

Title: Benefits of green base stations for mobile communications

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Are cellular base stations sustainable?

Multiple requests from the same IP address are counted as one view. Energy efficiency and renewable energy are the main pillars of sustainability and environmental compatibility. This study presents an overview of sustainable and green cellular base stations (BSs), which account for most of the energy consumed in cellular networks.

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.

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 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.

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 ...

In this paper we assess the benefits of adopting renewable energy resources to make telecommunications network greener and cost-efficient, tackling "3E" combination-energy ...

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Saving power in base stations is therefore the primary focus in green cellular networks. The main goal of



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designing green base stations is for saving energy and reducing power consumption ...

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