ABSTRACK

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Study Program	:	*Electrical Engineering*
Title	:	*Optimizing Load Break Switch (LBS) Placement to Maintain Reliability Index during Distribution Network Maneuvers*

Disruptions can lead to power outages and interrupt energy distribution, resulting in a significant amount of untransmitted energy. One possible solution is to perform network maneuvers. Network maneuvering is a technical activity involving the manipulation or modification of the normal operation of a network by opening or closing switching equipment within the network to limit the blackout area as needed. This approach is used to reduce the System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI) on a feeder to improve reliability indices. The reliability of an electric power system is related to the quality and continuity of power delivery. In this study, network maneuvers will be carried out by PT. PLN ULP Rajapolah between the Indihiang feeder and the Panumbangan feeder, which are supplied from the Malangbong Substation TRF 2 20 MVA 70/20KV, where the SKT Load Break Switch (LBS) serves as the connector between the two feeders. The objective of this study is to analyze the reliability indices and determine how to maintain these indices during network maneuvers using the Binary Particle Swarm Optimization (BPSO) method. The results obtained from this optimization method suggest moving the position of the SKT LBS to bus 129. This optimization resulted in improved performance, indicated by a decrease in the reliability indices SAIDI and SAIFI. Specifically, the SAIDI value decreased by 8,1075 hours/customer/year, from 80.4379 hours/customer/year to 72.3304 hours/customer/year, a reduction of 11,2%. Meanwhile, the SAIFI value decreased by 0.0883 interruptions/customer/year, from 2.6493 interruptions/customer/year to 2.5610 interruptions/customer/year, a reduction of 3.4%.

Keywords: BPSO, Load Break Switch, Maneuver, Reliability Index.