SolarTech Power Solutions

Research status of solar panels for communication base stations

Overview

Are solar powered cellular base stations a viable solution?

Cellular base stations powered by renewable energy sources such as solar power have emerged as one of the promising solutions to these issues. This article presents an overview of the stateof- the-art in the design and deployment of solar powered cellular base stations.

Are solar cellular base stations transforming the telecommunication industry?

Improved Quality of Service and cost reduction are important issues affecting the telecommunication industry. Companies such as Airtel, Glo etc believe that the solar powered cellular base stations are capable of transforming the Nigerian communication industry due to their low cost, reliability, and environmental friendliness.

Are solar powered base stations a good idea?

Base stations that are powered by energy harvested from solar radiation not only reduce the carbon footprint of cellular networks, they can also be implemented with lower capital cost as compared to those using grid or conventional sources of energy . There is a second factor driving the interest in solar powered base stations.

What are the components of a solar powered base station?

solar powered BS typically consists of PV panels, bat- teries, an integrated power unit, and the load. This section describes these components. Photovoltaic panels are arrays of solar PV cells to convert the solar energy to electricity, thus providing the power to run the base station and to charge the batteries.

How does the range of base stations affect energy consumption?

This in turn changes the traffic load at the BSs and thus their rate of energy consumption. The problem of optimally controlling the range of the base

stations in order to minimize the overall energy consumption, under constraints on the minimum received power at the MTs is NP-hard.

How do solar powered BSS share energy?

To share resources so that outages are minimized or the quality of service (QoS) of users is improved, solar powered BSs may share energy either directly through electrical cables, or indirectly through power-control/load-balancing/spectrum- sharing mechanisms .

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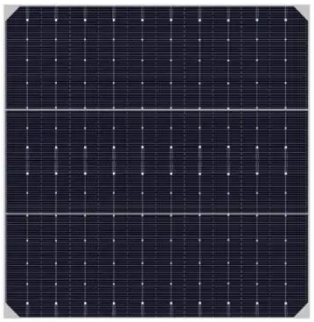

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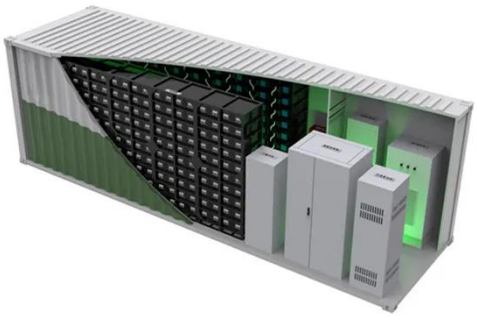

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