

1 **Q. (Reference Application Schedule B, Substation Refurbishment and Modernization,**
2 **page 12 of 99) Why is there such a significant increase in costs of this program in 2023**
3 **and beyond?**

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5 A. The current 5-year forecast for the Substation Refurbishment and Modernization Plan
6 includes projects to refurbish and modernize aged and deteriorated substation
7 infrastructure. This infrastructure includes power transformers, switchgear, protection
8 and control devices, grounding, wood poles, foundations, and switches. This substation
9 infrastructure is critical to electrical system reliability as unplanned substation outages
10 can result from failure of this infrastructure, affecting thousands of customers.

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12 The forecast expenditures in 2023 and beyond are primarily the result of the requirement
13 to complete refurbishment and modernization projects in several major substations
14 throughout Newfoundland Power's service territory.¹ These substations were originally
15 constructed in the 1950s, 1960s and 1970s and have an average age of 58 years. Two of
16 these substations contain aged and deteriorated metal-clad switchgear and three of these
17 substations contain deteriorated wood pole transmission bus infrastructure which is
18 approaching end of life and requires replacement.

19
20 In addition, there are substations expenditures included in the plan for 2023 to 2026 for
21 the replacement of electromechanical protection relays in 12 substations that are beyond
22 their expected service life and require replacement.²

23
24 A major driver of increased expenditures included in the plan for 2025 and 2026 is the
25 significant refurbishment projects necessary at both Molloy's Lane and Goulds
26 substations. Combined, these substations provide termination points for 7 transmission
27 lines and 11 distribution feeders and supply a total of approximately 13,500 customers in
28 the St. John's West and Goulds areas of the City of St. John's.

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30 The 5-year forecast for the Substation Refurbishment and Modernization Plan is
31 reviewed and updated annually. Through a comprehensive planning process, the
32 Company will determine the necessity, scope and timing of each capital project. As
33 projects move from the forecast period to the budget year, they are assessed in detail to
34 determine the least-cost alternative, including deferral. Proposed projects closer to the
35 budget year will typically include more detailed engineering analysis and thus provide a
36 better basis for advancing or delaying a project.

¹ These substations include Walbournes ("WAL"), Broad Cove ("BCV"), Gander Bay ("GBY"), Molloy's Lane ("MOL"), Gambo ("GAM"), Grand Falls ("GFS), and Goulds ("GOU").

² In its *Report on Island Interconnected System to Interconnection with Muskrat Falls addressing Newfoundland Power*, December 17, 2014, the Board's consultant, The Liberty Consulting Group, examined Newfoundland Power's practice of replacing multiple obsolete electromechanical relays with a single modern microprocessor controlled relay and concluded that the Company uses reasonable practices that conform to industry practice.