Q. **Reference: Labrador Expansion Study, p. 8 (p. 16 pdf), Table 2**

Preamble:

Table 2 provides the power ratings of the Wabush Substation transformers under the transmission planning criteria.

a) Please provide the equivalent table based on the distribution classification previously applied to the Wabush Substation.

b) Please indicate the effect of the derating of the Wabush Substation due to the application of transmission planning criteria on the need for the proposed Wabush Substation upgrades, indicating which of the proposed modifications would not be required or would not be required until a later date if the distribution-based ratings had been maintained;

c) If certain upgrades are required under the new ratings but would not be required under the old ratings, please explain in detail for each one why the investment is justified from the customers' perspective.

A. a) The equivalent table based on the distribution classification previously applied to the Wabush Substation is provided below.

Transformer	Status	Voltage Rating (kV)	Power Rating (MVA) (0°C Ambient)
T3	In Service	46/25-12.5	6.25/8.25/10.3
T4	Spare	46/25-12.5	6.25/8.25/10.3
T5	Spare	46/12.5	3.7/4.9
T6	In Service	46/12.5-4.16	12.3/16.3/20.4

b) If the distribution based ratings had been maintained, as per the baseline load forecast, the capacity for the Wabush Substation would not be exceeded until 2040. It is noted that

according to Long-Term Asset Planning's plan for the Wabush Substation, circuit breaker WA36-CB1 and associated disconnect switches are due for replacement in 2022 and 2023. In addition to this, transformer T3 is due for replacement in 2024.

c) The application of the more conservative Transmission Planning transformer power ratings ensures that the 46 kV network is planned to the same standard as all other equipment within the Newfoundland and Labrador Interconnected System.

The increased conservatism allows for an operational margin to account for forecast uncertainty and the time required for transformer replacement in the event of a failure. As described in Part b), Wabush Substation assets are approaching end of life, and this approach would serve to reduce the risk of a failure as a result of a power transformer overload.