SolarMax Energy Systems

Is hybrid energy suitable for building communication base stations on rooftops

Overview

How to optimize a hybrid energy system?

In order to select an optimum com-bination for a hybrid system to meet the load demand, evaluations must be carried out on the basis of power reliability and system life-cycle cost. Recently, several simulations have been performed in order to optimize hybrid energy systems and to fulfill the energy demands of a BTS.

Is hybrid energy system a cost-effective option for re-Mote and grid-connected BTS?

According to numerical results, for the use case of the Greek island of Kea, we confirmed that hybrid energy system is a promising, cost-effective option for both re-mote and grid-connected BTSs, via reducing remarkably the total annualized cost of energy system and CO2 emissions.

Can a hybrid system reduce the operational costs of BTS?

In this paper, we presented a hybrid system, which uses renewable energy sources (solar and wind energy), diesel power and the electric grid. This system has been optimized for minimizing the operational costs of BTS, while promising high reliability.

How much energy does a base transceiver station use?

There are approximately 4 million installed Base Transceivers Stations (BTSs) in the world today. A BTS of a wireless communications network consumes 100 watts of electricity to pro-duce only 1.2 Watts of transmitted radio signals. From a system efficiency perspective (output/input power), this translates into an energy efficiency of 1.2% .

Can a BTS be used as a backup to a hybrid system?

The majority of the BTSs already has a diesel generator, which can also be used as a backup to the hybrid system, reducing the installed size of the

described wind/PV/battery system. At the same time, grid connection could be used as a back up too, when possible.

When should a BTS hybrid system be cooled?

Particularly, we suggest that (i) when the produced energy of the BTS hybrid system exceeds consumption and the batteries are full, the surplus of energy should be used to cool the BTS up to a lower temperature, and (ii) when the produced energy is not enough, consumed energy on the air condition could be eliminated.

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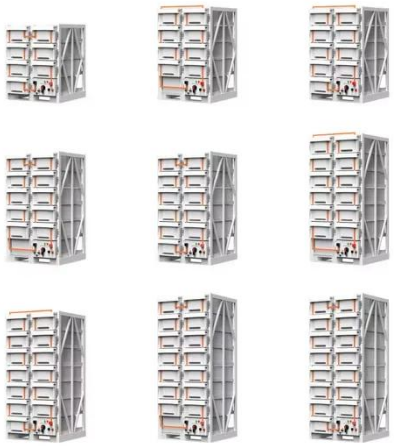

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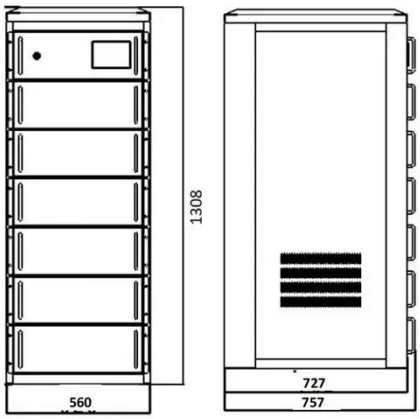

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