

SolarTech Power Solutions

3g communication base station wind power storage ESS power



Overview

This paper aims to consolidate the work carried out in making base station (BS) green and energy efficient by integrating renewable energy sources (RES). Clean and green technologies are mandatory for reduct.

How to make base station (BS) green and energy efficient?

This paper aims to consolidate the work carried out in making base station (BS) green and energy efficient by integrating renewable energy sources (RES). Clean and green technologies are mandatory for reduction of carbon footprint in future cellular networks.

How does a 3 kW BS system work?

In (Hashimoto et al., 2003), a 3 kW BS at an island is powered by 7.6 kW PV panels and and 8 kW wind turbine with 177 KWh back up batteries. Their system comprises a wind generator and cylindrical photovoltaic modules that are mounted onto the wind generator pole to save installation space and cost.

What is a 3G/4G 3 kW off-grid BS?

Their system comprises a wind generator and cylindrical photovoltaic modules that are mounted onto the wind generator pole to save installation space and cost. Similarly, a 3G/4G 3 kW off-grid BS has been equipped with fuel cells in addition to solar panels and wind turbine and is claimed as 100% green.

How does a SG power network work?

A SG powered network can also share the surplus energy available at its nodes amongst its sites or sell it back to the grid through net-metering. Such energy cooperation between sites allows optimal use of RES and minimization of utility.

What constraints are considered in energy cooperation schemes?

The various constraints considered in energy cooperation schemes pertain to the battery's state of charge, QoS defined, min/max data rates and energy balance at sites i.e., net energy in vs net energy out. In addition to energy

cooperation between BS sites, we also find controlled energy transfer from network to grid, particularly smart grid.

Why do cellular BSS need smart grids?

Smart grids with distributed generation of green energy can provide clean and cheap power to the cellular networks, thereby, decreasing the energy cost and reducing the harmful GHGs. Smart grids have special significance for cellular BSs in terms of facilitating energy exchange between them.

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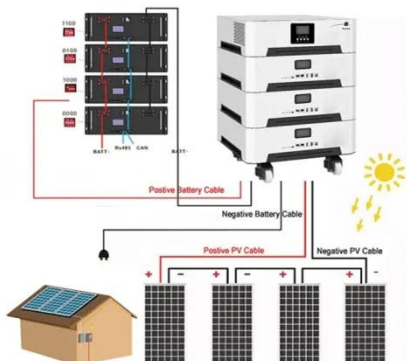


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...



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