

***Audit and Energy Saving Opportunities
at Syuhada' Mosque
Mastrip Housing, Jember***

Chief Counselor: Dedy Eko Rahmanto, STP., MSi.

Jadi Sanjaya

*Renewable Energy Engineering Program Study
Engineering Departement*

ABSTRACT

The Syuhada' Mosque in its daily activities utilizes a considerable amount of electrical energy. In the air conditioning system, the irregular use of fans and AC units at certain intervals can lead to energy wastage, and some areas of the Syuhada' Mosque still rely on non-LED lighting. Therefore, there is a need for an energy audit research at the Syuhada' Mosque. This research aims to analyze the Energy Consumption Intensity (ECI), to assess the amount of energy consumption and potential energy savings, and to analyze the light intensity level and air conditioning system at the Syuhada' Mosque in Mastrip Residential Area. The methodology employed in this research includes secondary data collection through documentation of the electric kWh meter readings taken every 24 hours, as well as primary data collection through direct measurements and ECI calculations. The research findings indicate that the energy consumption level at the Syuhada' Mosque in Mastrip Residential Area is classified as 'very efficient', with energy usage costs in February 2024 amounting to Rp. 2,400,000 and an average Energy Consumption Intensity (ECI) reaching 3.185 kWh/m²/month. The analysis also reveals inadequate lighting levels ranging from 12.5 Lux to 64.5 Lux, as well as low room humidity (25%-34% RH).

Keywords: *Energy Audit, Energy Consumption Intensity, Energy Efficiency*