

**Rancang Bangun PLTS Sistem *Off-Grid* Sebagai Penggerak Pompa Air  
Untuk Tanaman Aquaponik**  
*(Design of PLTS Off-Grid System to Drive Water Pumps for Aquaponic Plants)*  
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**ABSTRACT**

Aquaponics is an agricultural system that combines fish and plant cultivation in a mutually reinforcing system. Fish produce waste that is processed into nutrients for plants, while plants filter water for fish. The aquaponic system requires a stable and affordable energy source, in this case, an off-grid PLTS (Solar Power Plant) system is an excellent alternative solution. The off-grid PLTS system utilizes solar resources to produce electrical energy, so that aquaponics can operate independently without depending on the electricity network from the PLN. This study aims to design and install PLTS as a source of energy to drive pumps in aquaponic plants to design aquaponic plants with solar power plants. The method used is an experimental study by observing the use of PLTS to drive water pumps in an aquaponic system under different conditions such as changes in sunlight intensity. This tool is designed to work automatically with the help of a timer, uses a large capacity battery so it can store energy longer, has a low current because it uses 100% DC and the initial investment cost is quite expensive, but the tool is designed to last long and operate. in the long run, easy maintenance of just draining the fish box every week and watering the plants. The results of the off-grid PLTS system as a water pump drive can operate according to the design made. The average energy consumption is 162,6 W/day, while the average output from solar panels is 271.1 Wh/day, which already exceeds the amount of energy required by the load used.

**Keywords :** *Solar Panels, Aquaponik, Off-Grid*