

# How to save energy in base station communication equipment





## Overview

---

What is the energy-saving technology of base stations?

This technical report focuses on energy-saving technology of base stations. Some energy saving technologies since 4G era will be explained in details, while artificial intelligence and big data technology will be introduced in response to the requirement of an intelligent and self-adaptive energy saving solution.

How can a base station save energy?

There are two main methods of base station energy saving, including hardware and software.

What are the standardized energy-saving metrics for a base station?

(1) Energy-saving reward: after choosing a shallower sleep strategy for a base station, the system may save more energy if a deeper sleep mode can be chosen, and in this paper, the standardized energy-saving metrics are defined as (18)  $R_{ie} = E_{SM} - 0 E_{SM} = i E_{SM} - 0 E_{SM} = 3$ .

Why do base stations waste so much energy?

When there is little or no communication activity, base stations typically consume more than 80% of their peak power consumption, leading to significant energy waste . This energy waste not only increases operational costs, but also burdens the environment, which is contrary to global sustainability goals .



## How to save energy in base station communication equipment

---



### [Research on Energy-Saving Technology for Unmanned ...](#)

Dec 18, 2023 · A energy-saving and heat dissipation technology is proposed, which can not only save a lot of electricity bills, reduce electricity costs, and reduce operating costs for Iron Tower ...

### [Optimal energy-saving operation strategy of 5G base station ...](#)

Dec 1, 2025 · To further explore the energy-saving potential of 5 G base stations, this paper proposes an energy-saving operation model for 5 G base stations that incorporates ...



### [Proactive Energy Saving Technique for Cellular Base ...](#)

May 3, 2023 · Abstract The increasing demand of communication infrastructure is increasing the power consumption in a cellular base station. Smart management of running devices in base ...



### [Final draft of deliverable D.WG3-02-Smart Energy Saving ...](#)

May 7, 2021 · Change Log This document contains Version 1.0 of the ITU-T Technical Report on "Smart Energy Saving of 5G Base Station: Based on AI and other emerging technologies to ...



### Base Station Energy Efficiency: Key Strategies for Sustainable ...

Aug 25, 2025 · Modern base station equipment is designed with energy-saving technologies such as high-efficiency power amplifiers, low-loss cables, and intelligent control systems.



### Optimization Control Strategy for Base Stations Based on Communication

Mar 31, 2024 · On the basis of ensuring smooth user communication and normal operation of base stations, it realizes orderly regulation of energy storage for large-scale base stations, ...



### Energy-saving control strategy for ultra-dense network base stations

Aug 1, 2025 · Threshold-based base station sleep strategy is a common base station management method in wireless communication networks, which adjusts the operating state ...



### [Energy-efficiency schemes for base stations in 5G ...](#)

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 ...



### [Optimization strategy of base station energy consumption ...](#)

May 13, 2024 · This article focuses on the optimized operation of communication base stations, especially the effective utilization of energy storage batteries. Currently, base station energy ...

## Contact Us

---

For catalog requests, pricing, or partnerships, please visit:  
<https://woodgoods.pl>

**Scan QR Code for More Information**



<https://woodgoods.pl>