

**Analysis of the Implementation of Solar Panel Based Water Pumps in
Banyuglugur Village, Banyuglugur District, Situbondo Regency.**

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ABSTRACT

The increasing need for energy, especially electrical energy and the energy crisis that hit the world has resulted in the use of renewable energy as an alternative energy source which is increasing at this time. Solar energy is an energy that is predicted to experience significant development in the future due to its ease of installation, maintenance and is a sustainable green energy. This research will analyze the application of a solar panel-based water pump in the village of Banyuglugur, Situbondo district in collaboration with PAMSIMAS (Community-based Water Supply and Sanitation) to meet the clean water needs of residents. The parameters analyzed in this study include the need for clean water, the volume capacity of the reservoir, the time to fill the reservoir, the water pump specifications and the required solar panel power. The analysis results show that the need for clean water is 24,000 liters per day with a tank volume of 159,000 liters that can be fully filled in 27 hours 41 minutes with an average pump water flow rate of 5.8 m³ / hour. The demand for 1.7 Kwh of pump electrical power is met with 21 solar panels that produce a total power of 2.1 Kwh. The reservoir can meet the needs of 240 residents for approximately 6.5 days.

Keywords: *solar panels, solar energy, solar energy pumps, renewable energy, solar panel based water pumps*