

Large Power Transformer Reliability Modeling

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Abstract

In this paper, a simplified reliability model is developed on the basis of knowledge, from field data, of the dominating failure modes and mechanisms of high voltage transformer. Field data failures distribution indicates a dominance of failure modes pertaining to winding-tank oil insulation and terminal connections, see Chafai, M. (2008).

The transformer system can be regarded as a combination of three fundamental parts: winding inter-turn insulation, tank oil and the terminals, which are respectively physical and electrical in nature. On this basis, the transformer system reliability block diagram is modeled as a series configuration comprising the above mentioned parts, see Chafai, M., Refoufi, L. and Bentarzi, H. (2009),. The individual reliability functions developed for each part will yield together the overall transformer system reliability.

References

- Chafai, M., *Electrical maintenance and safety in a cement industries*, Phd thesis, Boumerdes University, Algeria, 2008.
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