

A new contribution for fault prediction of electrical power transformers

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Abstract:

Nowadays, dissolved gas analysis (DGA) technology of strategic electrical power transformers is universally practiced. The proposed approach is based on mapping the triangle of Duval into Bayesian network (BN). This approach eliminates the uncertainty that exists in the decision making regarding the nature of the faults due to gases that are trapped in the transformer, and faults that results in more gas percentages simultaneously. The model accurately provides transformer fault diagnosis and prediction abilities by calculating the probabilities of released gases and further predicting the failures based on their relationships in the Bayesian network. A case study is presented at the end of the paper to show the feasibility of the method on a 15.5 / 6.6 kV 20 MVA step-down transformer.

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