

1 **Q. (Reference Application, 2.1 2025 Substation Refurbishment and**
2 **Modernization, page 19) Please provide a table showing each substation**
3 **refurbished and modernized under this program since the year 2000 including**
4 **its designation and cost. Further, please show the reliability of the substation**
5 **before and after the refurbishment and modernization project was**
6 **undertaken.**

7
8 A. See Attachment A for Substation Refurbishment and Modernization Spend from 2014 to
9 2023.¹

10
11 See Attachment B for reliability statistics of the substations indicated in Attachment A.

12
13 Reliability indices, as requested in this question, are lagging indicators that encompass
14 historical issues. Waiting for reliability on a substation to degrade before undertaking
15 capital investment would result in poor quality of service being experienced by a large
16 number of customers. There are long lead times with electrical equipment which would
17 compound this issue. Substation Refurbishment and Modernization projects are not
18 justified based on historical reliability statistics, but on the condition of core
19 infrastructure and equipment.

¹ Due to the extensive nature of data requested on a number of substations over a 23-year period, the time and resources required to compile, verify, and present this information would be substantial. Retrieving accurate and comprehensive data for such a long timeframe is also limited by system changes, data availability, and historical record-keeping practices. Consistent with the Provisional Guidelines, the response to this Request for Information has provided 10 years of data. See the Provisional Guidelines, page 9 of 18.



ATTACHMENT A:

Substation Refurbishment and Modernization Spend
(2014 – 2023)

Table 1: Substation Refurbishment and Modernization Spend (2014-2023) ¹					
Substation	Spend (000's)	Substantial Completion Year	Substation	Spend (000's)	Substantial Completion Year
MOL	4,325	2023	GFS	480	2016
WAL	4,836	2023	KBR	980	2016
GLV	3,154	2022	VIC	1,819	2016
HUM	3,835	2022	VIR	1,973	2016
TCV	1,743	2022	CLV	1,869	2015
DUN	1,972	2021	COL	1,665	2015
RBK	3,554	2021	GAN	2,866	2015
BVA	2,307	2020	RRD	977	2015
GBS	4,820	2020	SPF	1,446	2015
MSY	2,683	2020	BRB	2,146	2014
LEW	4,144	2019	CAR	2,168	2014
PEP	2,474	2019	HOL	756	2014
BVS	3,251	2018	MAS	232	2014
HGR	3,592	2018	SPR	1,107	2014
CAT	3,129	2017			
CHA	1,264	2017			
SPO	3,264	2017			

¹ Projects such as Substation Feeder Automation, Substation Ground Grid Upgrades, Substation Security, and Substation Monitoring and Operations Upgrades were excluded from this table.

ATTACHMENT B:

Substation Refurbishment and Modernization Reliability Statistics
(2014 – 2023)

Table 1a: Substation Refurbishment and Modernization Reliability Statistics ¹ (All Events Excluding Loss of Supply)										
SAIDI										
Substation	2014	2015	2016	2017	2018	2019 ₂	2020	2021	2022	2023
BRB	0.78	1.23	1.00	4.79	0.93	0.98	2.41	2.70	1.02	1.92
BVA	2.06	0.91	3.28	8.63	35.45	4.01	27.20	2.72	7.12	4.50
BVS	1.86	1.50	4.86	2.95	12.74	5.62	6.43	1.67	5.82	18.90
CAR	2.97	0.29	0.20	2.69	0.24	0.27	0.70	6.77	2.52	1.09
CAT	1.17	0.83	6.58	3.84	2.25	0.11	10.53	0.75	1.71	2.41
CHA	1.91	0.57	1.18	4.81	2.70	1.53	6.22	6.53	1.21	1.67
CLV	2.37	5.24	0.95	1.35	1.95	0.56	2.07	0.49	0.90	1.58
COL	6.57	2.51	0.59	1.94	2.80	6.19	0.39	3.53	1.67	0.50
DUN	12.24	3.73	4.61	24.03	12.42	6.12	14.52	40.73	2.64	12.93
GAN	1.12	1.21	0.57	0.33	0.32	0.37	1.10	0.54	0.28	3.63
GBS	6.28	6.66	27.24	5.98	2.63	5.51	6.40	1.30	14.33	7.75
GFS	1.24	0.62	3.99	1.32	4.02	1.21	3.34	1.15	1.47	3.22
GLV	1.95	2.01	1.31	10.03	17.60	1.54	4.06	5.84	29.69	11.04
HGR	0.49	0.78	0.19	2.23	0.62	1.27	0.43	5.95	0.89	3.11

¹ MAS and TCV substations are excluded from reliability statistics since there are no Newfoundland Power customers associated with these substations.

² Reliability data for 2019 may be subject to inaccuracies due to the transition of outage management systems.

