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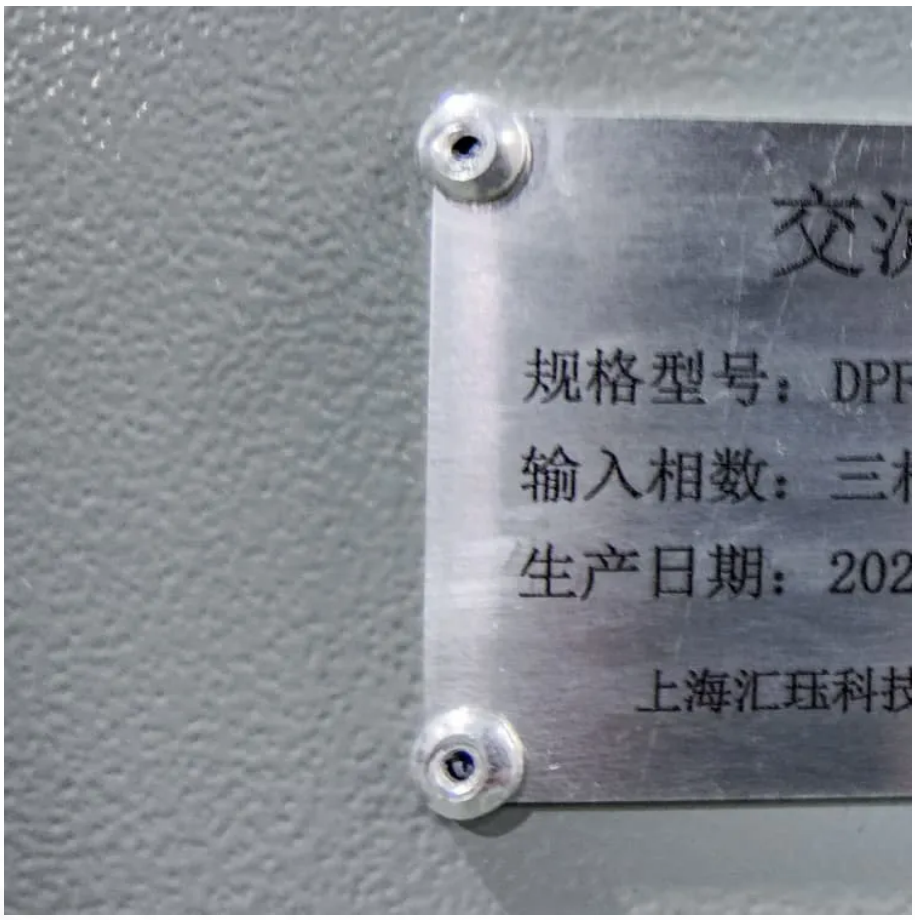
Smartly shut down 5g base stations to save electricity



Overview

Can network energy saving technologies mitigate 5G energy consumption?

This technical report explores how network energy saving technologies that have emerged since the 4G era, such as carrier shutdown, channel shutdown, symbol shutdown etc., can be leveraged to mitigate 5G energy consumption.

Is a 5G energy saving solution enough?

It also analyses how enhanced technologies like deep sleep, symbol aggregation shutdown etc., have been developing in the 5G era. This report aims to detail these fundamentals. However, it is far away from being enough, a revolutionized energy saving solution should be taken into consideration.

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.

What is base station energy saving?

There are mainly two method of base station energy saving, which are hardware power saving and software energy saving. It is based on lowering the basic energy consumption of the base station.

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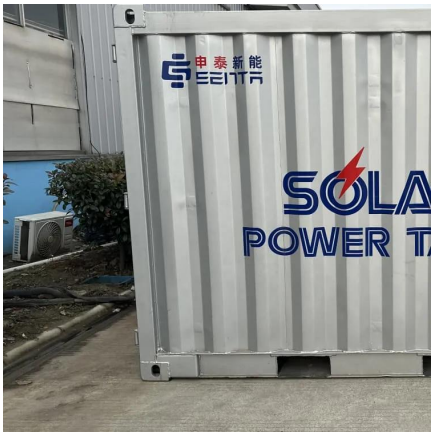
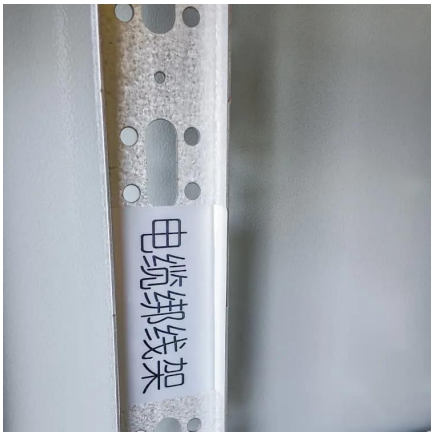


[Energy-saving control strategy for ultra-dense network base stations]

Aug 1, 2025 · Aiming at the problem of mobile data traffic surge in 5G networks, this paper proposes an effective solution combining massive multiple-input multiple-output techniques ...

