

- 1 **Q. (Reference CA-NP-034)**  
 2 **a) What was the percentage of the cost of the MUN-T2 replacement relative to**  
 3 **the total cost of the Substation Replacements Due to In-service Failures**  
 4 **program approved in that year?**  
 5 **b) Please identify every project carried out in the past 5 years under the**  
 6 **Substation Replacements Due to In-service Failures program where the**  
 7 **percentage cost of the project relative to the approved budget amount**  
 8 **exceeded the percentage derived in part (a).**  
 9 **c) Please provide individual project details for the Transformer Replacements**  
 10 **and Refurbishments category of projects for each of the past 5 years**  
 11 **included in Table 1 of Attachment A.**  
 12 **d) Please confirm or deny the following with reasons:**  
 13 **a. It was not possible to accommodate the MUN T-2 transformer**  
 14 **replacement project under the Substation Replacements Due to In-**  
 15 **Service Failures program.**  
 16 **b. Not one project included in the Substation Replacements Due to In-**  
 17 **Service Failures program in the past 5 years impacted the substation**  
 18 **equipment failures that might have required immediate attention to**  
 19 **maintain reliable supply to customers, and please explain how NP**  
 20 **managed to accomplish this.**  
 21 **c. Transformer replacements and refurbishments have been carried out**  
 22 **under the Substation Replacements Due to In-service Failures program**  
 23 **in each of the past 5 years accounting for between 24.4% and 63.7% of**  
 24 **the total program budget.**
- 25
- 26 **A.** a) The cost of the MUN-T2 replacement is 36% of the total cost of the *Substation*  
 27 *Replacements Due to In-service Failures* program approved in the *2023 Capital*  
 28 *Budget Application*.<sup>1</sup>  
 29  
 30 b) There have been no individual projects carried out in the past five years under the  
 31 *Substation Replacements Due to In-service Failures* program where the percentage  
 32 cost of the project relative to the approved budget amount exceeded the 36%  
 33 identified in part a).  
 34  
 35 c) See Attachment A for the requested information.  
 36  
 37 d) a. It is confirmed. See part g) of the response to Request for Information  
 38 CA-NP-034.  
 39  
 40 b. See the response to Request for Information CA-NP-034, part g).

<sup>1</sup> The budget for the MUN-T2 replacement is \$1,614,000. See Order No. P.U. 14 (2023). The *Substation Replacements Due to In-Service Failures* program budget for 2023 is \$4,442,000. See Newfoundland Power's *2023 Capital Budget Application, Schedule B*, page 100.  $(\$1,614,000 / \$4,442,000) * 100\% = 36\%$ .

1           The *Substation Replacements Due to In-Service Failures* program involves  
2           replacing substation equipment that has failed as a result of storm damage,  
3           lightning strikes, vandalism, electrical or mechanical failure, corrosion damage,  
4           technical obsolescence or failure during maintenance testing. An evaluation of  
5           whether it is appropriate to include or exclude a capital expenditure from the  
6           *Substation Replacements Due to In-Service Failures* program is done on an  
7           individual basis and depends on factors including the magnitude and timing of  
8           the expenditure and the associated equipment procurement, as well as the  
9           criticality of the issue being addressed.

10  
11           It is confirmed that over the past five years, substation equipment that failed in  
12           service requiring immediate attention was addressed and returned to service to  
13           maintain reliable supply to customers.

- 14  
15           c. It is confirmed. As detailed in Attachment A to this response, the costs for  
16           completing transformer replacements and refurbishments included multiple  
17           projects each year, ranging from a low of 14 projects in 2022 to a high of 25  
18           projects in 2020.

# **ATTACHMENT A:**

**Substation Replacements Due to In-Service Failures  
Power Transformer Replacements and Refurbishments  
(2018 – 2022)**

Table 1 Substation Replacements Due to In-Service Failures Transformer Replacements and Refurbishments - 2018 <sup>1</sup>			
Transformer Name	Transformer ID	Activity	Cost (\$000s)
2018			
HOL-T1	200306	Refurbishment including lightning arresters, gas detector, gauges, pressure relief device, fan	36
MUN-T1	200142	Refurbishment including gas detector, gauges	36
SUM-T1	200264	Refurbishment including gas detector	36
CAB-T2	200290	Refurbishment including gas detector, gauges, pressure relief device,	36
MOL-T1	200324	Refurbishment including gauges, fall arrest bracket	36
CLV-T1	200349	Refurbishment including bushings, gas detector, gauges, silica gel container	36
PUN-T1	200103	Refurbishment	36
PUN-T1	200104	Refurbishment	36
PUN-T1	200105	Refurbishment	36
CLK-T1	200223	Refurbishment including lightning arresters, gauges, pressure relief device, fall arrest bracket	36
SCR-T1	200323	Refurbishment including lightning arresters, gauges, silica gel container	36
WBC-T1	200213	Refurbishment including bushings, gas detector, gauges, pressure relief device, silica gel container	36
BVS-T1	200307	Refurbishment including lightning arresters, gas detector, gauges, pressure relief device, fall arrest bracket	36
BVS-T2	200145	Refurbishment including gas detector, gauges, pressure relief device, silica gel container	36

