

Do cellular network operators prioritize energy-efficient solutions for base stations?

Recognizing this, Mobile Network Operators are actively prioritizing EE for both network maintenance and environmental stewardship in future cellular networks. The paper aims to provide an outline of energy-efficient solutions for base stations of wireless cellular networks.

What is base station energy consumption index (ECI)?

Brief description about components of the base station Energy Consumption Index (ECI)--It represents the efficiency of BS power utilization. The lower value of ECI means greater EE as mentioned in Eq. 6 below. Its unit is J/bit.

What is the access mechanism between EMCs and BSS?

To describe the access mechanism between the EMCs and the BSs, we introduce an $N_{bs} \times N_{mg}$ connection matrix A , where N_{mg} is the EMCs number and N_{bs} 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.

Is communication reliability a CR-restricted coordinated operation strategy?

In our previous work,²¹ we introduced the modeling of communication reliability (CR) to capture the mutual impacts of cyber-physical systems, and proposed a CR-restricted coordinated operation strategy in active distribution networks.

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} .

Abstract Base stations represent the main contributor to the energy consumption of a mobile cellular network. Since traffic load in mobile networks significantly varies during a working or ...

In today's 5G era, the energy efficiency (EE) of cellular base stations is crucial for sustainable communication. Recognizing this, Mobile Network Operators are actively prioritizing EE for ...

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