EIEI POWER

Communication Green Base Station Environmental Assessment Opinion

Overview

Can a 5G base station promote green development of mobile communication facilities?

However, a significant reduction of ca. 42.8% can be achieved by optimizing the power structure and base station layout strategy and reducing equipment power consumption. Overall, this study provides a clear approach to assess the environmental impact of the 5G base station and will promote the green development of mobile communication facilities.

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.

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.

How does a communication base station upgrade affect emissions?

(D) Total emissions of major pollutants (CO 2, NO_x, SO 2, 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.

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Carbon emissions and mitigation potentials of 5G base station ...

Jul 1, 2022 · However, a significant reduction of ca. 42.8% can be achieved by optimizing the power structure and base station layout strategy and reducing equipment power consumption. ...

Research on Carbon Emission of 5G Base Station ...

Jun 21, 2023 · This study builds a carbon emission assessment model for the base station construction based on the life cycle assessment method, and takes 5G base station in ...

T/ZSEIA 15--2023 Evaluation of green and low-carbon

Dec 22, 2023 · Abstract This document stipulates the terms and definitions of green and low-carbon services for communication base stations, the scope of classification for green and low ...

Investigating the Sustainability of the 5G Base Station ...

Jun 9, 2023 · 5G is a high-bandwidth low-latency communication technology that requires deploying new cellular base stations. The environmental cost of deploying a 5G cellular ...

Assessing the Greenhouse Gas Emissions of a Base Station

Apr 30, 2025 · The increasing demand of mobile subscribers and data traffic, especially in 6G, requires the deployment of additional cellular base stations contributing to greenhouse gas ...

Low-Carbon Sustainable Development of 5G Base Stations in ...

May 4, 2024 · Goncalves et al. (2020) explored carbon neutrality evaluation of 5G base stations from the perspective of network structure and carbon sequestration. Despite the growing ...

5G Mobile Communication Base Station Electromagnetic ...

Dec 15, 2023 · Abstract. The current national policies and technical requirements related to electromagnetic radiation administration of mobile communication base stations in China are ...

[China Mobile - Renewable energy and green base station ...]

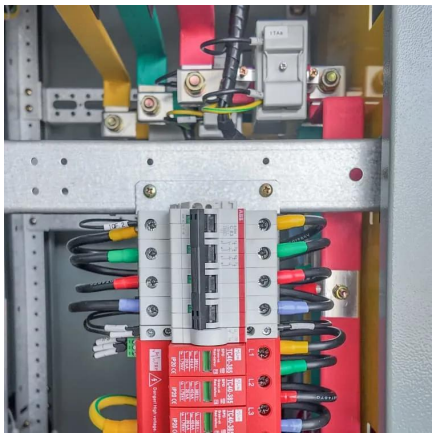
Aug 7, 2025 · China Mobile added 467,000 5G base stations while achieving a 2% reduction in overall base station energy consumption in 2024.

Low-carbon upgrading to China's communications base stations ...

Sep 1, 2025 · Overall, this study provides a clear approach to assess the environmental impact of the 5G base station and will promote the green development of mobile communication facilities.

Low-carbon upgrading to China's communications base stations ...

Nov 21, 2025 · These outcomes demonstrate that upgrading to low-carbon base stations not only ensures economic feasibility but also delivers significant environmental and public health ...



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