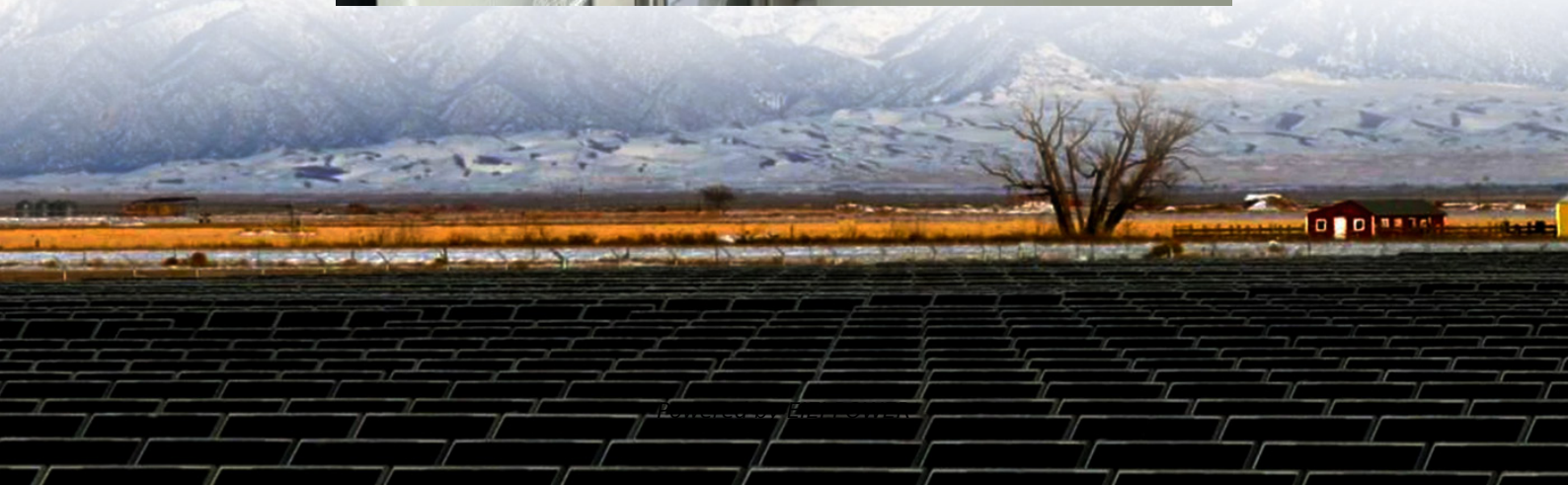


# How to query the distribution of local communication green base stations





## Overview

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While the rapid expansion of China's 5G mobile network helps to speed up the nation's economic and social development, it tends to release more CO<sub>2</sub> due to the 5G's significant energy demand, hampering s.

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 we predict 5G base stations by 2030?

We linked these provincial base stations with provincial Gross Domestic Product (GDP), population (POP), and big data development level (BDDL) and established a statistical model to predict 5G base stations by 2030. The model predicted 2–5 million 5G base stations by 2030, considerably lower than the business-projected base station number.

How much carbon does a 5G base station produce?

Previous research has estimated that a single 5G base station will produce approximately 30.2 ~ 33.5 tCO<sub>2</sub> eq throughout its life cycle (Ding et al., 2022; Guo et al., 2022a). Consequently, the carbon emissions from 5G base stations in China in 2021 amounted to approximately 49.2 MtCO<sub>2</sub> eq.

What is the system boundary of 5G base station?

The system boundary of the CO<sub>2</sub> of 5G base station The civil construction of 5G base stations is typically carried out using the existing infrastructure of 4G base stations, resulting in less material input during the construction phase. The primary focus on carbon emission generation is during the use phase due to power consumption.



