

Case Study of Energy Storage System for Communication Base Station



Overview

What are the parameters of BS Energy Storage?

The channel bandwidth B allocated by the user is 1 MHz, the upper limit of the BS's traffic processing capacity L_{\max} is 10.4 Mbps, and the traffic demand L_j of a single user is 100 Mbps. The detailed parameters of the BS energy storage are shown in Table 1. ω is taken as small as 0.14 Yuan/kWh to encourage energy storage participation.

What is a distributed collaborative optimization approach for 5G base stations?

In this paper, a distributed collaborative optimization approach is proposed for power distribution and communication networks with 5G base stations. Firstly, the model of 5G base stations considering communication load demand migration and energy storage dynamic backup is established.

What is a collaborative optimal operation model of 5G base stations?

Afterward, a collaborative optimal operation model of power distribution and communication networks is designed to fully explore the operation flexibility of 5G base stations, and then an improved distributed algorithm based on the ADMM is developed to achieve the collaborative optimization equilibrium.

How to set the backup time of BS Energy Storage?

The backup time of the BS energy storage should be set according to the power supply reliability of the distribution network where BS is connected. For example, in areas with high power supply reliability, the backup time of energy storage can be reduced. Fig. 3. Schematic diagram of energy storage capacity division of BS.

Does increased energy storage capacity reduce the total system operation cost?

The increased BS energy storage capacity can reduce the total system

operation cost. However, for CO, with the increased energy storage capacity, its total cost shows a gentle V-shaped trend, so CO needs to find a compromised optimal energy storage capacity.

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