<sup>1</sup> Power transformer refurbishment actual costs are not tracked by individual transformer. The costs included for transformer refurbishment in these tables divides the total cost in each year by the number of transformers refurbished. Refurbishment costs include installation or replacement of bushings, pressure relief devices, gas detector relays, fall arrest brackets, silica gel containers, level and temperature gauges, and if required, portable substation installs.

Table 1 Substation Replacements Due to In-Service Failures Transformer Replacements and Refurbishments - 2018 <sup>1</sup>			
Transformer Name	Transformer ID	Activity	Cost (\$000s)
OPL-T1	200147	Refurbishment including gas detector, gauges, pressure relief device	117
HUM-T3	200258	Tap Changer Repair	16
MD3-T1	200730	Radiator Replacement	36
BVA-T1	200343	Transformer Repair	163
CLK-T1/T2	200223, 200287	Tap Changer Controls Replacement	103
TOTAL			932

Table 2 Substation Replacements Due to In-Service Failures Transformer Replacements and Refurbishments - 2019			
Transformer Name	Transformer ID	Activity	Cost (\$000s)
2019			
PUL-T2	200331	Transformer Repair. Tap Changer Replacement. Refurbishment including gas detector.	42
TOP-T1	201074	Refurbishment	36
SMV-T1	200230	Refurbishment including bushings, gas detector, gauges, silica gel container	36
BRB-T2	200302	Refurbishment including gas detector, silica gel container	62
BLA-T1	200240	Refurbishment including gas detector, gauges	133
GIL-T1	200288	Refurbishment including lightning arresters, gas detector, gauges	115
TCV-T1	200162	Refurbishment including bushings, silica gel container	36
FRN-T1	200285	Refurbishment including gas detector	36
PAB-T5	200246	Refurbishment including gas detector, gauges, pressure relief device	36
PEP-T1	200309	Refurbishment including lightning arresters, gas detector, gauges, pressure relief device, fans	36
BRB-T3	200330	Refurbishment including lightning arresters, gas detector, gauges, pressure relief device, silica gel container	36
SPO-T5	200352	Refurbishment	36
KEL-T1	200361	Refurbishment	75
PAB-T3	200101	Radiator Replacement. Refurbishment including lightning arresters.	174
STG-T1	200316	Refurbishment including lightning arresters, gas detector, gauges, pressure relief device, fans, fall arrest bracket	87
MKS-T1	200321	Refurbishment including bushings, lightning arresters, gas detector, gauges, silica gel container, fall arrest bracket	123
BVA-T1	200343	Transformer Repair	555

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PUL-T2	200360	Gas Detector Replacement	521
DOY-T2	200289	Leak Repair	55
HUM-T2	200122	Transformer Repair. Tap Changer Replacement. Refurbishment including gas detector.	31
TOTAL			2,260

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Table 3 Substation Replacements Due to In-Service Failures Transformer Replacements and Refurbishments - 2020			
Transformer Name	Transformer ID	Activity	Cost (\$000s)
2020			
MIL-T1	200339	Tap Changer Repair. Refurbishment including lightning arresters, gas detector, gauges, silica gel container, fall arrest bracket.	289
MUN-T2	200273	Refurbishment including gas detector, gauges, fans	61
DLK-T1	200359	Refurbishment including lightning arresters, gas detector	120
SCV-T2	200121	Refurbishment including bushings, lightning arresters, gas detector, gauges, pressure relief device, silica gel container	70
HCT-T3	200184	Refurbishment including bushings, gas detector, pressure relief device	101
EMC	200334	Refurbishment including gauges	61
HOW-T3	200600	Refurbishment including bushings, lightning arresters, gas detector, gauges, silica gel container	61
MOP-T1	200152	Refurbishment including gauges, pressure relief device, silica gel container	61
GAL-T2	200265	Refurbishment including lightning arresters, gas detector, gauges, pressure relief device	61
WAL-T2	200355	Refurbishment including lightning arresters, gauges, fan	61
RRD-T3	200272	Refurbishment including lightning arresters, gas detector, gauges, pressure relief device, silica gel container, fall arrest bracket	61
MSY-T1	200311	Refurbishment including gas detector, gauges, pressure relief device	61
KEL-T1	200361	Bushing Repair	31
HUM-T2	200122	Leak Repair	43



