INTISARI

Dalam instalasi panel surya terdapat beberapa faktor yang harus diperhatikan agar dapat mengoptimalkan kinerja panel surya seperti posisi kemiringan panel surya dan arah pemasangannya sesuai dengan lokasi dimana panel surya akan dipasang, letak pemasangan panel surya yang tidak memiliki objek penghalang yang dapat menghasilkan bayangan pada panel surya, intensitas radiasi matahari yang diterima juga mempengaruhi kinerja panel surya dan tiang penyangga yang dipasang cukup tinggi agar aliran udara dapat menurunkan suhu panel surya yang tinggi.

Kapasitas daya panel surya yang dirancang dihitung menyesuaikan dengan kebutuhan beban listrik dan potensi radiasi matahari di tempat tersebut. Dalam menentukan nilai intensitas radiasi matahari dapat menggunakan parameter *peak sun hour* (PSH) untuk menyatakan perbandingan lamanya penyinaran matahari maksimum (dalam jam) per hari terhadap standar intensitas radiasi matahari yang nilainya 1 kW/m2. Pada lokasi PT. Len Industri saat bulan Mei intensitas matahari adalah sebesar 4.6 *sun hour* sehingga daya maksimum yang dihasilkan oleh rangkaian panel surya sebesar 14.3 kW/hari namun kenyataan di lapangan diperoleh 10,4 kW/hari.

Kata kunci: instalasi panel surya, intensitas radiasi matahari, *photovoltaic*

ABSTRACT

There are several factors in installation of solar panels that must be considered in order to optimize the performance of solar panels such as the position of the tilt of solar panels and direction of installation in accordance with the location where solar panels will be installed, the location of solar panels should not have a barrier object that can cause shadows on solar panels, the intensity of solar radiation which received also affects the performance of solar panels and the high of mounted poles is enough to lower the high temperature of solar panels.

The power capacity of the designed solar panels is calculated to match the needs of the electrical load and the potential of solar radiation at the site. To determine the intensity value of solar radiation can be used the peak sun hour (PSH) parameter to define the ratio of the maximum duration of sunlight (in hours) in a day to the solar radiation intensity standard of 1 kW / m2. At PT. Len Industri (in May), the intensity of the sun irradiation is 4.6 sun hours with the maximum power can be generated by the solar panel's string is 14.3 kW/day but the reality in the field is 10.4 kW/day.

Keywords: installation of solar panel, intensity of solar radiation, photovoltaic