ANALYSIS OF OFF-GRID SOLAR POWER PLANT (PLTS) PLANNING TO MEET ELECTRIC POWER NEEDS IN THE PUSKESMAS SUGIH WARAS BARAT VILLAGE USING HELIOSCOPE SOFTWARE

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ABSTRACT

Solar Power Plants (PLTS) are renewable energy that have enormous potential, especially in areas with high solar radiation. Indonesia is a country with a tropical climate, which gets more sunlight. This is very beneficial for Indonesia because solar energy is so abundant. Solar energy can be utilized in the renewable energy sector by converting solar radiation into electrical energy. One of the provinces with high solar radiation is the province of South Sumatra. There is a health facility, namely Puskesmas Sugih Waras Barat Village which is located in Sugih Waras Barat Village, Rambang District, Muara Enim Regency, South Sumatra. This health center area has an average solar radiation of 2.6 kWh/m2. With total daily electricity consumption of 26,368 kWh/day with the entire electricity source coming from PLN. This research aims to carry out simulations and determine the potential for electrical energy produced if PLTS is used as an energy reserve using HelioScope Software simulation. From the results of the simulations that have been carried out, it is found that, if solar panels are installed on the roof of Puskesmas Sugih Waras Barat Village, it will produce energy of 13,114.2 kWh/year or 35,929 kWh/day and can meet the daily electrical energy needs of Puskesmas Sugih Waras Barat Village.

Keywords: *HelioScope, PLTS, Electrical Energy, Solar Panels*