

ABSTRACT

Solar energy, as one of the new renewable energy sources, is increasingly being used as an alternative energy solution, particularly in solar power generation systems (PLTS). One of the applications of energy generated from PLTS is supplying power to a rat pest trap device. This research project focuses on the planning and design of a PLTS system to supply energy to the rat pest trap, integrating PLTS with a battery. Calculations are performed to determine the energy consumption of the device, and simulations are conducted using PVSyst software to estimate the performance of the PLTS system in meeting the energy demands of the load. The device's power requirement is 3.351 W, with a daily energy consumption of 80.42 Wh. The simulation results using a 60 Wp polycrystalline silicon PV module show that the PLTS generates 330 Wh per day, which is sufficient to meet the system's total energy requirement of 303.26 Wh, even if the PLTS fails to provide energy for three consecutive days. The comparison of results indicates consistency between the generated energy and the required load supply.

Keywords: *Solar Energy, PLTS, Rat Pest Trap Device.*