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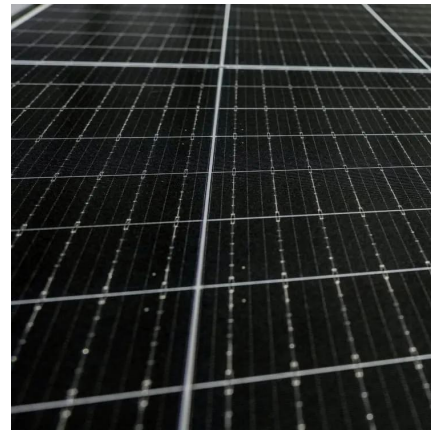


### The carbon footprint response to projected base stations of ...

Apr 20, 2023 · We linked these provincial base stations with provincial Gross Domestic Product (GDP), population (POP), and big data development level (BDDL) and established a statistical ...

### 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 ...



### [On the Spatial Distribution of Base Stations and Its ...](#)

Nov 12, 2021 · ABSTRACT The spatial distribution of base stations (BSs) and traf c demands is essential for ef cient network planning and BS sleeping, which are key elements of green ...

### [Data\\_of\\_base\\_station\\_ , IEEE DataPort](#)

Oct 28, 2025 · LNG and LAT are the longitude and latitude data, respectively, and the location of each base station can be determined according to the ...



### The distribution map of base stations and population in the ...

As the core equipment of the 5G network, 5G base stations provide wireless coverage and realize wireless signal transmission between wired communication networks and wireless terminals.



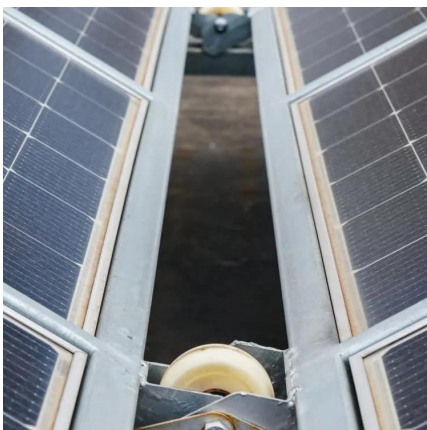
### Cluster Analysis of mobile communication network station ...

Jan 27, 2023 · Nowadays mobile communication technology develops rapidly, the demand for mobile communication network is getting higher and higher. In recent years, China's ...



### The distribution map of base stations and ...

As the core equipment of the 5G network, 5G base stations provide wireless coverage and realize wireless signal transmission between wired ...





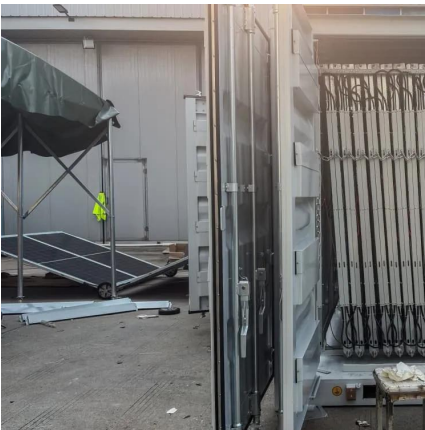
### [Energy-efficiency schemes for base stations in 5G ...](#)

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 ...



### **Distribution map of communication base stations within the ...**

With the rapid development of the digital new infrastructure industry, the energy demand for communication base stations in smart grid systems is escalating daily.



### [Data of base station , IEEE DataPort](#)

Oct 28, 2025 · LNG and LAT are the longitude and latitude data, respectively, and the location of each base station can be determined according to the data under these two categories. This is ...



### [Carbon emissions and mitigation potentials of 5G base ...](#)

Jul 1, 2022 · The carbon emissions are expressed as CO<sub>2</sub> equivalent, or CO<sub>2</sub> e; ii) estimating the carbon emissions caused by 5G base stations' whole lifecycle in China, talking into ...





### [Green networks in action: China Mobile](#)

Nov 19, 2024 · In Shanghai, 5G-A networks powered by AI-driven energy management and new MetaAAU antennas are cutting energy consumption by 30-35% while enhancing mobile ...



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