Q. **Reference: Teshmont Report - Section 7 – Conclusion (pg 39):**

"Analysis of 230 kV transmission line outages on the Island Interconnected System delivered a comparison between ac transmission system reliability in the Pre- and Post-HVDC cases. The expected unserved energy due to 230 kV transmission line contingencies in the Pre-HVDC case were calculated to equal 100.8 MWh/year. Of that total 41.43 MWh/year is attributed to the loss of TL208, and 58.03 MWh/year attributed to the loss of TL242. With approved transmission system upgrades, including the replacement of TL266, the expected unserved energy due to 230 kV transmission line contingencies in the Post-HVDC case is reduced to 41.94 MWh/year attributed to the loss of TL208. The analysis concludes that based on a probabilistic reliability assessment, the reliability of the 230 kV transmission system on the Island Interconnected System is improved in the Post-HVDC case compared to the Pre-HVDC case."

Referencing IEC 60826 at page 127 which states:

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"It is suggested to use a reliability level characterized by return periods of 150 years for lines above 230 kV. The same is suggested for lines below 230 kV which constitute the principal or perhaps the only source of supply to a particular electric load (level 2).

Finally, it is suggested to use a reliability level characterised by return periods of 500 years for lines, mainly above 230 kV which constitute the principal or perhaps the only source of supply to a particular electric load. Their failure would have serious consequences to the power supply."

If a 1:50 year return period was used for comparison, yet IEC recommends using 1:150 return period (IEC 60826 Page 127), isn't this analysis inconsistent from a reliability perspective?

A. TL208 is a specifically-assigned radial 230 kV transmission line that supplies industrial customers Vale Newfoundland & Labrador Limited and Praxair Canada Inc. and these customers are responsible for all costs associated with this line. The ac interconnection via TL208 was developed in consultations with the customers and in an effort to manage cost; they specified that the interconnection shall employ the single transmission line that was used to supply the previous industrial customer in the area.