

Reference: Tab 2.2: Substation Spare Transformer Inventory

Q. Page 12, Table 3: Assuming approval of the current request, and if Newfoundland Power were to discount transformers 200185, 200113, 200358, 200352, and 200258 what would be the recommendation in regards to spare purchases?

A. Discounting transformers 200185, 200113, 200358, 200352, and 200258, and with the current request for a spare transformer being approved, Newfoundland Power would have an inventory of five spare power transformers.¹

Table 1 lists the five remaining spare power transformers under the requested scenario.

Table 1 Spare Power Transformer Availability				
Equipment ID	Age	Capacity (MVA)	Primary Voltage (kV)	Secondary Voltage (kV)
200299	46 Years	15/20	138	25
200219	52 Years	10	66	12.5
200220	52 Years	10/13.3	66	12.5/4.16
200328	39 Years	5/6.7/8.3	66	25
Ideal Spare	New	15/20/25	66	25/12.5

The five remaining spare power transformers listed in Table 1 could replace 67% of the Company’s transformer fleet, compared to 75% if the five transformers were not discounted as suggested under the requested scenario.²

The discounted transformers 200185, 200113, and 200258 are redundant spares for the power transformers supplying 25 kV, 12.5 kV and 4.16 kV distribution systems.³ Therefore, it is not recommended at this time that the Company purchase a spare or spares to replace these three discounted transformers.

¹ Table 1 is based on information in report 2.2 Substation Spare Transformer Inventory, Table 3, included in the 2023 Capital Budget Application.
² This 67% is comprised of only 129 distribution power transformers. The 75% is comprised of 132 distribution, no generation, and 12 transmission system transformers.
³ Discounted transformers 200185, 200113, 200358, and 200258 act as redundant spares for 37 distribution power transformers. However, discounting transformer 200185 leaves only one spare transformer that can backup the power transformer at the Quartz Substation in the Placentia area serving only four customers. The Quartz Substation can also be backed up by Portable Substation P1.

1 Discounted transformer 200358 is a spare for three single-phase distribution power
2 transformers serving customers from Grand Beach, Jonathan's Pond and Placentia
3 Junction substations. These three single-phase transformers service few customers and
4 do not impact other areas of the system.⁴ All four portable substations provide spare
5 coverage for these three substations. Therefore, it is not recommended at this time that
6 the Company purchase a spare to replace discounted transformer 200358.
7

8 Discounting 200352 as a spare would eliminate the only 138/66 kV transmission system
9 transformer in the Company's fleet, resulting in the need to purchase a spare 138/66 kV,
10 41.6 MVA unit. A spare transmission system transformer is required as it is needed to
11 replace either of the 12 critical transmission system transformers that are essential to
12 maintain service to customers.
13

14 Newfoundland Power will assess the condition of its spare transformers and its inventory
15 requirements annually to determine the need for any additional spares. The Company
16 will seek Board approval of any additional spare units through future capital budget
17 applications.

⁴ In total, there are less than 300 customers served by these three substations.