

768 – Life Extension of Power Transformers Through Proper Moisture Management

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Abstract: Excessive moisture within the oil and insulating materials of a transformer has a significant effect on the life cycle of these critical and expensive assets. Moisture is one of the most influential elements that can accelerate ageing in oil, paper, and pressboard insulation, possibly resulting in severe damage and premature failure. In this session we will discuss how moisture accumulates, how it effects the aging process, and how significant damage or failure from excessive moisture can occur. We will look at ways to determine the amount of moisture that is present, and what drying options can be applied to eliminate moisture, potentially extending the life of the transformer. We will discuss the challenges associated with using traditional dissolved gas analysis, (DGA), or oils screens for moisture determination. and explore more modern techniques such a dynamic frequency response, (DFR). Included are specific case studies that will support the findings and recommendations, along with recent IEEE PES Transformers Committee working group topics surrounding moisture in transformer insulation.