

# Communication base station energy storage power generation range

How does a base station work?

As shown in Figure S3 each user accesses a base station, and the BS then allocates a channel to each new user when there is remaining channel capacity. If all of the channel capacity of a BS is occupied, a user cannot access this BS and must instead access another BS that is farther away.

Can communication and power coordination planning improve communication quality of service?

Our study introduces a communications and power coordination planning (CPCP) model that encompasses both distributed energy resources and base stations to improve communication quality of service.

What is the access mechanism between EMCs and BSS?

To describe the access mechanism between the EMCs and the BSs, we introduce an  $N_b \times N_m$  connection matrix  $A$ , where  $N_m$  is the EMCs number and  $N_b$  is the number of power towers which is also the number of candidate locations for base stations. It is not necessary for all power towers to be selected as communication power sharing towers.

Why are power systems and communication systems increasingly coupled?

Therefore, power systems and communication systems are increasingly coupled. A power system supplies energy, and a communication system meets the demand for information exchange. A BS is the main intermediary between a communication network and a power network.

How many Bs can an EMC access?

Constraint (6) means that each EMC can access only one BS. Constraint (7) means that the number of EMCs accessing BS  $n$  is equal to the total state variables of the  $n$ th column of the matrix  $A$ . The capacity of each BS is  $D_{cap}$ .

Do heterogeneous BS channel allocation strategies exist for different users?

Secondly, this study lacks of exploration regarding the heterogeneous BS channel allocation strategies for different users. In practice, users within a communication network often exhibit diverse requirements and characteristics, and their BS channel allocation needs may vary accordingly.

To further explore the energy-saving potential of 5 G base stations, this paper proposes an energy-saving operation model for 5 G base stations that incorporates communication caching ...

The analysis results show that the participation of idle energy storage of 5G base stations in the unified optimized dispatch of the distribution network can reduce the electricity cost of 5G base ...

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