

ABSTRACT

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Study Program : *Electrical Engineering*

Title : *Optimization of Load Break Switch (LBS) Placement to Reduce Power Loss during Distribution Network Manuevers*

In the electricity distribution system, there are several aspects that need to be considered, one of which is power loss. One way to reduce power losses is by maneuvering the network. Distribution network maneuvering is an activity to modify the normal operation of the network due to disturbances. One way is to connect a network that was originally not connected to be connected and vice versa. In this case, namely placing a load break switch. In this study, we will maneuver the network from PT PLN ULP Rajapolah between the Panumbangan repeater to the Indihiang repeater supplied from the Malangbong TRF 2 20 MVA 70/20kV Substation where the SKT load break switch connects the two repeater. This research aims to analyze the value of power loss and how to reduce the value of power loss in network maneuvers using the Binary Particle Swarm Optimization (BPSO) optimization method, as well as knowing the value of power loss in the existing time. This research uses the Backward Forward Sweep (BFS) power flow method with the MATLAB R2023a application and is validated with the ETAP 19.0.1 application resulting in a power loss value of 2530.4 kW. Then after the placement of the load break switch using Binary Swarm Particle Optimization optimization to reduce power losses so that it decreases to 1232.1 kW.

Keyword : *Backward Forward Sweep, Binary Particle Swarm Optimization, Load Break Switch, Manuever, Power Loss.*