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Title: Lightweight communication base station energy method

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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.

Can low-carbon communication base stations improve local energy use?

Therefore, low-carbon upgrades to communication base stations can effectively improve the economics of local energy use while reducing local environmental pollution and gaining public health benefits. For this research, we recommend further in-depth exploration in three areas for the future.

What are the standardized energy-saving metrics for a base station?

(1) Energy-saving reward: after choosing a shallower sleep strategy for a base station, the system may save more energy if a deeper sleep mode can be chosen, and in this paper, the standardized energy-saving metrics are defined as (18) $R_{ie} = E_{SM} = 0$ $E_{SM} = i$ $E_{SM} = 0$ $E_{SM} = 3$

Will communication base stations reduce electricity consumption?

Our findings revealed that the nationwide electricity consumption would reduce to 54,101.60 GWh due to the operation of communication base stations (95% CI: 53,492.10-54,725.35 GWh) (Figure 2 C), marking a reduction of 35.23% compared with the original consumption. We also predicted the reduction of pollutant emissions after the upgrade.

References (150) Figures (10) Abstract and Figures In today's 5G era, the energy efficiency (EE) of cellular base stations is crucial for sustainable communication.

The present disclosure relates to a 5G or 6G communication system for supporting a higher data transmission rate. In addition, the present disclosure provides a method and a device for ...

Threshold-based base station sleep strategy is a common base station management method in wireless communication networks, which adjusts the operating state of the base station to ...

The ultra-dense deployment of base stations (BSs) results in significant energy costs, while the increasing use

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of fluctuating renewable energy sources (RESs) threatens the safe ...

With the rapid development of mobile communication, the major operators speed up the pace of network construction, the number of base stations increases significantly, the rapid growth of ...

In today's 5G era, the energy efficiency (EE) of cellular base stations is crucial for sustainable communication. Recognizing this, Mobile Network Operators are actively prioritizing EE for both ...

Therefore, in response to the impact of communication load rate on the load of 5G base stations, this paper proposes a base station energy storage auxiliary power grid peak shaving ...

As China rapidly expands its digital infrastructure, the energy consumed by communication base stations has grown dramatically. Traditionally powered by coal-dominated grid ...

An effective method is needed to maximize base station battery utilization and reduce operating costs. In this trend towards next-generation smart and integrated energy-communication ...

To further explore the energy-saving potential of 5 G base stations, this paper proposes an energy-saving operation model for 5 G base stations that incorporates communication caching and ...

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