ABSTRAK

ANALISIS RUGI-RUGI DAYA DAN EFISIENSI TRANSFORMATOR DISTRIBUSI 8 MVA 20/6 kV PADA PT BUKIT ASAM TBK.

(2025 : xvi + 62 halaman + 28 Gambar + 5 Table + 10 Lampiran)

ALIDI KURNIAWAN
062230310404
JURUSANTEKNIK ELEKTRO
PROGRAM STUDI DIII TEKNIK LISTRIK
POLITEKNIK NEGERI SRIWIJAYA

Transformator distribusi merupakan komponen penting dalam sistem kelistrikan industri, khususnya di perusahaan dengan kebutuhan energi besar seperti PT Bukit Asam Tbk. Penelitian ini bertujuan untuk menganalisis rugi-rugi daya serta efisiensi transformator distribusi berkapasitas 8 MVA dengan tegangan 20/6 kV. Metode yang digunakan meliputi studi literatur, observasi lapangan, dan wawancara. Pengambilan data dilakukan selama lima hari berturut-turut pada panel A07. Hasil analisis menunjukkan bahwa rugi daya terdiri dari rugi inti sebesar 10.000 W (konstan) dan rugi tembaga yang bervariasi tergantung beban, berkisar antara 6.356,18 W hingga 60.546,95 W. Efisiensi transformator tercatat sangat tinggi, yaitu antara 89,74% hingga 96,94%. Hasil ini menandakan bahwa transformator masih beroperasi dalam kondisi optimal. Diperlukan pengelolaan beban yang seimbang serta pemeliharaan berkala untuk menjaga efisiensi dan mengurangi kerugian daya.

Kata Kunci: Analisis Transformator Distribusi,Rugi-rugi Daya, Efisiensi

ABSTRACT

ANALYSIS OF POWER LOSSES AND EFFICIENCY OF 8 MVA 20/6 kV DISTRIBUTION TRANSFORMER AT PT BUKIT ASAM TBK

(2025 : xvi + 62 Pages + 28 List of figures + 5 List of Tables + 10 Attachment)

ALIDI KURNIAWAN
06223031404
ELECTRICAL EGINEERING DEPARTEMENT
ELECTRICAL EGINEERING DIII STUDY PROGRAM
SRIWIJAYA STATE POLYTECHNIC

Distribution transformers are important components in industrial electrical systems, especially in companies with large energy needs such as PT Bukit Asam Tbk. This study aims to analyze power losses and efficiency of a distribution transformer with a capacity of 8 MVA with a voltage of 20/6 kV. The methods used include literature studies, field observations, and interviews. Data collection was carried out for five consecutive days on panel A07. The results of the analysis show that power losses consist of core losses of 10,000 W (constant) and copper losses that vary depending on the load, ranging from 6.356,18 W to 60.546,95 W. Transformer efficiency is recorded as very high, between 89,74% *and 96,94%. These results indicate that the transformer is still operating in optimal conditions. Balanced load management and periodic maintenance are needed to maintain efficiency and reduce power losses.*

Keywords: *Distribution Transformer Analysis, Power Losses, Efficiency*