

Kongres Container

Swisscom solar Base Station Energy Storage



Overview

By installing solar photovoltaic panels at the base station, the solution converts solar energy into electricity, and then utilizes the energy storage system to store and manage the electricity, ensuring 24-hour uninterrupted power supply for the 5G base station. 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.

Can shared energy storage system capacity planning and operation be decoupled?

A bi-level optimization framework of capacity planning and operation costs of shared energy storage system and large-scale PV integrated 5G base stations is proposed to realize the decoupling of shared energy storage system capacity planning and operation from 5G base station operation.

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.

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.

Can telecommunication operators afford a shared energy storage system?

However, on the basis of the high energy costs encountered by large-scale 5G BSs, telecommunication operators can hardly afford the additional investment cost of energy storage systems. The shared energy storage (SES) system leverages the nature of the sharing economy to gain benefits by fully utilizing idle energy storage capacity resources.

Can 5G BS sell surplus PV energy to SES operator?

3) Average daily electricity trading revenue with large-scale PV integrated 5G BSs In order to guarantee the safe and stable operation of smart distribution network, 5G BSs are only allowed to sell the surplus PV energy to SES operator. Moreover, direct curtailment of surplus PV energy will encounter the PV power curtailment penalty.

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