

# ***PLANNING ANALYSIS OF SOLAR POWER STREET LIGHTING (SPSL) ON MAJAPAHIT ROAD, YOGYAKARTA***

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## ***ABSTRACT***

*Research PJU (Public Street Lighting) Solar Power is a public street lighting where the electric power for the lamp is supplied by an independent system obtained from solar energy. This study aims to describe and calculate PJU on Majapahit Road Yogyakarta based on solar and LED power, with the durability of solar panels and LED modules, independent, without an electric power grid and the lighting specifications used on PJU lights on Jalan Majapahit, Yogyakarta are Philips LED lights. solar led with a power of 50 W. This study contains a method for determining the specifications of the lamps to be used in public street lighting, on Jalan Majapahit Yogyakarta which is an arterial road, the operating hours of the PJUTS lamps last 12 hours a day, from 18.00 to 06.00 , things that need to be considered are also the size of the solar panel module that will be used, the battery capacity and also the charger control. In this study, the results obtained for LPJU Jalan Majapahit Yogyakarta currently still using 400 W SON-T lamps which are on for 12 hours a day ( hours 18.00-06.00) so it takes a fee of Rp. 5,200.92 (with a tariff per KWh of Rp. 1,444.70), If a solar lamp replacement is to be carried out, the materials required for the initial investment for each pole are two Philips RoadFlair Gen2 BRP492 LED215 lamps, four Trina solar panels the Tallmax M series 455 WP, six 12V 200AH VOZ batteries, 50A PWM Solar Charge Controller with a total initial cost of 34 250 384.00, Investment Costs can be covered from operational cost savings with a BEP of 9 years 7 months..*

**Keyword :** *Street lighting, Solar panels, Yogyakarta*