Base station power coordination and cooperation capabilities

Is Dn voltage control a co-regulation method for base station energy storage?
However,these storage resources often remain idle,leading to inefficiency. To enhance the utilization of base station energy storage (BSES),this paper proposes a co-regulation method for distribution network(DN) voltage control,enabling BSES participation in grid interactions.

How much energy does a communication base station use?
In this region, the communication base stations are equipped with energy storage systems with a rated capacity of 48 kWh and a maximum charge/discharge power of 15.84 kW. The self-discharge efficiency is set at 0.99, and the state of charge (SOC) is allowed to range between a maximum of 0.9 and a minimum of 0.1. Figure 3.

What are the basic parameters of a base station?
The fundamental parameters of the base stations are listed in Table 1. The energy storage battery for each base station has a rated capacity of 18 kWh, a maximum charge/discharge power of 3 kW, a SOC range from 10% to 90%, and an efficiency of 0.85.

How does distributed execution affect base station control?
In the distributed execution phase,each actor network makes decisions independently based only on its own network and observations,and although each actor executes independently,the whole system is able to obtain a better base station control strategybecause their strategies are based on the results of global optimization. Fig. 2.

To enhance the utilization of base station energy storage (BSES), this paper proposes a co-regulation method for distribution network (DN) voltage control, enabling BSES ...

To enhance the utilization of base station energy storage (BSES), this paper proposes a co-regulation method for distribution ...

By adopting a user association and sleep strategy in this paper, BS power consumption can be reduced and the power system can allocate more power resources to ...

To achieve coexistence between the two services, this paper proposes a power control scheme based on partitioning, dividing ground base stations into several regions and ...

BS cooperation, known as coordinated multipoint (CoMP) in 3GPP, is a technique to mitigate/exploit interference by coordinating the signal transmission or enabling the joint ...

To achieve "carbon peaking" and "carbon neutralization", access to large-scale 5G communication base stations brings new challenges to the optimal operation of new power ...

Aiming at the problem of mobile data traffic surge in 5G networks, this paper proposes an effective solution combining massive multiple-input multiple-output techniques ...

To address the high-dimensional, discrete and continuous space coupled, large-scale search problem, a novel Dual-Color Bat Algorithm (DCBA) has been designed. DCBA is ...

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Abstract This work focuses on a large-scale multi-cell multi-user MI MO system in which L base stations (BSs) of N antennas each communicate with K single-antenna user equipments.

This paper investigates the demand response potential within base stations, focusing on AAU module shutdown and connection adjustments as strategies to balance ...

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