Table 1b: Substation Refurbishment and Modernization Reliability Statistics (All Events Excluding Loss of Supply)										
SAIDI										
Substation	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
HOL	2.81	3.11	1.89	16.00	4.86	0.60	3.87	16.93	3.94	2.15
HUM	5.34	1.54	1.21	1.61	6.73	4.45	1.62	2.29	4.82	1.24
KBR	3.86	5.42	1.05	7.89	1.33	1.01	4.10	14.72	1.82	1.65
LEW	2.47	3.77	18.29	3.68	9.30	4.28	2.32	3.72	2.47	3.63
MOL	1.69	0.60	1.93	10.20	2.30	0.85	0.92	7.92	2.40	2.41
MSY	2.31	2.33	3.14	2.22	3.51	1.60	2.55	2.58	1.04	2.21
PEP	0.71	2.11	2.93	8.05	4.47	0.36	3.29	10.76	0.61	2.04
RBK	9.93	4.83	0.16	5.47	1.35	0.45	1.09	2.69	1.71	4.63
RRD	0.36	2.91	0.93	5.89	0.30	0.20	2.77	6.42	0.65	0.59
SPF	4.20	1.68	0.43	1.99	7.99	0.38	1.07	5.92	1.73	1.49
SPO	0.98	1.75	2.16	3.47	5.06	1.76	2.62	3.79	1.79	2.92
SPR	11.50	0.18	0.56	1.14	9.86	0.16	0.21	1.57	1.78	0.63

Table 1c: Substation Refurbishment and Modernization Reliability Statistics (All Events Excluding Loss of Supply)										
SAIDI										
Substation	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
VIC	2.46	0.90	0.25	14.73	2.43	0.03	14.16	4.51	2.73	1.57
VIR	1.39	1.23	3.03	2.46	0.45	0.76	4.81	6.06	1.36	1.66
WAL	2.82	0.35	0.72	1.08	1.55	0.61	5.99	5.60	1.92	1.25

Table 2a: Substation Refurbishment and Modernization Reliability Statistics ³ (All Events Excluding Loss of Supply)										
SAIFI										
Substation	2014	2015	2016	2017	2018	2019 ₄	2020	2021	2022	2023
BRB	3.29	0.97	0.69	2.01	0.71	0.45	1.40	0.71	1.11	1.24
BVA	3.17	6.20	4.22	4.93	7.38	1.27	6.81	1.32	3.82	4.35
BVS	1.46	0.86	2.57	2.37	4.22	2.18	4.62	1.54	1.79	6.55
CAR	4.83	0.42	1.11	1.37	0.24	0.41	1.01	1.75	0.59	1.31
CAT	2.45	6.18	5.95	4.59	2.40	0.02	3.14	1.13	2.15	1.75
CHA	2.83	0.38	0.59	4.95	2.69	1.82	2.67	1.69	0.69	0.94
CLV	1.29	5.83	0.24	0.75	1.83	1.17	0.99	0.36	0.52	1.03
COL	6.58	5.07	0.61	0.97	3.37	1.12	0.19	0.94	1.35	2.21
DUN	3.35	2.74	4.43	8.65	4.35	1.58	9.85	12.61	1.62	3.79
GAN	0.38	1.81	0.86	0.31	0.25	0.22	1.82	0.53	0.08	2.52
GBS	2.03	0.99	5.42	6.68	0.83	2.35	4.86	1.89	2.70	3.30
GFS	0.93	1.40	3.35	0.69	1.30	1.24	2.60	0.64	0.74	2.27
GLV	4.64	2.27	0.51	3.96	7.45	2.60	4.65	10.16	15.51	4.93
HGR	3.37	2.37	0.13	1.87	1.30	1.09	0.30	2.06	0.51	1.43

³ MAS and TCV substations are excluded from reliability statistics since there are no Newfoundland Power customers associated with these substations.

⁴ Reliability data for 2019 may be subject to inaccuracies due to the transition of outage management systems.

Table 2b: Substation Refurbishment and Modernization Reliability Statistics (All Events Excluding Loss of Supply)										
SAIFI										
Substation	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
HOL	4.72	1.69	1.26	3.14	3.51	0.23	1.68	4.84	1.60	3.17
HUM	1.86	0.65	1.05	0.80	2.12	1.48	2.60	1.52	3.05	1.97
KBR	2.69	3.16	1.17	4.25	1.55	1.07	2.77	4.70	1.28	1.44
LEW	2.98	2.75	6.25	2.81	4.22	2.29	4.24	2.65	2.14	3.00
MOL	1.24	0.31	1.23	3.73	2.07	0.68	1.17	3.51	2.02	2.10
MSY	4.01	1.20	2.22	1.81	3.01	2.44	3.08	2.94	1.21	4.04
PEP	0.90	1.03	3.25	1.67	3.38	0.67	1.68	4.15	0.16	1.03
RBK	7.49	3.68	0.15	5.84	0.42	0.21	0.23	1.28	1.61	2.33
RRD	0.23	2.12	0.65	2.26	0.15	0.25	1.14	1.23	0.22	0.51
SPF	6.21	7.39	0.22	1.65	3.32	0.50	1.11	1.81	0.91	3.87
SPO	0.42	3.00	1.53	4.28	3.99	0.56	2.12	2.33	1.27	2.34
SPR	4.15	1.05	0.20	1.65	2.97	0.16	0.53	0.65	0.70	0.22

Table 2c: Substation Refurbishment and Modernization Reliability Statistics (All Events Excluding Loss of Supply)										
SAIFI										
Substation	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
VIC	4.03	0.94	1.08	4.43	2.73	0.05	2.16	1.62	3.21	1.82
VIR	0.93	0.74	1.64	2.06	0.30	0.57	2.27	2.12	1.05	1.61
WAL	3.17	1.04	0.45	0.30	0.67	0.29	4.34	4.61	1.68	4.24