

ANALYSIS OF RECLOSER PROTECTION SYSTEM IN 20 KV DISTRIBUTION NETWORK USING ETAP

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ABSTRACT

The 20 kV medium-voltage distribution network plays a crucial role in delivering electrical energy from substations to end-users. However, disturbances such as short circuits, ground faults, and external factors like weather or environmental conditions can cause power outages. To address these issues, a reliable and responsive protection system is required—one of which is the use of reclosers. This study aims to analyze the performance of the recloser protection system on the 20 kV distribution network in the Meskom area using ETAP software. The research involved field data collection, interviews with technicians, and fault simulations using ETAP. The results show that proper recloser settings can reduce the duration and frequency of power outages while improving protection system efficiency. Reclosers are also capable of automatically restoring power in the event of temporary faults. Furthermore, the use of SCADA technology enhances remote monitoring and control of reclosers. The ETAP simulations demonstrate that protection systems can operate more optimally when tailored to actual field conditions. This study is expected to serve as a reference for improving the reliability of power distribution systems, particularly in managing faults within 20 kV networks.

Keywords : Recloser, Distribution Network Protection, ETAP, SCADA, Medium Voltage 20 kV