Q. (Reference 2.2 - Substation Power Transformer Strategy, Appendix E)
a) Please quantify the probability of failure of KBR-T3, MOL-T2 and MOP- T1.
b) Does the long lead time for transformer procurement rule out the Remove and Repair alternative for all transformers?
c) Does purchasing an increasing number of spares enable extended lives of transformers; e.g., run to failure?

A. a) Newfoundland Power does not currently use statistical models that permit the quantification of probability of failure.[1]

b) No, the long lead time for power transformer procurement does not rule out the remove and repair alternative for all transformers. The feasibility of repair is evaluated on a case-by-case basis considering offloading capabilities, availability of spare and portable units, the cost-effectiveness of repair versus replacement, transformer condition and repair scope, and customer or generation impact. Where conditions and risk allow, remove-and-repair remains a viable option.

c) No, increasing the number of spare transformers does not extend transformer life or justify a run-to-failure approach. Spare units do not reduce the likelihood of a transformer failure or slow transformer insulation aging. Their role is to provide medium-to-long-term replacement options following a transformer failure, thereby relieving resource pressures on the portable substation fleet, which is intended for short-term responses. A run-to-failure approach would increase exposure to large-scale outages during failures and would result in higher overall costs due to the reliance on more expensive emergency responses.

[1] Statistical models use distribution functions that apply data such as failure modes, condition and other factors to quantify the probability that an asset will fail. These methodologies are being reviewed by Newfoundland Power.