

ABSTRAK

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Program Studi : Teknik Elektro
Judul :ANALISIS EFISIENSI DAN KAPASITAS BATERAI 11 VOLT DC
PADA GARDU INDUK 150 kV GARDU INDUK SAMBONG
TASIKMALAYA

Salah satu komponen penting dalam kelancaran operasi Gardu Induk 150 kV Tasikmalaya adalah baterai DC 110 V. Baterai merupakan komponen utama dalam sistem penyaluran kelistrikan di gardu induk untuk kebutuhan operasi relay proteksi, motor-motor penggerak seperti pemutus tenaga (PMT) dan salar pemisah (PMS), lampu penerangan darurat dan sistem telekomunikasi. Tujuan penelitian ini menguji dan menghitung kapasitas dan efisiensi 86 baterai dengan 110 V DC yang terpasang di Gardu Induk 150 kV Tasikmalaya. Metode yang dilakukan adalah mengukur tegangan 86 baterai ketika terhubung dan tidak terhubung dengan rectifier, kemudian menghitung kapasitas selama selang waktu 5 jam. Hasil penelitian menunjukkan bahwa baterai dalam keadaan blackout mampu menurunkan kapasitas dari 211 Ah menjadi 179,4 Ah dan efisiensi sebesar 85,02%. Penurunan kapasitas baterai dikarenakan adanya kerusakan 8 sel baterai yaitu sel 4, 14, 15, 17, 57, 59, 79 dan 86. Menurut standar SE032 baterai dikategorikan baik karena efisiensinya melebihi 80%. Pada kondisi ini, baterai mampu mensuplai beban selama 4 jam 17 menit.

Kata kunci: Baterai, keadaan blackout, kapasitas Baterai, efisiensi Baterai

ABSTRACT

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Study Program : Electrical Engineering

Title : EFFICIENCY ANALYSIS AND BATTERY CAPACITY OF 11 VOLT DC AT
150 kV SUBSTATION SAMBONG TASIKMALAYA SUBSTATION

One of the important components in the smooth operation of the 150 kV Tasikmalaya Substation is the 110 V DC battery. The battery is the main component in the electricity distribution system at the substation for the operation of protection relays and driving motors such as circuit breakers (PMT) and disconnecting switch (PMS), emergency lighting, and telecommunications systems. The purpose of this study is to test and calculate the capacity and efficiency of 86 batteries with 110 V DC installed in the 150 kV Tasikmalaya Substation. The method used is to measure the voltage of 86 batteries when connected and not connected to the rectifier, then calculate the capacity for an interval of 5 hours. The results showed that the battery in the blackout state was able to reduce the capacity from 211 Ah to 179.4 Ah and the efficiency was 85.02%. The decrease in battery capacity is due to damage to 8 battery cells, namely cells 4, 14, 15, 17, 57, 59, 79, and 86. According to the SE032 standard, the battery is categorized as good because its efficiency exceeds 80%. In this condition, the battery is able to supply the load for 4 hours and 17 minutes.

Keywords: Battery, Blackout State, Battery Capacity, Battery Efficiency