

## ContainerPower Energy Solutions

# Batteries replaced from communication base stations



## Overview

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Operators are aggressively replacing lead-acid batteries with lithium-ion variants, driven by 60% higher energy density and 50% longer cycle life. Can repurposed EV batteries be used in communication base stations?

Among the potential applications of repurposed EV LIBs, the use of these batteries in communication base stations (CBSs) is one of the most promising candidates owing to the large-scale onsite energy storage demand ( Heymans et al., 2014; Sathre et al., 2015 ).

How much energy does a communication base station use a day?

A small-scale communication base station communication antenna with an average power of 2 kW can consume up to 48 kWh per day. 4,5,6 Therefore, the low-carbon upgrade of communication base stations and systems is at the core of the telecommunications industry's energy use issues.

Will communication base stations reduce electricity consumption?

Our findings revealed that the nationwide electricity consumption would reduce to 54,101.60 GWh due to the operation of communication base stations (95% CI: 53,492.10–54,725.35 GWh) (Figure 2 C), marking a reduction of 35.23% compared with the original consumption. We also predicted the reduction of pollutant emissions after the upgrade.

How does a base station work?

In this scheme, the base station is powered by solar panels, the electrical grid, and energy storage units to ensure the stability of energy supply. When there is a surplus of energy supply, the excess electricity generated by the solar panels is stored in the energy storage units.

Do communication base station operations increase electricity consumption in China?

Comparing data from 2021, 2025, and 2030, 41 we found that the electricity

consumption due to communication base station operations in China increased annually.

How many telecom base stations are there in China in 2024?

In 2024, the number of telecom base stations in China is expected to increase to 12.65 million. Based on this, we estimate that the total electricity consumption of telecom base stations in China in 2024 will be 146,242.621 GWh.

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