

ABSTRAK

ANALISIS UJI KELAYAKAN TAHANAN ISOLASI TRANSFORMATOR DAYA BERDASARKAN INDEKS POLARISASI DI GARDU INDUK GANDUS

(2025 : xvi + 50 Halaman + Daftar Gambar + Daftar Tabel + Daftar lampiran)

Orzi Dwi Saputra

062230310487

Jurusan Teknik Elektro

Program Studi Teknik Listrik

Politeknik Negeri Sriwijaya Palembang

Penelitian ini dilakukan pada transformator daya 60 MVA di Gardu Induk Gandus milik PT PLN (Persero) UIP3B Palembang. Hasil pengujian menunjukkan bahwa nilai indeks polarisasi berkisar antara 1,52 hingga 1,95. Berdasarkan standar IEEE-62 tahun 1995, nilai tersebut menunjukkan kondisi isolasi berada dalam kategori “baik” hingga “sangat baik”, sehingga transformator masih layak untuk dioperasikan tanpa perlu tindakan perbaikan signifikan. Perbedaan kecil antara hasil pengukuran dan perhitungan terjadi pada sisi terminal tersier, yang kemungkinan dipengaruhi oleh kondisi lingkungan seperti suhu, kelembapan saat pengujian, dan adanya ketidakseimbangan beban serta kualitas isolasi yang dapat menghasilkan nilai tidak seimbang.

Kata Kunci: Gardu Induk, Transformator Daya, Indeks Polarisasi, Tahanan Isolasi.

ABSTRACT

ANALYSIS OF INSULATION RESISTANCE FEASIBILITY TEST OF POWER TRANSFORMER BASED ON POLARIZATION INDEX AT GANDUS SUBSTATION

(2025 : xvi + 50 Pages + List of pictures + List of Tables + List of Attachment)

Orzi Dwi Saputra

062230310487

Department of Electrical Engineering

Electrical Engineering Study Program

State Polytechnic of Sriwijaya Palembang

This research was conducted on a 60 MVA power transformer at the Gandus Substation owned by PT PLN (Persero) UIP3B Palembang. The test results showed that the polarization index value ranged from 1.52 to 1.95. Based on the 1995 IEEE-62 standard, the value indicates that the insulation condition is in the "good" to "excellent" category, so the transformer is still viable for operation without the need for significant repair actions. A small difference between the measurement and calculation results occurs on the tertiary terminal side, which is likely affected by environmental conditions such as temperature, humidity during testing, and the presence of load imbalances and insulation qualities that can result in unbalanced values.

Keywords: *Substation, Power Transformer, Polarization Index, Insulation Resistance.*

