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# Reasons for reducing base stations in long-distance communication

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.

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.

How effective are communication base stations in reducing air pollution?

In Figure 5 A, after implementing optimization measures to communication base stations, the cases of COPDs related to air pollution caused by communication base stations in 2021 would be reduced to 13,004 (65% reduction). The effectiveness of these optimizations becomes more pronounced in the following year.

Can a low-carbon base station improve public health?

The results of this study indicate that low-carbon upgrades of base stations can not only significantly reduce the operational costs and carbon emissions of communication systems but also reduce pollution and bring considerable public health benefits. However, this transformation still needs to overcome multidimensional challenges.

With the maturity and large-scale deployment of 5G technology, the proportion of energy consumption of base stations in the smart grid is increasing, and there is an urgent ...

In the communication power supply field, base station interruptions may occur due to sudden natural disasters or unstable power supplies. This work studies the optimization 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 ...

This paper develops a method to consider the multi-objective cooperative optimization operation of 5G communication base stations and Active Distribution Network ...

In brief Wang et al. propose a nationwide low-carbon upgrade strategy for China's communication base stations. Using real-world data and predictive modeling, the study shows ...

Rethinking Infrastructure for the 5G-Advanced Era As global mobile data traffic surges 35% annually, communication base stations face unprecedented demands. Can traditional tower ...

It is important for China's communications industry to reduce its reliance on grid-powered systems to lower base station energy costs and meet national ...

The emergence of 5G networks will drive social change. However, 5G networks require construction of numerous base stations, leading to greater carbon emissions. ...

Therefore, realizing efficient base station control while considering the interference and cooperation

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between base stations and reducing frequent switching remains an open ...

In the communication power supply field, base station interruptions may occur due to sudden natural disasters or unstable ...

Most of the current research is based on the performance of the base station (BS) itself or the operation mode of the communication operator without considering the users' ...

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