

# Annual power consumption of 5G base stations



## Overview

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How much power does a 5G base station consume?

That's almost a threefold increase compared to 4G (5). One 5G base station is estimated to consume about as much power as 73 households (6), and 3x as much as the previous generation of base stations (5), (7).

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.

Does China Mobile have a 5G base station?

China Mobile has tried using lower cost deployments of MIMO antennas, specifically 32T32R and sometimes 8T8R rather than 64T64R, according to MTN. However, Li says 5G base stations are carrying five times the traffic as when equipped with only 4G, pushing up power consumption.

How will 5G affect the energy consumption of mobile operators?

Edge compute facilities needed to support local processing and new internet of things (IoT) services will also add to overall network power usage. Exact estimates differ by source, but MTN says the industry consensus is that 5G will double to triple energy consumption for mobile operators, once networks scale.

How much electricity does 5G use?

To achieve gigabit speeds, the plan with 5G is to have it operate at very high frequencies of 24-26 Gigahertz. For this reason, 5G requires millions of new so-called "small cells," for example, transmitters in lampposts. Billions of new wireless devices will soon be available worldwide. All of the above consumes electricity.

## What is the role of 5G in the UK?

The simulation results show that 700 MHz and 26 GHz will play an important role in 5G deployment in the UK, which allow base stations to meet short-term and long-term data traffic demands respectively.

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