

INTISARI

Analisis Kinerja *System Photovoltaic Management Platform* Pada Implementasi *System Pembangkit Listrik Tenaga Surya Hybrid Berbasis Internet of Things* Di Area R&D Syngenta Cikampek

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Tujuan dari penelitian untuk mempelajari lebih lanjut tentang kinerja platform manajemen *photovoltaic* dalam konteks penerapan Pembangkit Listrik Tenaga Surya (PLTS) *Hybrid* berbasis *Internet of Things (IoT)*. Tahapan metode analisis data menggunakan pengukuran kualitas dari pengiriman data atau *quality of service* dengan standar ITU-T G.1010 pada *system monitoring* PLTS serta melakukan pengukuran *Nielsen Attributes of Usability (NAU)* pada penggunaan *website photovoltaic Plant Management Platform Solarman Smart*. Pengujian *QoS* menunjukkan performa *system* optimal selama pengujian dengan rincian hasil *throughput* 179 Kbps, *packet loss* 0%, *delay* 0,029877014 ms, *jitter* 0,0000050707380 ms. Platform manajemen PLTS menunjukkan tingkat kinerja *usability* baik. Dalam variabel *learnability* penilaian mencapai 80%, *efficiency* 82,3%, *memorability* 73,3%, *errors* 78%, dan *satisfaction* 82%. Pada tingkat kepentingan, variabel *learnability* penilaian mencapai 84,25%, *efficiency* 86,3%, *memorability* 84,6%, *errors* 85%, dan *satisfaction* 86,5%. Hasil pengujian *QoS* menunjukkan bahwa jaringan di lokasi penelitian memiliki kualitas layanan yang tinggi. Keunggulan *usability* mencakup pemahaman *system*, efisiensi, kemudahan diingat, tingkat *error*, dan kepuasan pengguna dalam memanfaatkan *PV plant management platform*, memberikan kontribusi positif terhadap kualitas, keandalan, serta kepuasan pemantauan kinerja PLTS secara keseluruhan. Kualitas jaringan memiliki hubungan berbanding lurus dengan tingkat kinerja dan kepentingan *usability*.

Kata kunci: PLTS, *Solar System*, *Hybrid*, *Internet of Things (IoT)*, *Photovoltaic Management Platform*, *Nielsen Attributes of Usability*, *Quality of Service*, *Renewable Energy*

ABSTRACT

Performance Analysis of the Photovoltaic Management Platform System for the Implementation of IoT-Based Hybrid Solar Systems at R&D Syngenta Cikampek Area

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The purpose of the research is to learn more about the performance of the photovoltaic management platform in the context of implementing an Internet of Things (IoT)-based Hybrid Solar Power Plant (PLTS). The stages of the data analysis method use measurements of the quality of data transmission or quality of service with the ITU-T G.1010 standard on the PLTS monitoring system and measure Nielsen Attributes of Usability (NAU) on the use of the Solarman Smart photovoltaic Plant Management Platform website. QoS testing shows optimal system performance during testing with detailed results of 179 Kbps throughput, 0% packet loss, 0.029877014 ms delay, 0.0000050707380 ms jitter. The PLTS management platform shows a good level of usability performance. In the learnability variable, the assessment reached 80%, efficiency 82.3%, memorability 73.3%, errors 78%, and satisfaction 82%. At the importance level, the variable learnability assessment reached 84.25%, efficiency 86.3%, memorability 84.6%, errors 85%, and satisfaction 86.5%. The QoS test results show that the network at the research location has a high quality of service. Usability advantages include system understanding, efficiency, memorability, error rate, and user satisfaction in utilizing the PV plant management platform, contributing positively to the quality, reliability, and satisfaction of monitoring the overall performance of the PV plant. Network quality has a directly proportional relationship with the level of performance and usability importance.

Keywords: *Solar System, Hybrid, Internet of Things (IoT), Photovoltaic Management Platform, Nielsen Attributes of Usability, Quality of Service*