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Title: Communication base station supercapacitor transformation case

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How much energy does a communication base station use a day?

A small-scale communication base station communication antenna with an average power of 2 kW can consume up to 48 kWh per day. 4,5,6 Therefore, the low-carbon upgrade of communication base stations and systems is at the core of the telecommunications industry's energy use issues.

What is a low-carbon base station?

(A) The low-carbon base station consists of a power converter, power grid, photovoltaic, energy storage battery, and base station. The low-carbon base station system maintains communication with the control cloud platform and the micro base station.

How does a base station work?

In this scheme, the base station is powered by solar panels, the electrical grid, and energy storage units to ensure the stability of energy supply. When there is a surplus of energy supply, the excess electricity generated by the solar panels is stored in the energy storage units.

How does a communication base station upgrade affect emissions?

(D) Total emissions of major pollutants (CO₂, NO_x, SO₂, and PM_{2.5}) generated by the electricity consumption of communication base stations before and after the upgrade. Paired bars with the same color represent pre- and post-upgrade comparisons for the same pollutant. Emissions of all pollutants are significantly reduced after the upgrade.

Also, the issue of the introduction of renewable energy sources in the base station power supply system of the mobile communication system and its shortcomings are mentioned.

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