ABSTRACT

SYSTEM DESIGN OF THE USE OF SOLAR CELL OFF-GRID FOR STUDENT LEARNING LIGHTS BASED BATTERY IN SCHOOLS LOCATED IN A REMOTE VILLAGE

Solar Power Plant is one of the breakthroughs to reduce the crisis of electricity supply. The main component in this PLTS is Photovoltaics. Photovoltaics only comes from sunlight input. Solar panels are very dependent on solar radiation. The higher the solar panel is able to capture solar radiation, the higher the efficiency of the panel. So the output of solar panels is also getting closer to watt peak.

This Final Project research is by analyzing the design of the LED battery charging system for student learning lights in a school in a remote village with 140 students. In this Final Project testing and analysis using a direct method of solar panels and methods with an additional 12V 18Ah capacity battery. The LED lights used have 12V 1.2Ah battery specifications. The assumption of analysis of 140 LED lamp battery charging students has one lamp, for 140 lamps having the same specifications. In the direct method of solar panels to fill 140 lights and power of 2016 Wh during charging requires 22 PV capacity of 10 W*p* or 7 PV with a capacity of 50 W*p*. As for the additional battery method requires PV as many as 15 pieces with a capacity of 50 W*p* and battery batteries as many as 9 pieces with 12V 18Ah capacity.

Keywords*: Solar panels, power, efficiency, battery charging, LED learning lights*