

1 **Q. Reference: "2027 Capital Budget Application," Newfoundland Power Inc.,**
2 **May 29, 2026, Supporting Materials, Substations: 2.1, Appendix B, Rattling**
3 **Brook Substation Refurbishment and Modernization.**

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5 **Newfoundland Power states that disconnect switches installed in**
6 **transmission and substation applications typically have an expected service**
7 **life of approximately 30 years depending on operating conditions,**
8 **maintenance practices, and manufacturer design specifications.**
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10 **Please provide the basis for the assumed 30-year expected service life for**
11 **disconnect switches, including any manufacturer guidance, industry**
12 **standards, utility benchmarking, internal asset management criteria,**
13 **historical failure data, maintenance history, or condition assessment results**
14 **relied upon by Newfoundland Power.**
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16 **A.** The approximate 30-year expected service life for disconnect switches is based on
17 Newfoundland Power's operating experience, industry experience with similar
18 equipment, and the Company's asset management practices for substation equipment.
19 The 30-year service life is used as a planning benchmark and is not intended to
20 represent a fixed retirement age. Disconnect switch replacement decisions are not based
21 solely on age. Rather, age is considered together with operating environment,
22 maintenance history, inspection findings, equipment condition, manufacturer design,
23 and opportunities to coordinate replacement with broader *Substation Refurbishment and*
24 *Modernization* projects.
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26 Newfoundland Power estimates that there are over 500 substation switches in its system
27 that are beyond 30 years in age.¹ The Company's practice is to assess these switches in
28 the context of their condition, operating environment, and the planned work occurring at
29 the applicable substation. When a substation is undergoing refurbishment and
30 modernization, switches that are more than 30 years old are typically replaced.² Outside
31 of *Substation Refurbishment and Modernization* capital projects, Newfoundland Power's
32 practice is to undertake corrective maintenance on switches that fail in service.³ If the
33 switch cannot be repaired on site, a replacement switch is installed.
34

35 Industry reference material indicates a typical service life range of approximately 30 to
36 50 years for disconnect switches used in transmission and substation applications.⁴
37 Newfoundland Power's operating environment contributes to its experience being at the
38 lower end of this industry range. The Company's service territory is exposed to high

¹ Many older model switches have missing or unreadable manufacturer tags, so the exact age of every switch is unknown and is estimated based on age of surrounding equipment and other records.

² Repairing or replacing failed switches in energized substations can be time consuming and costly. In some circumstances, lengthy customer outages may be required. Replacing aged switches in a planned fashion during *Substation Refurbishment and Modernization* projects is less costly than repairing them in service.

³ Due to the age of these older switches, the Company has to resort to salvaging parts from switches removed from service to facilitate repairs.

⁴ See International Council on Large Electric Systems ("CIGRE"), *Asset Management Decision Making using different Risk Assessment Methodologies*, 2013, page 94.

1 moisture, salt contamination, and wind that contribute to corrosion and mechanical
2 deterioration of outdoor substation equipment. These conditions are further
3 compounded in installations on wood pole structures that can move or twist over time
4 due to wind. This movement can contribute to disconnect switch misalignment and
5 operating difficulties.

6
7 Newfoundland Power's experience is that, as disconnect switches age, mechanical wear
8 and deterioration can occur in components such as hinge bushings, bushing liners,
9 springs, operating mechanisms, and contact surfaces. This deterioration can result in
10 blade misalignment, increased operating forces, corrosion, reduced reliability, and
11 increased maintenance requirements. The Company has also observed that infrequently
12 operated switches can become difficult to operate due to corrosion, deterioration of
13 bushings, and mechanical misalignment.

14
15 In many Newfoundland Power substations, the replacement of certain disconnect
16 switches requires a portable substation or other temporary configuration to maintain
17 service while work is completed. In some cases, the cost of installing a portable
18 substation or temporary supply arrangement can exceed the cost of the disconnect
19 switch replacement itself. In these circumstances, there are benefits to replacing
20 multiple switches of similar vintage, design, and condition at the same time through a
21 planned *Substation Refurbishment and Modernization* project, rather than replacing
22 individual switches as they fail. This planned approach reduces repeated mobilization
23 requirements, avoids multiple temporary supply arrangements, and can reduce the
24 potential for customer outages.

25
26 Newfoundland Power has also assessed switch life extensions through the process of
27 removing switches over 30 years in service, refurbishing them and returning them to
28 service. This presents several challenges including the availability of new components to
29 include in the refurbishment and access to the necessary expertise, internally or
30 externally, to complete the refurbishment.

31
32 The assumed 30-year expected service life is therefore used by Newfoundland Power as
33 an asset management benchmark for planning purposes. It is consistent with industry
34 experience, while recognizing that Newfoundland Power's operating environment tends
35 to place switch service life toward the lower end of the typical industry range. Individual
36 replacement decisions are based on condition and operational considerations including
37 maintenance history, observed deterioration, replacement constraints, and the
38 opportunity to complete work efficiently as part of the *Substation Refurbishment and*
39 *Modernization* projects.