

# **China s 5G base station electricity consumption ranking**





## Overview

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- Rapid development of 5G mobile network in China needs substantially high energy supply.

How much energy does a 5G base station use?

China Mobile's measurement report<sup>9</sup> indicates that the energy consumption of a 5G base station is 4.3 kWh, which is four times that of a 4G base station at 1.1 kWh. One 5G base station is estimated to produce 30 t of carbon emissions in one year of operation<sup>10</sup>.

How much carbon is produced by 5G in China?

which is four times that of a 4G base station at 1.1 kWh. One 5G base station is estimated to produce 30 t of carbon emissions in one year of operation<sup>10</sup>. Thus, 5G networks in China are roughly estimated to produce over 60 Mt of carbon emissions annually at the national level<sup>11</sup>.

How much electricity will China's 5G network consume in 2030?

Under the scenario of business-estimated six million base stations in 2030, the share of electricity consumed by China's 5G networks in 2030 could reach 8.4 % of the national total power generation, causing 0.44 GtCO<sub>2</sub> /yr CO<sub>2</sub> emissions.

How much electricity does China use per base station?

For China, based on a single base station power's energy consumption of 11.5 kWh (Huawei, 2019), we estimate that the electricity consumed by its 5G network by 2030 will be  $6.04 \times 10^5$  GW for 6 million base stations, the equivalent of 8.4 % of China's national total power generation in 2019, respectively.



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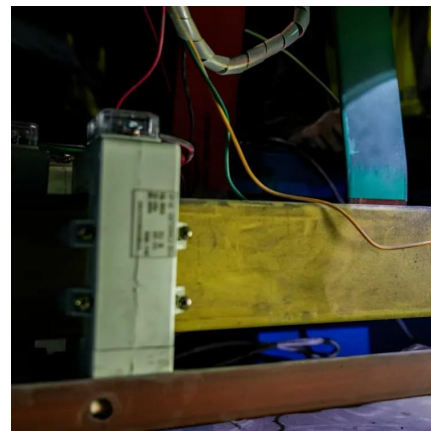
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### **5G Base Station**

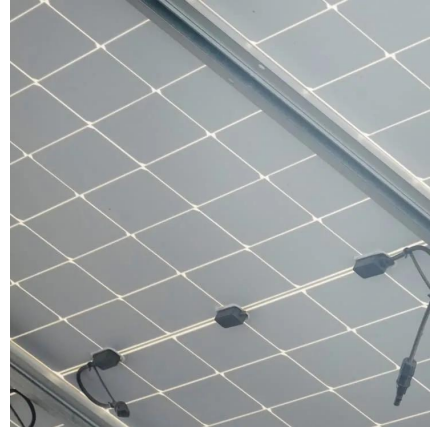
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China Mobile's measurement report 9 indicates that the energy consumption of a 5G base station is 4.3 kWh, which is four times that of a 4G base station at 1.1 kWh. One 5G base station is ...



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## The carbon footprint response to projected base stations of China's 5G

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

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