

# **5G base stations consume more electricity than 4G base stations**





## Overview

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Are 5G base stations causing more energy consumption?

However, Li says 5G base stations are carrying five times the traffic as when equipped with only 4G, pushing up power consumption. The carrier is seeking subsidies from the Chinese government to help with the increased energy usage.

Will MIMO increase the energy consumption of 5G base stations?

As a result, there are many more hardware components per base station. Björnson believes this will probably increase the total energy consumption of 5G base stations compared to 4G. But as massive MIMO technology develops, its energy efficiency may also improve over time.

Does 5G increase energy consumption?

However, this technological leap comes with a substantial increase in energy consumption. Compared to its predecessor, the fourth-generation (4G) network, the energy consumption of the 5G network is approximately three times higher .

Does 5G New Radio save energy?

Emerging use cases and devices demand higher capacity from today's mobile networks, leading to increasingly dense network deployments. In this post, we explore the energy saving features of 5G New Radio and how this enables operators to build denser networks, meet performance demands and maintain low 5G energy consumption.



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The 5G Dilemma: More Base Stations, More Antennas--Less Energy?

Oct 3, 2018 · 5G networks will likely consume more energy than 4G, but one expert says the problem may not be as bad as it seems

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5G base stations use a lot more energy than 4G base stations...

Apr 3, 2020 · A typical 5G base station consumes up to twice or more the power of a 4G base station, writes MTN Consulting Chief Analyst Matt Walker in a new report entitled " Operators ...

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How Much Power Does 5G Base Station Consume?

Aug 26, 2023 · The Silent Energy Crisis in Mobile Networks Have you ever wondered how much energy our hyper-connected world is consuming? 5G base stations, the backbone of next-gen ...

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A technical look at 5G energy consumption and performance

Sep 17, 2019 · 5G New Radio (NR) is designed to enable denser network deployments and simultaneously deliver increased energy efficiency, thus reducing both operational costs and ...

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Why does 5g base station consume so much ...

Apr 3, 2025 · Huawei and ZTE's 5G base stations have a 100% load power consumption of 3852.5W and 3674.85W, respectively, while ZTE's 4G ...

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Optimal energy-saving operation strategy of 5G base station ...

Dec 1, 2025 · Moreover, the energy consumption of 5 G network base stations accounts for more than 60 % of the total energy consumption of the entire communication network, posing a ...

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Sustainable Connections: Exploring Energy Efficiency in ...

Dec 24, 2024 · Xu et al. [19] measured six 5G base stations and three 5G phone models, showing that the power consumption of 5G escalates to 2-3 times that of 4G, which aligns with our ...

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A technical look at 5G energy consumption and performance

Base Station Power ConsumptionEnergy Saving Features of 5G New RadioHow Much Energy Can We Save with Nr Sleep Modes?Impact on Energy Efficiency and Performance in A Super Dense Urban ScenarioFurther ReadingThe 5G NR standard has been designed based on the knowledge of the typical traffic activity in radio networks as well as the need to support sleep states in radio network equipment. By putting the base station into a sleep state when there is no traffic to serve i.e. switching off hardware components, it will consume less energy. The more component See more on ericsson fierce-network 5G base stations use a lot more energy than ...Apr 3, 2020 · A typical 5G base station consumes up to twice or more the ...

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Power consumption based on 5G communication

Oct 17, 2021 · At present, 5G mobile traffic base stations in energy consumption accounted for



60% ~ 80%, compared with 4G energy consumption increased three times. In the future, high ...

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What is the Power Consumption of a 5G Base Station?

Nov 15, 2024 · Compared to its predecessor, 4G, the energy demand from 5G base stations has massively grown owing to new technical requirements needed to support higher data rates ...

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Why does 5g base station consume so much power and how ...

Apr 3, 2025 · Huawei and ZTE's 5G base stations have a 100% load power consumption of 3852.5W and 3674.85W, respectively, while ZTE's 4G base station has a power consumption ...

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Modelling the 5G Energy Consumption Using Real-world ...

Sep 15, 2025 · Accurate energy consumption modeling is essential for developing energy-efficient strategies, enabling operators to optimize resource utilization while maintaining network ...

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The 5G Dilemma: More Base Stations, More ...

Oct 3, 2018 · 5G networks will likely consume more energy than 4G, but ...

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