

Studi Kualitas Daya dan Reduksi Harmonisa Jaringan Pembangkit Listrik Tenaga Surya (PLTS) on Grid di Pelabuhan Tanjung Priok = Power Quality Study and Harmonic Reduction on the on Grid Solar Power Plant Network in Tanjung Priok Port

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Abstrak

Pembangkit Listrik Tenaga Surya (PLTS) merupakan salah satu energi alternatif non bahan bakar fosil yang sangat menjanjikan dan menjadi populer di masa sekarang. Sifat intermitensi sumber energi PLTS dan penggunaan inverter menimbulkan potensi terjadinya masalah kualitas daya yaitu harmonisa pada jaringan distribusi. Untuk membuktikan hipotesis ini, dilakukan pengukuran kualitas daya pada PLTS yang terinstall secara On Grid di Pelabuhan Tanjung Priok. PLTS yang terinstall memiliki daya 23 KWp dengan jenis inverter Huawei tipe SUN2000-25KTL-M5 serta panel modul Vertek tipe monocrystalline. Penelitian ini juga bertujuan untuk mengetahui kualitas daya dari sisi tegangan, arus, frekuensi, faktor daya dan Total Harmonic Distortion (THD) pada jaringan PLTS di CIF serta melakukan desain perbaikan jika ditemukan gangguan kualitas daya berupa harmonisa sehingga memenuhi standar IEEE.

.....Solar Power Plants (PLTS) are a very promising non-fossil fuel alternative energy that is becoming popular nowadays. The intermittency nature of PLTS energy sources and the use of inverters creates the potential for power quality problems, namely harmonics in the distribution network. To prove this hypothesis, power quality measurements were carried out at the PLTS installed on grid at the Central Inspection Facility (CIF) at Tanjung Priok Port. The installed PLTS has a power of 23 KWp with a Huawei inverter type SUN2000-25KTL-M5 and a monocrystalline type Vertek module panel. This research also aims to determine power quality in terms of voltage, current, frequency, power factor and Total Harmonic Distortion (THD) in the PLTS network in CIF as well as carry out repair designs if power quality disturbances in term of harmonics are found so that they meet IEEE standards.