Design of a rice field irrigation system based on a solar water pump at Jember State Polytechnic.

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ABSTRACT

Indonesia is an agrarian country because most of the people work as farmers. One of the natural resources needed by agricultural sector is water. Equipment in agriculture to carry out irrigation in rice fields is a water pump. One of the renewable energy technologies is the use of environmental advantages technology and cost-effective. The renewable energy-based technology that can be used is solar-powered water pump technology. The water pump works using a power source generated by photovoltaic (Module/Solar Cell Panel) with economical operation. The purpose of this research is to make it easier for farmers to irrigation rice fields by converting solar energy into electrical energy that can be used for the needs of operating solar water pumps. Testing was carried out in 3 times at 07.30 - 14.30 WIB with a data collection time of every 15 minutes. The results of battery usage on pump is the average power value of 289.73 Watt and the energy value of 274 Wh.

Key word : *PLTS, Solar Panels, Water Pumps, Batteries.*