

## SolarInnovate Energy Solutions

# What does backup power supply for base stations mean



## Overview

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Telecom batteries refer to batteries that are used as a backup power source for wireless communications base stations. Can a battery group be used as a backup power supply?

In practice, the battery groups (either traditional lead-acid batteries or emerging lithium ones) are deployed as the backup power supply of BSs. In our scenario, one battery group could be shared by multiple BSs nearby to exploit the statistical multiplexing gain, and the multiple BSs sharing the same battery group form a virtual cell (VC).

How does a battery group work in a base station?

The equipment in base stations is usually supported by the utility grid, where the battery group is installed as the backup power. In case that the utility grid interrupts, the battery discharges to support the communication switching equipment during the period of the power outage.

Why are backup batteries important?

These power demands, from one side, are satisfied by the power grid, and are safeguarded by backup batteries from the other side. As the power from the grid does not necessarily guarantee 100% uptime, the backup power provided by batteries is playing an important role.

Is there a mismatch between backup batteries and power outages?

Our real trace-driven data analysis clearly reveals that in the battery allocation strategy currently used in practice, there exists a mismatch between the supporting ability of backup batteries and the power outage situations in each base station. The mismatch can lead to serious problems in base stations.

How many base stations and backup battery features are there?

In this paper, we closely examine the base station features and backup

battery features from a 1.5-year dataset of a major cellular service provider, including 4,206 base stations distributed across 8,400 square kilometers and more than 1.5 billion records on base stations and battery statuses.

Why are base stations important?

Base stations play a key role in 4G/5G communications , , edge computing and vehicular network based applications . Their reliability and availability heavily depend on the electrical power supply, for such modules as transceivers, air conditioners, monitoring system are all power hungry.

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