Electricity of civil and private communication base stations

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.

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 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.

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 s × N m g connection matrix A,where N m g is the EMCs number and N b s 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.

What is the role of communication infrastructure in modern power systems?
This research underscores the crucial role of efficient communication infrastructure in modern power systems and presents a comprehensive approach that can be used to plan and operate both communication and power systems, ultimately leading to more resilient, efficient, and reliable networks.

Does the power consumption of a BS increase linearly?
The power consumption of BS n increases linearly with its total transmit power,including all subcarriers. Intuitively,the power load of a BS has a linear relationship with its communication load. In this paper,the BS access scheme is modelled via OFDMA. Note that the use of OFDMA is convenient for performance evaluation.

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