

5G base stations are overloaded with electricity





Overview

How much power does a 5G station use?

The power consumption of a single 5G station is 2.5 to 3.5 times higher than that of a single 4G station. The main factor behind this increase in 5G power consumption is the high power usage of the active antenna unit (AAU). Under a full workload, a single station uses nearly 3700W.

Why does 5G use more power than 4G?

The data here all comes from operators on the front lines, and we can draw the following valuable conclusions: The power consumption of a single 5G station is 2.5 to 3.5 times higher than that of a single 4G station. The main factor behind this increase in 5G power consumption is the high power usage of the active antenna unit (AAU).

How does mobile data traffic affect the energy consumption of 5G base stations?

The explosive growth of mobile data traffic has resulted in a significant increase in the energy consumption of 5G base stations (BSs).

What is 5G BS power consumption?

The 5G BS power consumption mainly comes from the active antenna unit (AAU) and the base band unit (BBU), which respectively constitute BS dynamic and static power consumption. The AAU power consumption changes positively with the fluctuation of communication traffic, while the BBU power consumption remains basically unchanged , , .

What is 5G base station?

1. Introduction 5G base station (BS), as an important electrical load, has been growing rapidly in the number and density to cope with the exponential growth of mobile data traffic . It is predicted that by 2025, there will be about 13.1 million BSs in the world, and the BS energy consumption will reach 200



billion kWh .

What is a minimal 5G BS energy consumption optimization model?

Therefore, the problem can be formulated as a minimal 5G BS energy consumption optimization model, i.e., the energy consumption reduced by reasonably switching off the idle or lightly loaded BSs and reasonably associate UEs with BSs (i.e., the BS switching state and BS-UE association state scheme).



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[Is 5G a waste of electricity? Experts say it's complicated](#)

A 5G base station consumes "four times more electricity" than its 4G counterpart, said Ding Haiyu, head of wireless and terminals at the China Mobile Research Institute, during a ...

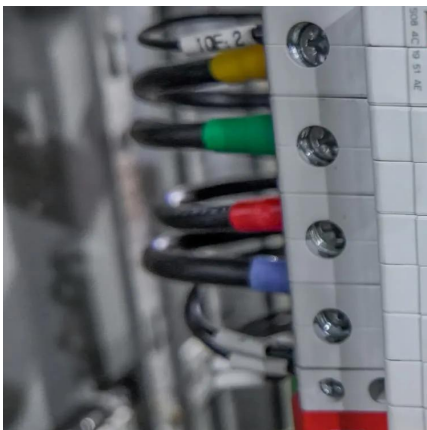
[Multi-objective interval planning for 5G base station virtual ...](#)

As an emerging load, 5G base stations belong to typical distributed resources [7]. The in-depth development of flexi-bility resources for 5G base stations, including their internal energy ...



Massive metamaterial system-loaded MIMO antenna array for 5G base stations

An integrated massive multiple-input multiple-output (mMIMO) antenna system loaded with metamaterial (MTM) is proposed in this article for fifth-generation (5G) applications.



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Abstract 5G base stations (BSs) are potential flexible resources for power systems due to their dynamic adjustable power consumption.



However, the ever-increasing energy consumption ...

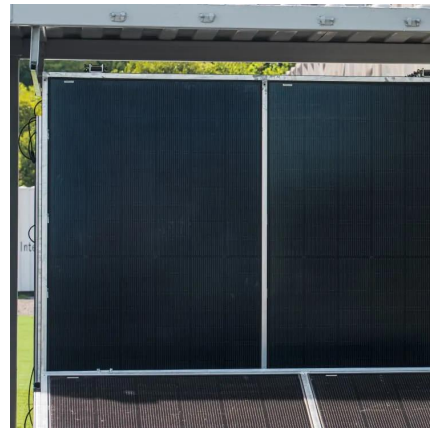


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