ABSTRAK

ANALISIS RUGI DAYA DAN DROP TEGANGAN SISTEM DISTRIBUSI TEGANGAN MENENGAH BUCKET WHEEL EXCAVATOR PT. BUKIT ASAM TBK.

(2025: xv + 43 Halaman + 14 Daftar Gambar + 2 Daftar Tabel + Lampiran)

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PT. Bukit Asam Tbk. merupakan perusahaan tambang batubara yang mengandalkan suplai energi listrik untuk mengoperasikan alat berat tambang, salah satunya yaitu Bucket Wheel Exxcavator (BWE) 205. Sistem distribusi tegangan menengah pada alat ini berpotensi mengalami rugi daya dan drop teangan yang dapat memengaruhi efisiensi operasional. Penelitian ini bertujuan untuk menganalisis rugi daya dan drop tegangan pada sistem distribusi tegangan menengah BWE 205. Data yang diperoleh melalui observasi langsung dan wawancara dengan pihak perusahaan. Perhitungan dilakukan berdasarkan parameter tegangan, cos φ dan spesifikasi kabel. Hasil analisis menunjukkan rugi daya berkisar antara 2,61 kW hingga 2,88 kW (0,39%-0,41%), dan drop tegangan antara 15,7 V hingga 16,49 V (0,25%-0,27%). Nilai-nilai tersebut masih berada di bawah ambang batas maksimum standar nasional (5%). Dengan demikian, sistem distribusi ini dinilai telah memenuhi standar efisiensi dan stabilitas yang diperlukan untuk mendukung kegiatan operasional tambang secara optimal.

Kata kunci : Rugi Daya, Drop Tegangan, Sistem Distribusi, Tegangan Menengah.

ABSTRACT

ANALYSIS OF POWER LOSS AND VOLTAGE DROP OF MEDIUM VOLTAGE DISTRIBUTION SYSTEM OF BUCKET WHEEL EXCAVATOR

PT. BUKIT ASAM TBK.

(2025:xv + 43 Pages + 14 List of Figures + 2 List of Tables + Attachments)

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PT. Bukit Asam Tbk. is a coal mining company that relies on electrical energy supply to operate heavy mining equipment, one of which is the Bucket Wheel Excavator (BWE) 205. The medium voltage distribution system on this tool has the potential to experience power losses and voltage drops that can affect operational efficiency. This study aims to analyze power losses and voltage drops in the BWE 205 medium voltage distribution system. Data were obtained through direct observation and interviews with the company. Calculations were carried out based on voltage parameters, cos φ and cable specifications. The results of the analysis showed power losses ranging from 2.61 kW to 2.88 kW (0.39%-0.41%), and voltage drops between 15.7 V to 16.49 V (0.25%-0.27%). These values are still below the maximum threshold of the national standard (5%). Thus, this distribution system is considered to have met the efficiency and stability standards required to support optimal mining operations.

Keyword : *Power Loss, Voltage Drop, Distribution System, Medium Voltage.*