

The proposed optimization model aims to balance the energy between the demand for power and its supply and the charging process of battery and hydrogen storage by defining the installed capacities of the main components, and Diesel generator while minimizing the ASC and maximizing the SSSI and obtaining the values of the other sub-criteria ...

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This research applies and executes a Multi-Objective Particle Swarm Optimization (MOPSO) algorithm using MATLAB R2023b to assess the techno-economic, environmental, and social impacts of a hybrid system based on optimal PV/Wind/Battery/Fuel Cell (FC)/Diesel generator (DG) sizing for rural electrification in CHAD.

This paper proposes an approach for performing a techno-economic, environmental, and social assessment based on optimal modeling of PV/wind/battery/fuel cell systems in both connected to the grid and standalone configurations for delivering electricity to rural areas within the context of CHAD using MATLAB R2023b to implement and run two (2 ...

The simulation results show that the optimal size of the proposed system supplies the load demand by 100% of the renewable energy sources (RES) fraction, and the optimal capacities of the main ...

The design is done considering three types of daily load profiles in each of the 16 regions that are not yet electrified in Chad; the low, medium and high community load profiles. ...

In addition, the electrification rate of Chad is less than 11%. This work aims to propose some reliable electrification options for Chad, through hybrid energy systems. To achieve this objective, autonomous hybrid PV/Diesel/Wind/Batteries feasibility to meet the demand of electrical load in isolated regions of Chad is evaluated using HOMER ...

The design is done considering three types of daily load profiles in each of the 16 regions that are not yet electrified in Chad; the low, medium and high community load profiles. From the simulation, it was observed that the optimal configurations were: PV/Battery, PV/Diesel/Battery and PV/Wind/Diesel/Battery for various consumers and sites.

In this work the PV/Wind/Diesel/Battery systems are simulated in the 16 un-electrified isolated regions of Chad to determine the optimal systems in terms of costs using the HOMER software. Each region is assumed to have communities that are similar to the three load profiles obtained from Ref. [3].

Cell battery storage Chad

In Ati (Chad), John Cockerill has just commissioned a NAS® battery system for ZIZ Energie, a company from Chad involved in decentralized energy infrastructure projects for secondary towns. Another milestone showcasing our expertise in off-grid, remote energy systems, with renewable production and long duration energy storage!

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