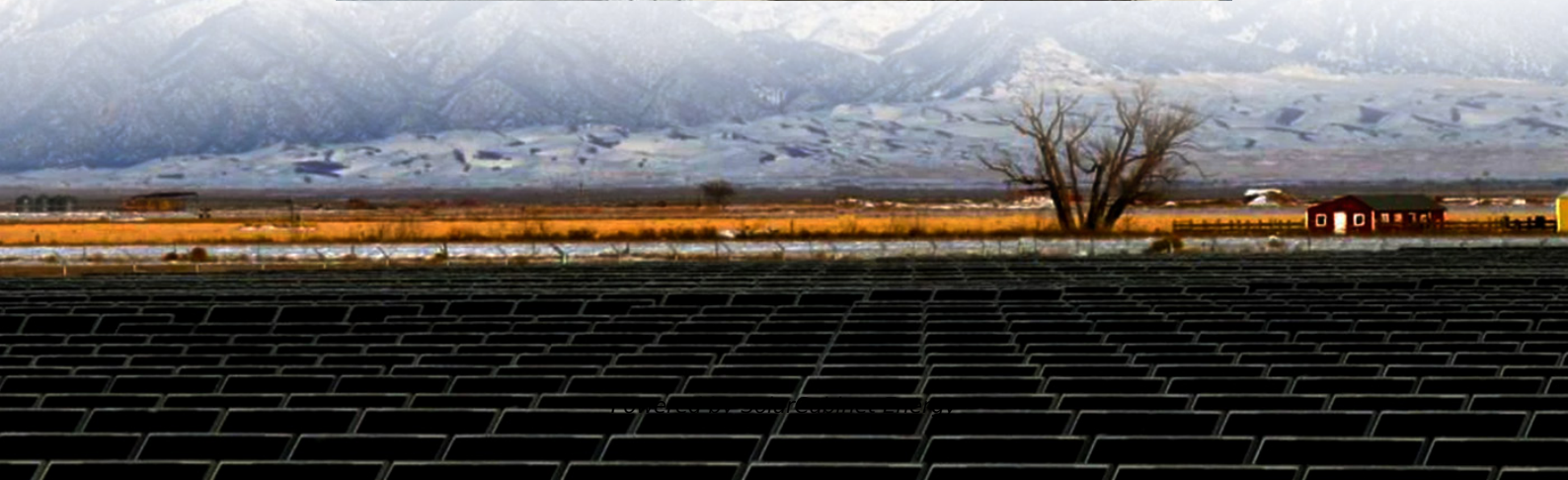


Why hybrid energy sources are used in Asian communication base stations





Overview

Can hybrid photovoltaic/wind renewable systems provide mobile phone base transceiver stations?

Kanzumba et al. [2] investigated the possibility of using hybrid photovoltaic/wind renewable systems as primary sources of energy to supply mobile telephone base transceiver stations in the rural regions of the Republic of the Congo.

Can a hybrid power system feed a stand-alone DC load?

The modelling and size optimisation of such hybrid systems feeding a stand-alone direct current (DC) load at a telecom base station have been carried out using the HOMER software. Vincent et al. [15] proposed a hybrid (solar and hydro) and DG system based on the power system models for powering stand-alone BS sites.

What are the components of a hybrid energy source subsystem?

The main components of a hybrid energy source subsystem are listed below:
1. Solar panels: responsible for collecting sunlight and converting the sunlight into DC electricity. 2. Diesel generator: used as a secondary energy source during the peak demand or in the case of battery depletion.

Can a solar power system be hybridized with a backup DG?

To solve this problem, the present study suggests the hybridisation of the solar power system with existing backup DG in rural areas, which will provide BSs with a sustainable and reliable power supply, especially if the battery lifespan is short.

How much energy does a hybrid system produce?

The DG covered the remaining portion of the energy by 5,573 kWh, which represents 57% of the total energy production. The total annual energy production of the hybrid system is 9,863 kWh (4,290 kWh of solar system +



5,573 kWh of DG), while the total annual energy needed by LTE-macro BS is 8,453 kWh.

How much power does the LTE-BS use?

The total power consumption by the LTE-BS is 965 W (details given in Table 2). Additional configuration details are given in Table 3. The energy output, the economic analysis of the proposed hybrid systems and the related sensitivity analysis are provided in the following paragraphs.



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