

## ABSTRAK

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Program Studi : Teknik Elektro

Judul : Audit Energi Listrik Pada Proses Pengolahan Air Bersih Di  
Instalasi Pengolahan Air Purwahrja PDAM Tirta Anom Kota  
Banjar.

Energi listrik sangat menunjang dalam operasional di Instalasi Pengolahan Air (IPA) Purwahrja PDAM Tirta Anom Kota Banjar. Dalam proses produksi air terdapat beberapa motor listrik yang sudah berumur, dimungkinkan terjadi penurunan kinerja dan efisiensi pada motor. Dalam penelitian ini akan dilakukan audit energi pada bagian beban motor listrik dengan cara menghitung nilai kinerja beban motor yang digunakan dalam setiap tahap proses produksi dan menghitung nilai konsumsi energi spesifik berdasarkan pemakaian energi listrik dan jumlah volume air bersih. Dari hasil perhitungan dan analisa penggunaan energi listrik di IPA Purwahrja PDAM Tirta Anom Kota Banjar periode Juli 2020-Juni 2021 rata-rata sebesar 136.284,7 kWh/bulan. Nilai rata-rata konsumsi energi spesifik (KES) pada proses pengolahan air bersih di IPA Purwahrja PDAM Tirta Anom Kota Banjar tahun 2020-2021 pada unit distribusi adalah sebesar 0,29 kWh/m<sup>3</sup> per bulan. Nilai tersebut berdasarkan buku pedoman efisiensi energi Kementerian PUPR dan JICA tidak melebihi batas standar yang sudah ditentukan yaitu 0,4 kWh/m<sup>3</sup>. Kinerja dari motor listrik pada unit distribusi rata-rata bekerja optimal dengan nilai beban motor diantara 50-100%. Namun ada juga beberapa motor listrik yang kinerjanya tidak optimal dikarenakan nilai beban motor di bawah 50% pembebanan.

Kata Kunci: audit energi, kinerja beban motor, konsumsi energi spesifik

## **ABSTRACT**

*Name* : Eri Rezky Prarestu  
*Study Program* : Electrical Engineering  
*Title* : *Electrical Energy Audit in Clean Water Treatment Process*  
*at Purwaharja Water Treatment Plant PDAM Tirta Anom Banjar City*

*The Water Treatment Plant (IPA) Purwahrja PDAM Tirta Anom Banjar City relies heavily on electrical energy for its operations. There are various ancient electric motors in the water production process, and it is feasible to reduce the motor's performance and efficiency. An energy audit will be conducted on the load section of the electric motor in this study, which will include calculating the performance value of the motor load used in each stage of the manufacturing process, as well as calculating the value of specific energy consumption based on the use of electrical energy and the volume of clean water. For the period July 2020-June 2021, the results of the calculation and analysis of the usage of electrical energy at the IPA Purwaharja PDAM Tirta Anom Banjar City showed an average of 136,284.7 kWh/month. In the distribution unit of the IPA Purwaharja PDAM Tirta Anom Banjar City in 2020-2021, the average value of specific energy consumption (KES) in the clean water treatment process is 0.29 kWh/m<sup>3</sup> per month. This figure is based on the Ministry of PUPR's energy efficiency guideline, and JICA does not exceed the predetermined standard limit of 0.4 kWh/m<sup>3</sup>. The electric motor's performance on the average distribution unit is best when the motor load is between 50 and 100 percent. However, some electric motors' performance is subpar because the motor load value is less than 50% of the load.*

*Keyword: energy audit, motor load performance and spesific energy consumption*