

# **Analysis of Electrical Energy Conservation in Lighting Systems and Air System (Case Study of Lemahputro Village Office, Sidoarjo District)**

Mochammad Nuruddin, S.T., M.Si as a minithesis counselor

**Rizka Putri Pratama Bumi**  
Study Program of Renewable Energy Engineering  
Majoring of Engineering

## ***ABSTRACT***

*Electrical energy has an important role in everyday life, including lighting systems and air systems. Somelike with the portion of use, if the use increases consumption of electrical energy increases. One form of electrical energy efficiency efforts through energy conservation management by carrying out energy audits. In this case, the office of Kelurahan Lemahputro needs to implement electrical energy conservation management, in order to increase the efficient and rational use of electrical energy without reducing the quantity of energy that is urgently needed. The research process by conducting an initial energy audit, includes: building plan data, room area, electrical energy consumption, IKE, light intensity and temperature as well as humidity in each room. Hasil research shows that the light intensity in some rooms that should have been 350 lux did not meet the standards, so it was necessary to re-plan the replacement of lamps. In the air system, the measured temperature ranges from 22.6 °C – 27 °C with a humidity of 41% - 48%. The building IKE is 2.23, so it fits the efficient criteria for air-conditioned buildings. Energy saving opportunities can be made improvements to the room through active design and passive design.*

**Kata Kunci:** *energy conservation, efficiency, energy audit, IKE*