

Does Algeria have a potential for solar PV and wind energy?

It is found and confirmed that Algeria has a huge potential of solar PV and wind energy, accounted to a maximum annual sum of 2.38 MWh/m²/year and 3.33 MWh/m²/year, respectively. Moderate complementarity levels are observed on the daily timescale in the coastal and highlands regions.

How much solar energy does Algeria have?

This means that the country enjoys from 1700 to 2,263 kWh/m²/year of solar energy (Maoued et al. 2015). The south of Algeria has significant wind resources, especially the region of Adrar, where average wind speeds range from 4 to 6 m/s, which makes it very attractive for the deployment of wind farms (Maoued et al. 2015).

What is a hybrid solar PV-wind system?

Hybrid systems can tackle this issue, combining solar PV with wind is an attractive solution that provides reliable and economical renewable power generation. In this article, a hybrid grid-connected PV-wind system is designed, modeled and controlled with optimized PI controllers.

Is energy demand increasing in Algeria?

However, the energy sector in Algeria has to overcome other barriers, such as the increase of energy demand. In Fig. 2, the monthly load demand of Algeria is presented during the period from 2000 to 2019, where an increasing energy demand is observed from roughly 2 TWh to 8 TWh.

How difficult is it to integrate solar and wind in grid-connected systems?

In grid-connected systems, it is even more difficult especially in the case of weak grids that are not able to handle the fluctuation of power generation when the amount of integration of solar or wind is important.

Does Adrar need a hybrid energy system?

The proposed hybrid system is an adequate solution to power shortages and grid problems faced in the region of Adrar during hot seasons. The proposed solution falls in line with the plan of Algeria to integrate wind and solar energy in its energy mix by 2030. Abada Z, Bouharkat M (2018) Study of management strategy of energy resources in Algeria.

The generation and storage units for the hybrid wind/photovoltaic ... proposed a typical scenario analysis method that partitions and clusters the massive original data of wind/solar power outputs and load ...

This article has addressed the design, modeling and control of a large-scale hybrid PV-wind grid-connected system. The developed system has been tested for the Adrar region situated in the ...

In this study, an attempt is made to design an optimal wind/pv/diesel hybrid power for a refrigeration need to a

small military base established in the southern frontiers of Algeria, ...

The present paper discusses the feasibility study of an autonomous hybrid PV-Wind power system used for public electrification in the city of Adrar-South of Algeria, with an average consumption of 3445 Wh/day.

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Semantic Scholar extracted view of "Feasibility study of a wind-photovoltaic hybrid power generation system for a remote area in the extreme south of Algeria" by S. ...

The optimization considers the costs of supplying energy, exchanging power with the local grid, solar power generation, wind power production, thermal energy recovery from ...

The paper introduces a hybrid control strategy for optimised active power management in Algeria's Kabertene wind farm, crucial for the pole insalah-adrar-timimoune (PIAT) grid's ...

Rehman S, Sahin AZ (2016) A wind-solar PV hybrid power system with battery backup for water pumping in remote localities. ... Tadjine M (2016) Control, analysis and optimization of hybrid ...

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