



**NKOSITHANDILEB SOLAR**

# **Base station power communication**



## Overview

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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.

Why do cellular base stations have backup batteries?

[. ] Cellular base stations (BSs) are equipped with backup batteries to obtain the uninterruptible power supply (UPS) and maintain the power supply reliability. While maintaining the reliability, the backup batteries of 5G BSs have some spare capacity over time due to the traffic-sensitive characteristic of 5G BS electricity load.

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  $N_{b,s} \times N_{m,g}$  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.

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