

ABSTRACT

The focus of this study discusses the planning of a Solar Power Plant system (SPP) on the Padalarang - Cileunyi Toll Road. The purpose of this study was to determine the magnitude of the solar power plant potential on the Padalarang - Cileunyi Toll Road. The problem raised in this study is how is the relationship between solar irradiation on the Padalarang - Cileunyi Toll Road to the power generated and how is the energy density based on SPP on the Padalarang toll road -Cileunyi. The method used in this study is a technical analysis method using the Helioscope software using solar power plant two planning schemes. The results obtained in this study are the average solar irradiation potential in one year is 5,24 kWh/m²/day. The results obtained by simulating using the Helioscope are the planning of an on-grid Solar Power Plant (SPP) system on the Padalarang-Cileunyi Toll Road has an area of 990 m² on a flat plane and a curved plane. The solar panel used has a capacity of 350 Wp and an inverter with a capacity of 50 kW. The total energy production generated on a flat plane is 217.8 MWh/year and the total energy production produced on a curved plane is 179.2 MWh/year. The output of this study is a SPP model with flat roofs and curved roofs on the Padalarang-Cileunyi Toll Road.

Keywords: SPP, Photovoltaic for Toll Road, Helioscope, Padalarang-Cileunyi Toll Road