

## ABSTRACT

*Farmers in Indonesia find it difficult when there is very little rainfall, because the land irrigation system is carried out using a water pump. For areas that are far from the PLN electricity grid, farmers use conventional water pumps, which require very high fuel costs. Therefore we need a system that can drive a water pump using solar panels that does not cost fuel by using the selective pumping method and also calculates the economic level of this system.*

*The selective pumping method used is to set each pump to turn on and off at a certain voltage with the help of a relay, namely pump 1 starts at a voltage of  $\geq 9$  V and  $< 13$  V then pump 2 starts at a voltage of  $\geq 13$  V. Furthermore, the economic level of this system is calculated. by looking for the total cost value obtained, calculating maintenance costs in a certain year and also looking for the total power generated by solar panels each year.*

*The results obtained are that the water discharge generated by the solar water pump system (SPATS) and the pump efficiency to the system are directly proportional to solar radiation. This phenomenon is caused because the water discharge for each pump depends on the solar radiation received by the solar panels. The average solar panel can turn on the water pump for 4 hours in 1 day with an average power of 145,127 Watts and an average flow of water produced is 3.07 L / m. In the calculation of levelized cost analysis for solar energy, the price obtained in this system is Rp. 4,101 per kWh with BEP in the 20th year.*

***Keywords: PV, Water Pump, Selective Pumping, Cost Analyzed.***