

**LOAD BALANCING TRANSFORMERS DISTIBUTED TO MINIMIZE LOSSES
OF PT. PLN (PERSERO) KLATEN AREA**

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ABSTRACT

Technological advances and the very important role of electric power to meet customer needs, requires the State Electricity Company (PLN) to always try to improve the quality and reliability of the distribution of electrical energy to customers as outlined in the form of a reduction in transformer disturbances from year to year to achieve world-class service . The transformer is an electrical equipment that is very important because it deals directly with the electricity transmission and distribution channels. Interference with the transformer can cause damage and deterioration of the performance of the transformer. Examples of causes of transformer damage are overload and unbalanced loads. Load imbalance in an electric power distribution system always occurs and the cause of the imbalance is on single-phase loads on low voltage network customers. As a result of this imbalance a current arises in the neutral transformer. The current flowing in the transformer neutral causes losses, namely due to losses due to neutral currents in the neutral conductor of transformers and losses due to neutral currents flowing to the ground. It is obtained that if there is a large imbalance of load (28.67%), then the neutral current that emerges is also large (105.31A), and losses in neutral as much as (36,596 kW), once the current is balanced the neutral decreases to (13,91 A) and its power losses become (0,83294kW).

Keywords: Transformer, Unbalanced load, neutral current, losses.