

Analisis Perbaikan Rugi-Rugi Daya Pada Jaringan Distribusi 20 kV di PT. PLN (Persero) Unit Layanan Pelanggan Barru Sulawesi Selatan

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ABSTRACT

The distribution system is the distribution of electricity from the power generation center to the load center, in this case the electricity consumer. PT. PLN (Persero) Barru Customer Service Unit is a company that is authorized by the government to solve electricity problems specifically for the Barru area, South Sulawesi. In its duties, PT. PLN expedition in the field of generation, transmission and distribution. The electricity distribution system often experiences losses in delivering electricity to its consumers. To reduce power losses, it is necessary to improve the power in the electric power distribution system. In repairing the voltage, adding and installing capacitors is one way to overcome power losses. In the 20 kV medium voltage distribution network at PT. PLN (Persero) ULP Barru has an under voltage value of 21.37% on buses that are in critical condition or unable to work on simulations using ETAP 12.6 software. Meanwhile, the value of power losses is 73.4 kW or a proportion of 0.051% is obtained. According to the PLN Standard (SPLN) number 1 of 1995 that the service voltage variation is set at a maximum of + 5% and a minimum of -10% of the nominal voltage and number 72 of 1987 that the regulation and voltage drop is 2% of the working voltage and 5% of the working voltage. Judging from the results of power losses, this value is still within the SPLN tolerance limit, but in the distribution network there are buses and cables that are in critical condition, it is necessary to improve the voltage by adding a capacitor bank. After installing the capacitor bank, the under voltage value decreases and the power losses also decrease. So that the under voltage value changes to 3.64% and the value of power losses is 32.2 kW or in the proportion of 0.002%.

Keyword: power losses, voltage correction, ETAP 12.6, capacitor bank