

SolarInvert Energy Solutions

Outdoor distributed base station energy method



Overview

How does distributed execution affect base station control?

In the distributed execution phase, each actor network makes decisions independently based only on its own network and observations, and although each actor executes independently, the whole system is able to obtain a better base station control strategy because their strategies are based on the results of global optimization. Fig. 2.

What is the power consumption of a base station?

The power consumption of each base station is considered about the number of mobile subscribers and random mobility to minimize the energy-saving cost of the cellular network.

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) $R_i = E_{SM=0} - E_{SM=i}$, $E_{SM=0} - E_{SM=3}$.

What should a base station do in a wireless communications network?

In a wireless communications network, the base station should maintain high-quality coverage. It should also have the potential for upgrade or evolution. As network traffic increases, power consumption increases proportionally to the number of base stations. However, reducing the number of base stations may degrade network quality.

Why does network sensitivity affect the energy consumption of base stations?

In addition, the high sensitivity of the existing policies to network conditions during the period when the network load is relatively smooth may lead to unnecessary and frequent switching of the sleep mode of the base stations, thus adding non-negligible additional energy consumption.

How can a soft base station reduce power consumption?

The 2G/3G swapping project of a leading telecom operator in Asia-Pacific is a good example of how power consumption can be reduced using the SDR soft base station platform. In the old network, one base station used three cabinets for GSM900, GSM1800, and UMTS2100 devices. Its overall power consumption was 4280 W.

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CN110831036A

The invention provides an energy efficiency optimization method and system of a multi-user EH distributed base station, which comprises the following steps: the remote antenna device ...

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Energy Management Strategy for Distributed Photovoltaic 5G Base Station

Simulation results show that the proposed MPPT algorithm can increase the efficiency to 99.95% and 99.82% under uniform irradiation and partial shading, respectively.



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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 ...

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Base Stations with RF Energy

In this study, we consider an ABS network in which ABSs perform radio frequency (RF) energy harvesting from terrestrial base stations and propose a novel distributed ABS deployment ...

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Distributed Deployment of Aerial Base Stations with RF Energy

Request PDF , On Jun 1, 2022, Shunya Kida and others published Distributed Deployment of Aerial Base Stations with RF Energy Harvesting , Find, read and cite all the research you need ...

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STUDY ON AN ENERGY-SAVING THERMAL ...

In order to solve the poor heat dissipation in the outdoor mobile communication base station, especially in summer, high temperature alarm phenomenon occurs frequently, affecting the ...

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Green Base Station Solutions and Technology

The green base station solution involves base station system architecture, base station form, power saving technologies,

and application of green technologies.
Using SDR ...

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EP1713290B1

The present invention discloses a distributed base station system as well as its networking method and base band unit. In this system, the base band unit (BBU) and RF unit ...

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Distributed Deployment of Aerial Base Stations with RF Energy

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Dynamic Base Station or Relay Station deployment and small cell ...

This paper also examines a comparison between the existing system and some of the modified systems in terms of Energy Consumption, Efficiency, Complexity and Cost. ...

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Dynamic Base Station or Relay Station deployment and small cell ...

Therefore, In this paper we develop model which considers both Energy Consumption and Efficiency. This can be stated as 2 sub problems: Dynamic Deployment of ...

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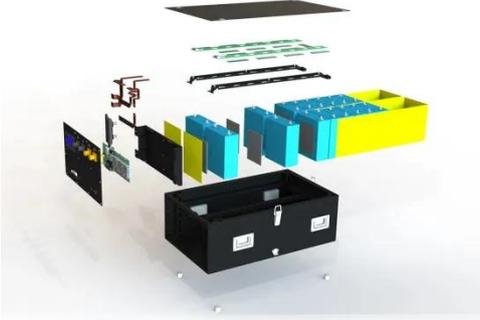


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This paper discusses green base stations in terms of system architecture, base station form, power saving technologies,

and green ...

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(PDF) Research on Distributed Work in the Context of ...

PDF , On Dec 16, 2022, Ning Gao published Research on Distributed Work in the Context of 5G Analysis of Distributed Base Station BBU Deployment Strategy ...

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5G base station architecture, Part 1: Evolution

By late 2014 they had built an additional 720,000 4G base stations which no doubt puts a further strain on the power budget. There is continuous ...

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Multi-objective cooperative optimization of communication ...

This paper develops a method to consider the multi-objective cooperative optimization operation of 5G communication base stations and Active

Distribution Network (ADN) and constructs a ...

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Optimization Control Strategy for Base Stations Based on ...

With the maturity and large-scale deployment of 5G technology, the proportion of energy consumption of base stations in the smart grid is increasing, and there is an urgent need to ...

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Distributed Base Station: A Concept System for Long-Range ...

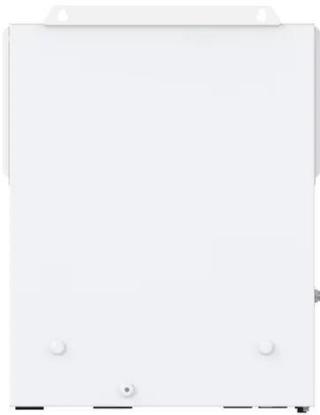
Abstract--We propose a concept system termed distributed base station (DBS), which enables distributed transmit beam-forming at large carrier wavelengths to achieve significant range ...

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Remote radio frequency unit selection of self-sustaining ...

Abstract In the energy harvesting self-sustaining distributed base-station system (SS-DBS), the problem of optimal



resource allocation for secure transmission at the downlink physical layer is ...

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ken-system: Distributed Deployment of Aerial Base Stations with ...

In this study, we consider an ABS network in which UAVs perform radio-frequency (RF) energy harvesting from terrestrial base stations and propose a novel distributed UAV ...

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Distributed 3D Deployment of Aerial Base Stations for On ...

A novel distributed 3D ABS deployment method with theoretical convergence guarantee that solves the maximization problems of the overall communication quality in a distributed and ...

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STUDY ON AN ENERGY-SAVING THERMAL ...

Figure 8. Comparison of electricity consumption equipment cabinet between 12 °C and 39 °C, in winter



which meets the national standard for outdoor communication base stations, thus, there ...

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Distributed Base-Station Activation for Energy-Efficient ...

ABSTRACT ently emerged as a viable solution for reducing energy consumption in cellular networks. While most of the works on this topic focused on cent alized decision making ...

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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 ...

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This paper discusses green base stations in terms of system architecture, base station form, power saving technologies, and green technology applications. It

explores ...

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Sub-ambient daytime cooling effects and cooling energy ...

To overcome the issue of overheating and conserve cooling energy consumption, a superamphiphobic passive sub-ambient daytime radiative cooling (PSDRC) coating was ...



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