Energy performance of optimally inclined free standing photovoltaic system

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ABSTRACT
This paper is about a simulation study to analyze the energy performance of optimally inclined free standing photovoltaic system. A 10 kWp crystalline PV plant is proposed with free standing installation type for BRCORP office location. The slope angle and azimuth angle are optimized using the PVGIS simulation tool. The proposed system is simulated in PVGIS tool to account for the energy production from the PV plant. The obtained simulation results were discussed as per monthly, yearly PV energy productions, year to year variability, and total losses. Output variations due to angle of incidence, spectral effects, temperature and low irradiance is also discussed. This work would help the energy investors, researchers, and academicians to understand the solar PV system assessments and feasibilities.

KEYWORDS:
Solar energy, photovoltaic system, grid connected, PVGIS simulation, energy assessement, free-standing.