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HUM-T3	200258	Leak Repair	43
PIT-T1	201054/55/56	Replacement	114
CHA-T1	200373	Leak Repair	10
PEP-T2	200377	Leak Repair	1
KBR-T2	200130	Leak Repair	3
PAS-T1	200250	Bushing Repair	52
LLK-T1	200281	Heat Trace Replacement	33
SLA-T4	200334	Temperature Gauge Replacement	2
CAB-T2	200290	Heat Trace Repair	1
VIC-T1	200217	Gas Detector Replacement	4
TRN-T1	200238	Bushing Replacement	56
<b>TOTAL</b>			<b>1,456</b>

Table 4 Substation Replacements Due to In-Service Failures Transformer Replacements and Refurbishments - 2021			
Transformer Name	Transformer ID	Activity	Cost (\$000s)
2021			
BRB-T1	200303	Tap Changer Controls Repair. Refurbishment including gas detector, gauges, pressure relief device, silica gel container, fall arrest bracket	41
SLA-T3	200245	Tap Changer Repair. Refurbishment including lightning arresters, gas detector, silica gel container, DGA device	41
ABC-T1	200260	Refurbishment	41
PBD-T1	200338	Refurbishment including lightning arresters, gauges, fall arrest bracket	41
RBH-T1	200350	Refurbishment including lightning arresters, gas detector, gauges, silica gel container	41
SUN-T5	200348	Refurbishment including lightning arresters, gas detector, pressure relief device, fans	242
PHR-T3	200098	Refurbishment including gas detector, gauges	41
RBK-T1	200351	Refurbishment	41
BLK-T2	200296	Tap Changer Repair. Refurbishment including gas detector, gauges, pressure relief device, silica gel container	41
SBK-T1	200181	Refurbishment including lightning arresters, gas detector, gauges, pressure relief device	41
TRN-T1	200238	Refurbishment including bushings, gas detector, gauges, pressure relief device, fans, fall arrest bracket	41
RBK-T2	200243	Refurbishment including gas detector, gauges	41

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DUN-T1	200340	Tap Changer Repair. Transformer Repair. Refurbishment including lightning arresters, gas detector, gauges, pressure relief device, silica gel container	41
SPO-T4/T5	200233, 200352	Sync-Check Replacement	14
SLA-T4	200334	Transformer Replacement	168
SCV-T1	200283	Heat Trace Replacement	4
DUN-T1	200340	Tap Changer Repair	58
BRB-T1	200303	Tap Changer Controls Repair. Refurbishment including gas detector, gauges, pressure relief device, silica gel container, fall arrest bracket	3
LAU-T1	200298	Tap Changer Repair. Refurbishment including lightning arresters, gas detector, silica gel container, DGA device	8
BLK-T2	200296	Refurbishment	194
SLA-T3	200245	Refurbishment including lightning arresters, gauges, fall arrest bracket	21
DUN-T1	200340	Refurbishment including lightning arresters, gas detector, gauges, silica gel container	11
<b>TOTAL</b>			<b>1,211</b>

Table 5 Substation Replacements Due to In-Service Failures Transformer Replacements and Refurbishments - 2022			
Transformer Name	Transformer ID	Activity	Cost (\$000s)
2022			
JON-T1	200102	Refurbishment	57
CLV-T2	200270	Refurbishment including pressure relief device	57
NCH-T2	200253	Refurbishment	57
NCH-T1	200252	Refurbishment including lightning arresters, gas detector, pressure relief device	57
PAS-T1	200250	Refurbishment including gas detector, fall arrest bracket	121
COB-T2	200313	Tap Changer Repair. Refurbishment.	57
WAV-T6	200232	Refurbishment	57
GOU-T1	200124	Refurbishment	111
GAN-T2	200175	Refurbishment	57
WES-T1	200259	Refurbishment	201
GLV-T1	200275	Refurbishment including gas detector, gauges, pressure relief device	57
BLK-T2	200296	Tap Changer Repair	22
DUN-T1	200340	Transformer Repair	311
MUN-T2	200273	Failure Response and Inspection	24
<b>TOTAL</b>			<b>1,246</b>