

UTILIZATION OF SOLAR PANEL ENERGY FOR 24 HOUR NON-STOP OPERATIONS USING INCANDESCENT LIGHT RADIATION

Thoriq Aziz Mushoffa

*Electrical Engineering Study Program, Faculty of Science & Technology
University of Technology Yogyakarta
Jl. Ringroad Utara Jombor Sleman Yogyakarta
E-mail : Thoriqazm96@gmail.com*

ABSTRACT

This study aims to develop innovative solutions in optimizing the use of solar panels so that they can operate for 24 hours non-stop. The main problem faced in the use of solar panels is the dependence on sunlight which is only available during the day. To overcome this problem, this study utilizes incandescent light radiation as an additional energy source at night or in conditions of low sunlight. The methodology used includes the design and testing of a prototype solar power generation system combined with incandescent lamp radiation. Testing was carried out to evaluate the efficiency of energy conversion from incandescent lamp radiation to electrical energy that can be produced by solar panels. The results of the system test show that overall the solar panels can produce an average voltage of 13.88 volts per time interval with a current of 1 ampere and a total power produced of up to 360 Wh per day. The power consumption of incandescent lamps for the operation of light supply at night is 243.72 Wh. Solar panels operate at an average temperature of 35.81oC and incandescent lamps at a temperature of 51.78oC.

Keywords: *Solar Panels, Incandescent Lamp Radiation, Energy Efficiency, Renewable Energy*