

Indonesia 5G base station energy method





Overview

Does Indonesia have a 5G network?

In Indonesia, 5G rollout is progressing, with commercial services launched by Telkomsel, Indosat Ooredoo and XL Axiata since 2021, utilising existing spectrum holdings in the 1800 MHz, 2.1 GHz and 2.3 GHz bands. As of the end of 2024, 5G networks covered 26.3% of Indonesia's population, or around 15.7 million 5G connections.

Does Indonesia need 5G spectrum resources?

Much work must be done to ensure adequate spectrum resources to support 5G development in Indonesia, especially in the crucial mid-band range (1–7 GHz). The GSMA estimates that mid-band 5G spectrum will drive an increase of more than \$610 billion in global GDP in 2030, almost 65% of the overall socio-economic value generated by 5G.

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.

Will the 5G era boost economic growth in Indonesia?

The 5G era will help to accelerate this process and boost economic growth in the country in the years ahead. In Indonesia, mobile data traffic per connection has grown strongly in recent years, reaching over 16 GB per connection in 2024. 5G is being implemented with limited launches by operators using mainly their existing legacy spectrum holdings.

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.

Will 5G boost Indonesia's GDP by 2030?

In Southeast Asia, 5G mid-bands will boost annual GDP by \$35 billion by 2030, heavily driven by the large Indonesian market, which will account for 41% of this increment. To secure these benefits, markets will need an average of 2 GHz of mid-band spectrum during this decade.



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Energy Management of Base Station in 5G and B5G: Revisited

To achieve low latency, higher throughput, larger capacity, higher reliability, and wider connectivity, 5G base stations (gNodeB) need to be deployed in mmWave. Since mmWave ...

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Multi-Time Scale Energy Management Strategy based on MPC for 5G Base

Download Citation , On Jun 16, 2023, Ting Ding and others published Multi-Time Scale Energy Management Strategy based on MPC for 5G Base Stations Considering Backup Energy ...

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As Indonesia's Protests Roil On, Prabowo's Crackdown Could ...

2 days ago· Motivated by growing economic inequality and government corruption, Indonesians have been protesting across the country for weeks. Under the administration of President ...

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

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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Energy Saving Technology of 5G Base Station Based on Internet ...

For time and space constraints, 5G base stations will have more serious energy consumption problems in some time periods, so it needs corresponding sleep strategies to reduce energy ...

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[Indonesia , Culture, Facts & Travel ,](#)

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Energy-efficiency schemes for base stations in 5G heterogeneous

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 ...

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

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 ...

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AI-based energy consumption modeling of 5G base stations: an ...

This paper demonstrates the energy consumption modeling of a BS considering its energy-saving sleep modes. We design a Deep Neural Network (DNN) based energy consumption model.

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Modelling the 5G Energy Consumption using Real-world Data: ...

This paper proposes a novel 5G base stations energy consumption modelling method by learning from a real-world dataset used in the ITU 5G Base Station Energy Consumption Modelling ...

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Evaluating the Comprehensive Performance of 5G Base Station: ...

In recent years, 5G technology has rapidly developed, which is widely used in medical, transportation, energy, and other fields. As the core equipment of the 5G network, 5G ...

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Cellular 5G Site Renewable Energy Recommendations (Indonesia...

If we breakdown island-by-island recommendation (Sumatra, Java, Kalimantan, Sulawesi, Bali & Nusa Tenggara, Maluku, Papua), we can select optimal renewable energy ...

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Dynamical modelling and cost optimization of a 5G base station ...

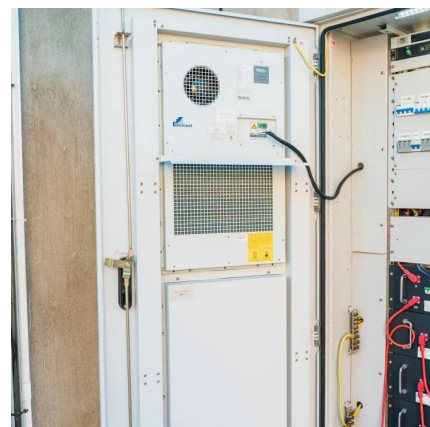
For energy efficiency in 5G cellular networks, researchers have been studying at the sleeping strategy of base stations. In this regard, this study models a 5G BS as an $(M^{\wedge} \{ \dots$

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Modelling the 5G Energy Consumption using Real-world Data: Energy

This paper proposes a novel 5G base stations energy consumption modelling method by learning from a real-world dataset used in the ITU 5G Base Station Energy Consumption Modelling ...

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Accelerating 5G in Indonesia: A spectrum roadmap for success

To realise this, it is essential to build on current plans by prioritising the following actions for 5G development: -- Refarm and auction the 2.6 GHz band for IMT/5G in early 2025 following the ...

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AI-based energy consumption modeling of 5G base stations: an energy

The energy consumption of 5G networks is one of the pressing concerns in green communications. Recent research is focused towards energy saving techniques of base ...

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Indonesia , History, Flag, Map, Capital, Language, Religion,

6 days ago· The most populous country in Southeast Asia and the fourth most populous in the world, Indonesia is situated on an archipelago that lies across the Equator and spans a ...

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Stochastic Modeling of a Base Station in 5G Wireless Networks ...

We introduced stochastic models (Markov and semi-Markov) for base stations, derived steady-state solutions, conducted sensitivity analysis on power consumption, and ...

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[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 ...

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Base station power control strategy in ultra-dense networks via ...

Within the context of 5G, Ultra-Dense Networks (UDNs) are regarded as an important network deployment strategy, employing a large number of low-power small cells to ...

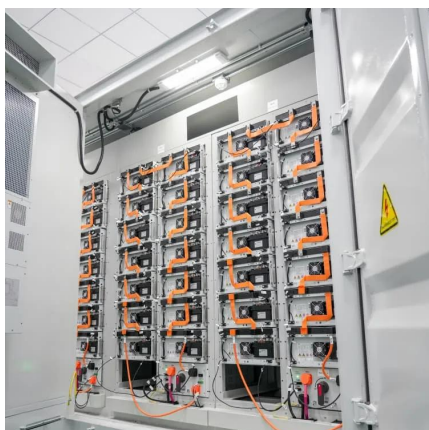
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An Intelligent Energy Saving Strategy Recommendation Method of 5G Base

In order to find a better model of energy saving for 5G base stations to reduce energy consumption, this paper proposes an intelligent energy saving strategy re

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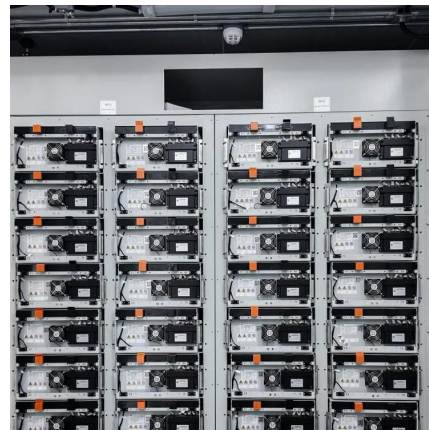




Optimal energy-saving operation strategy of 5G base station with

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 communication caching ...

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AI-based energy consumption modeling of 5G base stations: an energy

This paper demonstrates the energy consumption modeling of a BS considering its energy-saving sleep modes. We design a Deep Neural Network (DNN) based energy consumption model.

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