ADDITION OF 1 PHASE DISTRIBUTION TRANSFORMER INSERTS IN PT. PLN (PERSERO) DELANGGU RAYON WORK AREA TO REDUCE LOSSES AND OVERLOADS ON DISTRIBUTION TRANSFORMERS BY USING THE ETAP PROGRAM APPLICATION

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ABSTRACT

The distribution transformer is a very important component in distributing electric power from the distribution substation to customers. Service to customers will be disrupted if there is a power cut or blackout resulting from damage to the transformer. PT. PLN (Persero) as a company that manages the electric power system is responsible for providing the best service to its customers. In maintaining quality and effectiveness, the reliability of the distribution system must be well maintained. In order for the distribution system to remain reliable, the distribution transformer loading percentage must not exceed the provisions set by PLN of 80% of the nominal load. Likewise with voltage drops with a maximum voltage drop of 4% of the nominal voltage. Installing a sisp transformer is one way to handle overloads on distribution transformers. The research method in this final project uses quantitative methods and also uses ETAP 16.0.0 software simulation at PT. PLN (Persero). based on the results of manual calculation data and simulations, the loading percentage of the Voltra transformer is 95%, with a voltage drop percentage of 5.6% for the X1 network and 5.5% for the X2 network and with losses of 3.8 KW for the X1 network, and 3.0 KW for the X2 network. After installing the additional insert transformer, the results obtained for the Voltra transformer loading percentage were 51% with a voltage drop of 3.9% for the X1 network and 4.0% for the X2 network and a losses value of 0.4 KW for the X1 network and X2 network. .

Keywords *: Distribution transformer, Insert transformer, Overloading, Voltage drop, Losses.*