

ABSTRACT

Indonesia is one of the countries that contributes highly to global carbon dioxide (CO₂) emissions through its electricity generation sector. Solar Power Plants are one solution for reducing carbon dioxide emissions. Apart from reducing carbon emissions, Solar Power Plant has investment opportunities. Tasikmalaya City has a solar energy potential of 4.94 kWh/m²/day which can be utilized for the construction of PLTS. The Siliwangi University Electrical Engineering Study Program building is an academic activity area with energy requirements of 75,434 kWh/day. This research aims to reduce carbon dioxide emissions through reducing energy consumption in the Siliwangi University Electrical Engineering Study Program Building and identifying investment opportunities for PLTS construction. The research results show that 15.4 kWp On-grid Solar Plants can reduce building energy needs to 23,893 kWh/day. The value of this project is IDR 230,000,000.00 with an IRR of 16.464% and return on investment within 11 years 5 months. The Solar Power Plants production output for one year is 19.393 MWh with a reduction in carbon emissions of 20.352,65 tons of CO₂.

Keywords: Solar Power Plant, Carbon Emissions, Investment Opportunities