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

May 7, 2021 · The beginning of network energy saving came with the fact that many sites had their traffic peaks and troughs, which means certain parts of the base stations could be ...

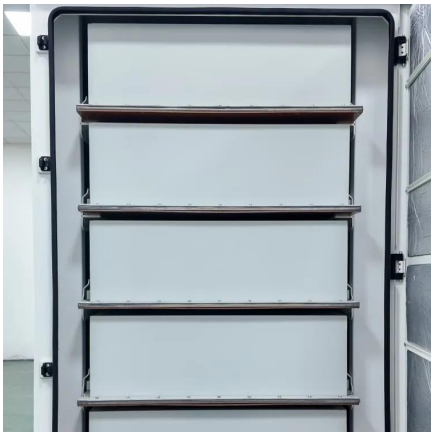


[5G base station saves energy and reduces consumption]

Dec 18, 2023 · At present, many energy-saving measures have been introduced for 5G base stations. GrenElec's intelligent air switches will help them achieve refined on-demand energy ...

[Research on Energy-Saving Technology for Unmanned ...]

Dec 18, 2023 · In response to the current widespread issue of high energy consumption in 5G base stations, this article conducts overall design, hardware design, and software design of ...

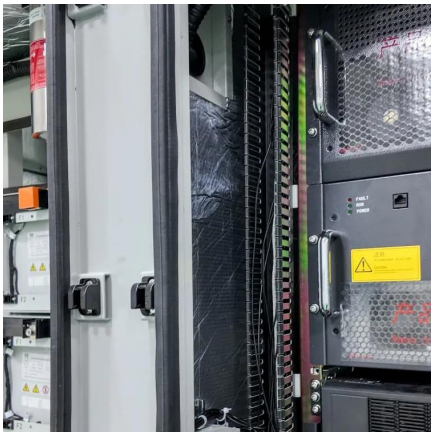


[Smart Energy-Saving Solutions Based on Artificial ...]

Dec 5, 2025 · Execution Strategy: The network management system receives the integrated energy-saving strategy and executes energy-saving functions on 5G base stations, such as ...

[Energy Saving of 5G Base Stations Based on Symbol Shutdown ...]

Jun 12, 2025 · The rapid development of 5G technology leads to increasing energy consumption in base stations (BSs). For the vision of green and sustainable communications, we propose a ...

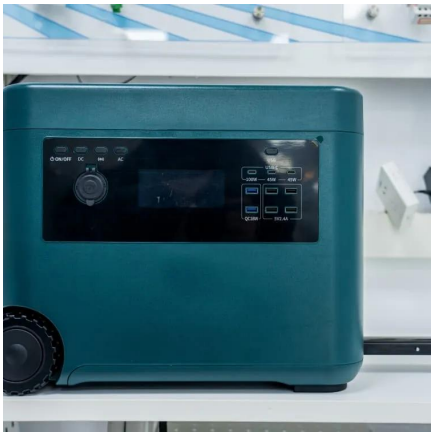


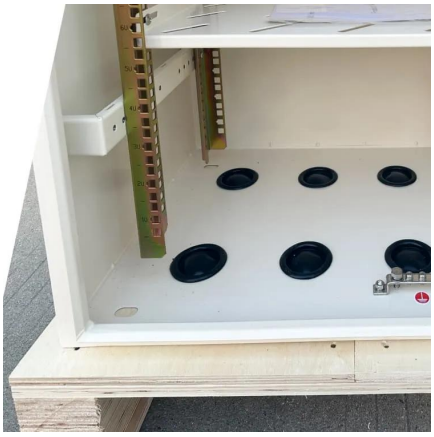
[Intelligent Energy Saving Solution of 5G Base Station Based ...]

Jul 26, 2021 · This paper introduces the basic energy-saving technology of 5G base station, and puts forward the intelligent energy-saving solutions based on artificial intelligence (AI) and big ...

[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 ...





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Jun 28, 2024 · This Supplement examines energy-saving technology for fifth generation (5G) base stations (BSs). Some energy-saving technologies developed since the fourth generation (4G) ...

[Application of AI technology 5G base station]

Dec 9, 2020 · According to the different characteristics of communication services in time and space distribution and the change of network load, under the premise of ensuring the user's ...

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