

Base station power supply supporting construction period

Does a 5G base station use energy storage power supply?

In this article, we assumed that the 5G base station adopted the mode of combining grid power supply with energy storage power supply.

Can a bi-level optimization model maximize the benefits of base station energy storage?

To maximize overall benefits for the investors and operators of base station energy storage, we proposed a bi-level optimization model for the operation of the energy storage, and the planning of 5G base stations considering the sleep mechanism.

How to optimize energy storage planning and operation in 5G base stations?

In the optimal configuration of energy storage in 5G base stations, long-term planning and short-term operation of the energy storage are interconnected. Therefore, a two-layer optimization model was established to optimize the comprehensive benefits of energy storage planning and operation.

What happens when a base station is in active state?

1) When the base station is in active state, its power loss P_{active} consists of transmitting power P_{tx} and inherent power P_{fix} . With an increase in the communication load of the base station, the corresponding transmitting power P_{tx} increases linearly.

Why does a base station have a low power load?

Therefore, when the electricity price was at its peak, the base station system had a low power load and would discharge to the grid in part of the time. Conversely, when the electricity price was at its low, the base station system had a high power load.

Why do cellular base stations have backup batteries?

[...] Cellular base stations (BSs) are equipped with backup batteries to obtain the uninterruptible power supply (UPS) and maintain the power supply reliability. While maintaining the reliability, the backup batteries of 5G BSs have some spare capacity over time due to the traffic-sensitive characteristic of 5G BS electricity load.



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