

ASTRAK

Sistem penyaluran energi listrik di Gardu Induk 150 KV Cepu memiliki permasalahan terhadap kenaikan arus bocor *Lightning Arrester*. Kenaikan arus bocor *Lightning Arrester* diketahui setelah dilakukan pengukuran dan perhitungan presentase arus bocor menggunakan *Leakage Current Measurement* dan pengukuran dan perhitungan suhu menggunakan Thermovisi. Hal ini disebabkan oleh faktor internal maupun faktor eksternal. Faktor internal yaitu seperti peralatan yang digunakan kurang berfungsi dengan baik. Sehingga dapat menyebabkan kegagalan pada peralatan tersebut, sedangkan faktor eksternal yaitu seperti kesalahan manusia atau *human error* dan dapat juga seperti gangguan alam seperti petir, gempa, banjir, angin dan lain-lain.

Tugas Akhir ini membahas tentang penentuan kelayakan arus bocor *Lightning Arrester* di Gardu Induk 150 KV Cepu dengan melakukan analisa pengukuran dan perhitungan arus bocor pada *Lightning Arrester* berdasarkan data sekunder PLN menggunakan alat uji LCM (*Leakage Current Measurement*) dan menggunakan alat uji Thermovisi untuk mendapatkan hasil perhitungan dan pengukuran arus bocor *Lightning Arrester*.

Hasil pengukuran dan perhitungan di Bay Penghantar Bojonegoro 2 nilai arus resistif fasa R = 518 μA dan nilai corrective fasa R = 778 μA . Sesuai batas yang ditentukan oleh PLN yaitu 150 μA hal ini menandakan bahwa kondisi *Lightning Arrester* kurang baik. Maka dari itu harus dilakukan maintenance secara rutin atau bisa juga dilakukan penggantian *Lightning Arrester*.

Kata Kunci : Kelayakan Arus Bocor, *Lightning Arrester*, Gardu Induk 150 KV

ABSTRACT

The electrical energy distribution system at the 150 KV Cepu Substation has problems with increasing Lightning Arrester leakage currents. The increase in leakage current of Lightning Arrester is known after measuring and calculating the percentage of leakage current using Leakage Current Measurement and measuring and calculating temperature using Thermovisi. This is caused by internal and external factors. Internal factors, such as the equipment used is not functioning properly. This can cause the equipment to fail. while external factors are such as human error or human error and can also be natural disturbances such as lightning, earthquakes, floods, winds and others.

This final project discusses the determination of the feasibility of the Lightning Arrester leakage current at the 150 KV Cepu Substation by analyzing the measurement and calculation of the leakage current at the Lightning Arrester based on PLN secondary data using the LCM (Leakage Current Measurement) test tool and using the Thermovisi test tool to get the calculation results. and Lightning Arrester leakage current measurement.

The results of measurements and calculations at the Bojonegoro Conductor Bay 2 value the phase resistive current $R = 518 \mu\text{A}$ and the phase corrective value $R = 778 \mu\text{A}$. According to the limit set by PLN, which is $150 \mu\text{A}$, this indicates that the Lightning Arrester condition is not good. Therefore, routine maintenance must be carried out or it can also be replaced with Lightning Arrester.

Keywords: Feasibility of Leakage Current, Lightning Arrester, 150 KV . Substation