

## ABSTRAK

### ANALISIS STUDI KELAYAKAN EKONOMI DAN *SELF CONSUMPTION* PLTS ON-GRID DAN *HYBRID* KAPASITAS 1.328 kWp

Oleh

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Energi terbarukan menjadi energi alternatif yang akan menggantikan peran bahan bakar fosil untuk memenuhi kebutuhan energi listrik masyarakat. Permen ESDM nomor 26 tahun 2021 energi listrik pelanggan PLTS atap di ekspor sebesar 100%, namun nantinya akan di revisi bahwasanya energi dari PLTS atap tidak akan di ekspor ke PLN, maka dilakukan upaya meningkatkan *self-consumption* pada sistem PLTS serta menganalisa penghematan dan keuntungannya. Dalam penelitian ini dilakukan Analisis Studi Kelayakan Ekonomi Dan *Self-Consumption* Plts On-Grid Dan *Hybrid* dengan kapasitas 1.339,2 kWp memiliki tujuan untuk mengetahui nilai *self-consumption* pada PLTS On-Grid dan Hybrid, menganalisis kelayakan ekonomi berdasarkan nilai *self-consumption* pada sistem PLTS On-Grid dan Hybrid. Dengan menggunakan bahasa pemrograman python dan perhitungan PBP, NPV, IRR, PI, menghasilkan kesimpulan berupa nilai *self-consumption* dipengaruhi oleh besarnya kebutuhan beban listrik semakin besar kebutuhan beban listrik maka nilai *self-consumption* akan semakin besar, nilai *self-consumption* mempengaruhi kelayakan ekonomi semakin besar nilai *self-consumption* maka kelayakan ekonominya semakin besar.

*Kata kunci* — PLTS On-grid, PLTS Hybrid, PBP, NPV, IRR, PI, Kelayakan ekonomi

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**By**

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Renewable energy has emerged as an alternative to replace the role of fossil fuels in meeting society's electricity needs. According to Regulation of the Ministry of Energy and Mineral Resources (ESDM) No. 26 of 2021, electricity generated by rooftop solar power plants (PLTS) is initially mandated to be exported at 100%. However, there is a plan to revise this regulation, indicating that energy from rooftop solar power plants will no longer be exported to the national electricity company (PLN). Consequently, efforts are being made to enhance self-consumption in solar power systems, accompanied by an analysis of the associated savings and benefits. This study conducts an Economic Feasibility and Self-Consumption Analysis of On-Grid and Hybrid Solar Power Plants with a capacity of 1,339.2 kWp. The primary objectives are to determine the self-consumption values in On-Grid and Hybrid solar power systems and to analyze the economic feasibility based on the self-consumption values in both systems. Employing the Python programming language and calculations involving Payback Period (PBP), Net Present Value (NPV), Internal Rate of Return (IRR), and Profitability Index (PI), the study concludes that self-consumption values are influenced by the magnitude of electricity demand. As the electricity demand increases, the self-consumption value also increases, subsequently affecting the economic feasibility. A higher self-consumption value correlates with greater economic feasibility.

Keywords: *On-grid* Photovoltaic System, *Hybrid* Photovoltaic System, Payback Period, Net Present Value, Internal Rate of Return, Profitability Index, Economic Feasibility.