wesleyville and Greenhill gas turbines with a new mobile unit, and the requirement to address aging thermal generation in Port aux Basques.[12]

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6 Distribution feeder refurbishment projects, such as the proposed *Distribution Feeder OXP-01 Refurbishment* project, are typically undertaken when the quantity of deficiencies identified through inspection is beyond what would be undertaken under the Company's two distribution maintenance programs, *Reconstruction* and *Rebuild Distribution Lines*. There are 25 feeders expected to require refurbishment over the next five years. This compares to eight in the previous five-year period. Refurbishment projects for individual distribution feeders are expected to increase over the forecast period, with annual expenditures increasing from approximately $1.5 million in 2024 to approximately $5.5 million in 2028. See Newfoundland Power's *2024 Capital Budget Application, 2024-2028 Capital Plan*, page 17.

7 The increase in the amount of work to be completed under the Strategy is reflected in the average kilometres of transmission line rebuilt annually. Over the next five years, an average of 78 kilometres of transmission line is anticipated to be rebuilt annually. This compares to 45 kilometres over the previous five-year period.

8 The increase in the amount of work to be completed under the Plan is reflected in the number of substations refurbished annually. Over the next five years, a total of 23 substations are anticipated to require refurbishment. This compares to 12 over the previous five-year period.

9 Approximately 35% of substation power transformers have exceeded the industry expected useful service life of 50 years. An additional 34% of substation power transformers will reach 50 years in service over the next decade. See Newfoundland Power's *2024 Capital Budget Application, 2024-2028 Capital Plan*, page 12. Newfoundland Power is currently experiencing a significant "bow wave" and is approaching what is referred to in industry as an asset wall. An asset wall occurs when a significant quantity of assets exceeds or approach the end of the expected useful service life. In the case of Newfoundland Power's power transformers, approximately 70% of its transformers have either exceeded, or are approaching the industry expected useful service life of 50 years.

10 Newfoundland Power is proposing the replacement of power transformer ISL-T1 in 2024 and 2025. The risk of this power transformer failing is expected to increase as it continues to age. It is proposed that ISL-T1 be replaced due to the limited remaining expected life, the risk of an extended outage in the event of a failure, and the long lead time associated with procuring new power transformers.

11 See Newfoundland Power's *2024 Capital Budget Application, 2024-2028 Capital Plan*, page 18.

12 See Newfoundland Power's *2024 Capital Budget Application, 2024-2028 Capital Plan*, pages 13 and 14.

Based on the current age profile, refurbishment projects are expected to continue to be required to extend the useful service lives of these hydro plants when proven economic for customers.[13]

Overall, Newfoundland Power is exposed to increasing risk of equipment failure going forward due to the age of its electrical system. Significant portions of major equipment in the Distribution, Transmission and Substations asset classes have exceeded or are approaching the end of their useful service lives. Maintaining the safe and reliable operation of the electrical system will require increased investments in the planned refurbishment and replacement of electrical system assets. Any required investments will continue to be informed by the Company's maintenance practices and longstanding strategies to address deteriorated electrical equipment.

[13] Newfoundland Power is forecasting the requirement to undertake planned refurbishment projects at nine hydro plants over the next five years. This compares to five over the previous five-year period.