

PLANNING ANALYSIS OF ELECTRIC VEHICLE CHARGING STATION BASED ON OFF-GRID SOLAR POWER PLANT USING HELIOSCOPE AT UNIVERSITY OF TECHNOLOGY YOGYAKARTA

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ABSTRACT

Indonesia has abundant solar energy potential because Indonesia is located on the equator and has a tropical climate. Currently technology is not only developing in gadgets but is also developing in the field of transportation, one of which is the increasing development of electric vehicles. However, in this development, what is still a problem is the limited number of charging places in several places. In fact, this charging is carried out in every house using electricity from PLN so that it can cause increasing power surges. To reduce surges in electrical power, solar power plants (PLTS) can be used as charging facilities considering the abundant potential for solar energy in Indonesia. One place that can be developed as an electric vehicle charging station is Yogyakarta Technology University. After analysis, simulation and design using Helioscope and SketchUp software, it was found that the potential energy that can be generated by PLTS is 10,606.4 kWh/year with 16 solar panels with a capacity of 505Wp. The hourly energy requirement based on the largest electric motor combination value is combination 7 of 28.8 kWh/hour. Based on the simulation results and daily energy requirements, the daily energy potential that can be generated by the solar module is 29 kWh/day.

Keywords: *PLTS, Electric Vehicles, Helioscope, Energy Potential*