

Our research addresses the critical intersection of communication and power systems in the era of advanced information technologies. We highlight the strategic importance of ...

As global 5G deployments accelerate, communication base station energy consumption has surged by 300% compared to 4G infrastructure. Did you know a single 5G macro station now consumes up to ...

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 and ...

Introducing renewable energy generation (such as wind and solar power) and energy storage solutions (batteries) in base station construction is a promising approach to reduce electricity expenses for 5G ...

Abstract: 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 reduce ...

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 both ...

In this trend towards next-generation smart and integrated energy-communication-transportation (ECT) infrastructure, base stations are believed to play a key role as service hubs.

The rapid development of Fifth Generation (5G) mobile communication system has resulted in a significant increase in energy consumption. Even with all the effort.

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 base stations (gNodeB) ...

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