

Assessing Available Power from a Renewable Energy Source in the Southern Hemisphere using Anisotropic Model

Authors : Asowata Osamede, Trudy Sutherland

Abstract : The purpose of this paper is to assess the available power from a Renewable Energy Source (off-grid photovoltaic (PV) panel) in the Southern Hemisphere using anisotropic model. Direct solar radiation is the driving force in photovoltaics. In a basic PV panels in the Southern Hemisphere, Power conversion is eminent, and this is achieved by the PV cells converting solar energy into electrical energy. In this research, the results was determined for a 6 month period from September 2022 through February 2023. Preliminary results, which include Normal Probability plot, data analysis - R2 value, effective conversion-time per week and work-time per day, indicate a favorably comparison between the empirical results and the simulation results.

Keywords : power-conversion, mathematical model, PV panels, DC-DC converters, direct solar radiation

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