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Latest on distributed power generation for Chilean communication base stations



Overview

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 the energy consumption of 5G communication base stations?

Overall, 5G communication base stations' energy consumption comprises static and dynamic power consumption. Among them, static power consumption pertains to the reduction in energy required in 5G communication base stations that remains constant regardless of service load or output transmission power.

What are distributed energy resources in Chile?

Distributed energy resources in Chile can be classified into two categories. The first includes power plants with an installed capacity of up to 9 MW, connected to the electricity grid via distribution lines within the area served by the distribution company (PMGD, in Spanish) or via transmission lines (PMG, in Spanish).

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.

What equipment is used in a 5G base station?

AAU is the most energy-consuming equipment in 5G base stations, accounting for up to 90% of their total energy consumption. Auxiliary equipment includes

power supply equipment, monitoring and lighting equipment. The power supply equipment manages the distribution and conversion of electrical energy among equipment within the 5G base station.

What is the equipment composition of a 5G communication base station?

Figure 1 illustrates the equipment composition of a typical 5G communication base station, which mainly consists of 2 aspects: a communication unit and a power supply unit.

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