PRIMARY NETWORK DISTRIBUTION RELIABILITY IMPROVEMENT IN PT. PLN (PERSERO) CABANG PADANG

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Abstract

Padang city which has an area 695 km\(^2\) and a population of 846,731 people, which means most of the population have used electrical energy, evidenced by Ratio Electrification (RE) in 2011 which has reached 92,84%. Based on composition of customers in 2011 the numbers of power connected is 399,14MVA with 178,245 customers. The interruptions with feeders in this city consists of two types, over current and ground fault. Throughout the January 2011 to December 2011 there were 192 times caused OC and 346 times caused GF.

To improve the reliability in this city can perform such actions, supporting SCADA infrastructure planning, using cut-out fuse to protection interruption of over current, installation of distance relay on the network distribution, and coordination protection relay which in this feeders focus on Over Current Relay (OCR) and Ground Fault Relay (GFR).

Reliability in a distribution system can be seen from the reliability index commonly used is System Average Interruption Frequency Index (SAIFI), System Average Interruption Duration Index (SAIDI) and Customer Average Interruption Duration Index (CAIDI). Based on result of the fault repaired calculation, get an increase of 82,99% for over current and 11,46% for ground fault, while the reduction numbers of reliability index of customers about 82,94%, this value is the result calculation and ratio between 2011 and 2012.

Keywords: Reliability, Distribution System, Reliability Enhancement, Reliability Index