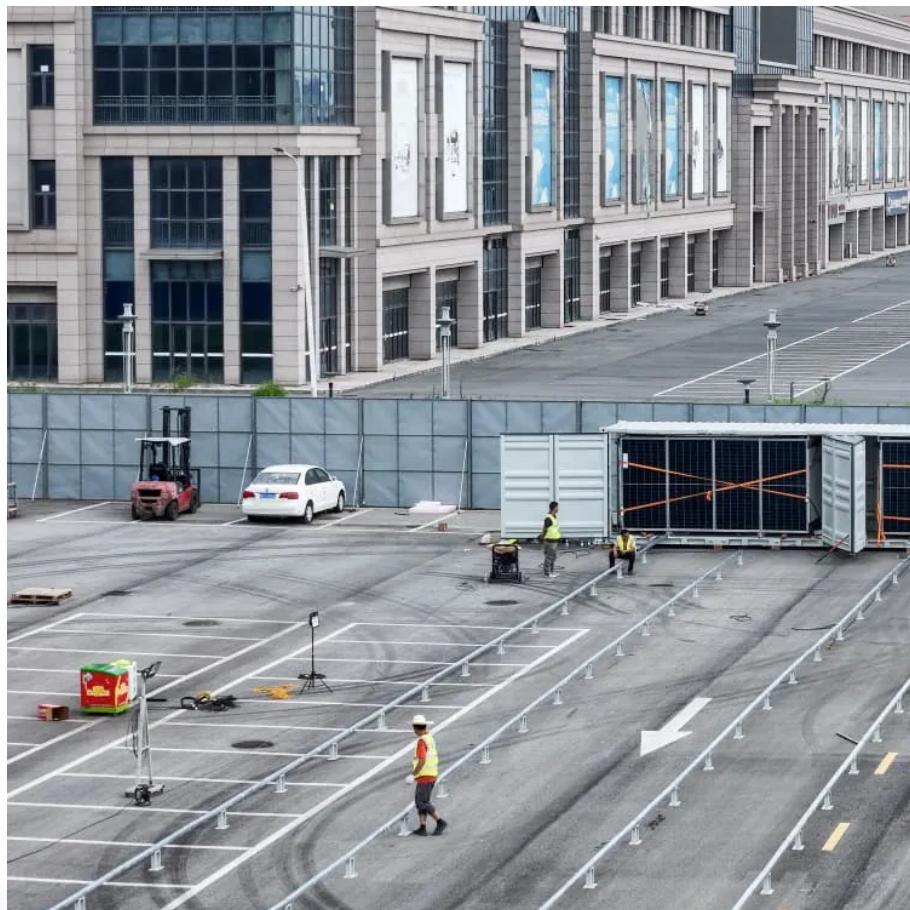




MODERNIZATION SOLAR

# China Hybrid Energy Network 5G Base Station





## Overview

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We decomposed the CO<sub>2</sub> footprint of China's 5G networks and assessed the contribution of the number of 5G base stations and mobile data traffic to 5G-induced CO<sub>2</sub> emissions. We find that increasing.

Does China have a 5G network?

Given that China currently has the largest 5G network in the world (~1.53 million base stations by the end of 2021, Table S1) and that base station number was projected by up to 6-8 million by 2030 (CCID Consulting, 2020), concerns are being expressed regarding 5G mobile networks' environmental effects and sustainability.

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 CO<sub>2</sub> eq.

How much CO<sub>2</sub> will China's 5G network produce?

Under the model predicted 5G base stations, China's 5G network could yield 0.15-0.29 GtCO<sub>2</sub> /yr emissions subject to the nation's BDDL from 40 to 80 % by 2030. Both 5G base stations and CO<sub>2</sub> emissions are significantly lower than the previous estimates.

What is a 5G communication base station?

The 5G communication base station can be regarded as a power consumption system that integrates communication, power, and temperature coupling, which is composed of three major pieces of equipment: the communication system, energy storage system, and temperature control system.



## China Hybrid Energy Network 5G Base Station



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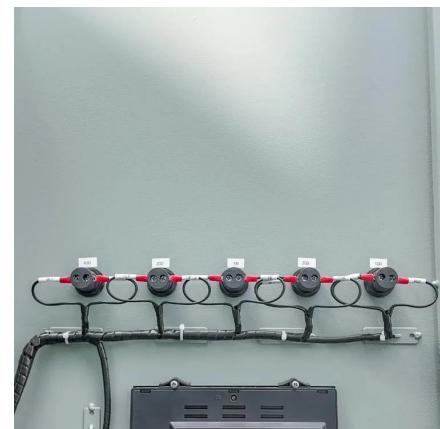


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## On hybrid energy utilization for harvesting base station in 5G networks

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## China Hybrid Energy 5G Base Station 2025

Oct 30, 2025 · 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 ...



## China Mobile - Renewable energy and green base station ...

Aug 7, 2025 · 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 ...



## Why China Hybrid Energy is building 5G base stations

As 5G networks expand, hybrid inverters will play a pivotal role in powering next-gen base stations--providing stable, cost-effective, and green energy solutions that support the telecom



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