

ANALYSIS OF GENSET CAPACITY AS A BACKUP ENERGY SOURCE AT TELKOM KANDATEL SLEMAN USING ETAP SOFTWARE

Budiawan Tirta Cahya

Electrical Engineering Study Program, Faculty of Science & Technology

University of Technology Yogyakarta

Jl. Ringroad Utara Jombor Sleman Yogyakarta

E-mail : budiawantirtacahya@gmail.com

ABSTRACT

Telkom is a leading telecommunications company in Indonesia, which has a vital role in providing communication and information technology services to the public. In general, the use of electrical energy in Telkom kandatel Sleman uses electrical energy from PLN, but the supply of electrical energy from PLN is not able to continuously provide electrical energy without any disruption caused by several things. Therefore, to anticipate the absence of an energy source from PLN when a disruption occurs, a back-up system for electrical energy sources in the form of a Generator set (Genset) is needed so that the needs of Telkom kandatel Sleman are maintained. The analysis was carried out by calculating assisted by the ETAP 19.0.1 simulation program. From the simulation results, Scenario I (normal conditions of supply from PLN) The main power supply from PLN is 1.25 MVA to meet the load needs of 11 PDTR panels in Telkom kandatel Sleman. Scenario II (condition of PLN supply being off backed up by 2 Gensets) the load supply by 2 Gensets produces a used load value of 505.4 kVA with a current of 772.2 A. It can be said that the existing power capacity is appropriate and can back up the electricity needs at Telkom Kandatel Sleman when there is a power outage from PLN. Scenario III (condition of back up supply by 2 Gensets to the installed load that has not been backed up when the PLN supply is off) the 3rd condition is the addition of 6 Load Panels so that the total becomes 11 Load Panels of 1,437.96 kVA with a maximum load of 700.96 kVA. From the results of the scenario III simulation of the additional load supplied by 2 Gensets, the used load is 698.8 kVA with a current of 1071 A. Based on the simulation of the running load flow of the three scenarios, there is a decrease in voltage but the condition is still within safe limits and the Genset can back up the load when the load is added at Telkom Kandatel Sleman.

Keywords: *PLN, Generator Set, Electrical Energy, Load Flow Analysis*