

How many green base stations are there in China

How many 5G base stations are built in China?

As 5G serves as the foundation for the construction of new infrastructure, China, as the world leader in 5G base station construction, has already built over 1.4 million 5G base stations in 2021 alone. In the same year, 5G base stations in China produced approximately 49.2 million tons of CO₂ eq.

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 tCO₂ 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 MtCO₂ eq.

Are 5G base stations sustainable?

However, due to their high radio frequency and limited coverage, the construction and operation of 5G base stations can lead to significant energy consumption and greenhouse gas emissions. To address this challenge, scholars have focused on developing sustainable 5G base stations.

What is the system boundary of 5G base station?

The system boundary of the CO₂ 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.

What is the scope of a 5G base station?

Scope: The scope of the entire lifecycle of the 5G base station includes the materials and equipment manufacturing, transportation and operation, which excludes the end-of-life stage. Both a single 5G macro base station and a 5G micro base station are included.

What will China's base stations be like in 2021?

The construction of base stations in China has continued to grow rapidly since 2019. From 2021 to 2030, cumulative carbon emissions during the operational phase will be 710~750 MtCO₂ e, and cumulative carbon emissions during the manufacturing phase will be 102~125 MtCO₂ e, accounting for 87% and 13%, respectively.

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Through these interventions, China Mobile added 467,000 5G base stations while achieving a 2% reduction in overall base station energy consumption in 2024, demonstrating the ability to ...

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By 2020, China has established over 718,000 5G base stations, and this number is expected to increase exponentially between 2021 and 2025 due to the nation's determination ...

China plans to construct over 4.5 million 5G base stations in 2025 while introducing additional policy and financial incentives to support industries expected to shape the next ...

The total number of 5G base stations in China reached 4.486 million as of the end of May (2025), according to data released by the country's Ministry of Industry and Information ...

As of the end of 2020, the total number of mobile communication base stations in China reached 9.31 million. Of these, there are 5.75 million 4G base stations, and more than 718,000 5G base ...

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