

Technico-economical Feasibility Study of a PV Power System for a Village

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Abstract

Algeria being enriched with higher level of solar radiation is a prospective candidate for deployment of solar PV systems.

The aim of this study is to analyze long-term solar radiation data of Tindouf (South-West of, Algeria) to assess the techno-economic feasibility of utilizing PV–battery power system to meet the load of a typical residential building (with annual electrical energy demand of 9490 kWh). The monthly average daily solar global radiation ranges from 3.61 to 7.96 kWh/m². PVSyst and National Renewable Energy Laboratory's (NREL) Hybrid Optimization Model for Electric Renewable (HOMER) softwares have been employed to respectively carry out the technical and the economical present study.