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Nigeria offshore wind power storage microgrid

Overview

This study examined an existing isolated solar/battery microgrid, and the potential of optimum hybridization of energy resources to meet the rise in the load demand of the proposed solar/wind/diesel/b.

Can a microgrid power system improve the efficiency of a hybrid energy system?

The study revealed that by optimizing the microgrid power system, the ASC and COE of the hybrid energy system could be reduced thereby making the hybrid power system cost-effective when compared to a single energy source.

Can solar/wind/diesel/battery microgrid meet load demand?

This study examined an existing isolated solar/battery microgrid, and the potential of optimum hybridization of energy resources to meet the rise in the load demand of the proposed solar/wind/diesel/battery microgrid of the remote community in Nigeria, chosen as a case study.

Can a hybrid power microgrid supply electricity to a remote village?

The hybridized power system is very essential for remote village electrification, to be able to satisfy the increasing load demand. The results were presented for the optimal configurations of the energy sources for the hybrid power microgrid system that could supply electricity to any community depending on their energy needs.

Is it possible to develop a reliable and cost-effective microgrid?

Also, it is practically possible to develop a reliable and cost-effective microgrid for any community in any part of the world, considering the renewable energy potential, hence the proposed microgrid configuration is recommended. 1. Introduction Energy demand is rising globally due to the rise in population, leading to a high standard of living.

Can a micro-grid be used for remote area electrification?

The study compared the results for existing remote area electrification of off-

grid, with the proposed micro-grid which can be used in selecting the right energy source for providing electrical power for remote locations where reasonable solar irradiation and wind speed are available in Nigeria, including other developing countries.

What is a PSO technique in a community microgrid?

The PSO technique was used to get the best configuration of the energy resources and the minimum ASC and COE of the HPM, selecting Solar PV, diesel generator, wind generator, and battery for the community microgrid. The ASC and cost of electricity from simulation results were validated in previous literature, such as reported in , , .

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