ABSTRACT

Extra High Voltage substation (GITET) Kediri 500 kV PT. PT PLN (LIMITED) is a company which run in electric power service providers. To fulfill its duty to supply electric power in Kediri and surroundings, GITET 500 kV is supplied from two large plants, namely Klaten and Paiton which is transmitted by Extra High Voltage Line and then the modeling of this substations by Etap described a four-power grid (utility): Paiton1, Paiton2, Pedan1, Pedan2 and the fourth power grid which always be in good condition when the load on the maximum and minimum load. There are three power transformer, where the two transformers with the power rating 500 MVA and voltage of 500/150 kV and the other has power rating 60 MVA distribution transformer with a voltage 150/20kV.

The final task is to analyze the safety relay coordination of overcurrent and transformer differential safety which is mounted on the electrical system in GITET 500 kV Kediri to obtain adequate reliability and continuity. Analysis of the safety relay coordination of overcurrent at 500 kV electrical system GITET in Kediri was chosen to be a typical coordination is considered to represent the shape of the overall coordination of existing safety systems on the 500 kV electrical system GITET in Kediri. While the analysis of differential safety manual calculation to obtain the percentage of slope for transformer protection and stability resistor for busbar protection. After analysis of the data that has been owned rele existing 500 kV GITET in Kediri, performed according to standard calculation used for resetting a protection and coordination relay. To assist in the coordination of the planning process protection rele used the ETAP 7.0 and one of program which integrated with ETAP 7.0, STAR that serves to plot the curve of relay characteristic.

Key Word: over current relay, differential relay, coordination