# *Performance Evaluation of Grid-Connected Rooftop PV System, Study Case in PT. Bintang Toedjoe Deltamas Bekasi*

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## *ABSTRACT*

*Regular performance evaluation is necessary to ensure the sustainability and optimal performance stability of the Solar Photovoltaic Systems. The research is conducted with reference to the feasibility study guidelines for centralized PLTS published by the Ministry of Energy and Mineral Resources and the International Standard IEC 61724. The Solar Power Plant is located in the industrial area of PT. Bintang Toedjoe Deltamas Bekasi, has a capacity of 1218 kWp and covers a land area of 7.8 Ha. Operational data monitoring requires a four-month period after measuring temperature, current, and voltage. The research methods include performance system analysis and constraint analysis. The system analysis involves the use of primary and secondary data processed qualitatively and quantitatively. Constraint analysis is conducted to identify issues that may disrupt the performance of the solar power system. Potential constraints may include performance ratio decline, temperature issues, inverter problems, and PV array issues in the solar panels. Optimization measures that can be implemented include regular and periodic PV maintenance cleaning once a week, which was previously done once a month. To enhance the efficiency of the solar panels, the addition of solar panel fans or implementing a cooling system can be considered as preventive measures to prevent more severe component damage. The quality factor has shown improvement, according to the performance analysis report from January to April. The data monitoring report indicates an average Performance Ratio (PR) of 69.53% over the four-month span. However, the smartlogger data report displays significantly different PR values, with a maximum of 65.86%. This suggests a notable variance in the theoretical performance calculation of the data.*

***Keywords:*** *Efficiency, Evaluation, Performance Ratio, Rooftop Solar PV System,*