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Can photovoltaic energy storage reduce energy consumption cost of 5G base station?

Ye G. Research on reducing energy consumption cost of 5G Base Station based on photovoltaic energy storage system. In: 2021 IEEE International Conference on Computer Science, Electronic Information Engineering and Intelligent Control Technology (CEI), Fuzhou, China, 2021. p. 480-484.

What is a 5G base station?

Photovoltaic (PV)-storage integrated 5G base station (BS) can participate in demand response on a large scale, conduct electricity transaction and provide auxiliary services, thus reducing the high electricity consumption of 5G BSs and increasing the flexibility resource capacity of the distribution network.

Are 5G base stations more energy efficient than 4G BSS?

However,due to the utilization of massive antennas and higher frequency bands,the energy consumption of 5G base stations (BSs) is much higherthan that of 4G BSs,which incurs huge operation costs and significantly increases carbon emissions under traditional power supply mode .

What is the energy storage planning capacity of large-scale 5G BS?

In Case 2,the total optimal energy storage planning capacity of large-scale 5G BSs in commercial,residential,and working areas is 9039.20 kWh,and the corresponding total rated power is 1807.84 kW. The total energy storage planning capacity of large-scale 5G BSs in Case 3 is 7742 kWh,which is 14.35% lower than that of Case 2.

Why do 5G BSS use battery energy storage systems?

The reason is that 5G BSs are configured with battery energy storage systems to store low-cost electricity. Moreover,the PV energy curtailment is significantly reduced in Case 2,and the PV absorption rate is effectively increased by planning battery energy storage systems.

Can photovoltaic & 5G BS be integrated?

The integration of photovoltaic (PV) and 5G BSs is expected to be an effective way to reduce energy costs of communication networks , , , which can reduce the reliance of 5G BS power supply on smart distribution network .

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