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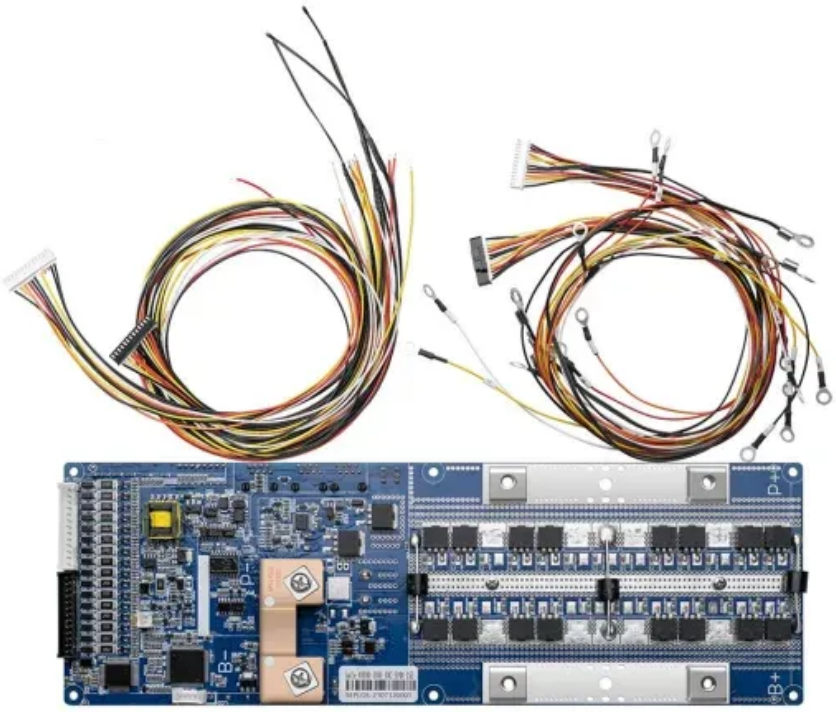
What is the nature of electricity consumption in communication base stations



Overview

Do base stations dominate the energy consumption of the radio access network?

Furthermore, the base stations dominate the energy consumption of the radio access network. Therefore, it is reasonable to focus on the power consumption of the base stations first, while other aspects such as virtualization of compute in the 5G core or the energy consumption of user equipment should be considered at a later stage.

Which base station elements consume the most energy?

Of the other base station elements, significant energy consumers are: air conditioning (17.5%), digital signal processing (10%) and AC/DC conversion elements (7.5%) [8]. New research aimed at reducing energy consumption in the cellular access networks can be viewed in terms of three levels: component, link and network.

What is the largest energy consumer in a base station?

The largest energy consumer in the BS is the power amplifier, which has a share of around 65% of the total energy consumption [7]. Of the other base station elements, significant energy consumers are: air conditioning (17.5%), digital signal processing (10%) and AC/DC conversion elements (7.5%) [8].

How do base stations affect mobile cellular network power consumption?

Base stations represent the main contributor to the energy consumption of a mobile cellular network. Since traffic load in mobile networks significantly varies during a working or weekend day, it is important to quantify the influence of these variations on the base station power consumption.

What is the main source of energy consumption in cellular networks?

It is well known that the main source of energy consumption in cellular mobile networks is the BS, with a share in total network consumption greater than

50% [2]. Therefore, reducing the energy consumption of BSs as the main energy consumers in the cellular networks has recently become an important research topic.

Is there a direct relationship between base station traffic load and power consumption?

The real data in terms of the power consumption and traffic load have been obtained from continuous measurements performed on a fully operated base station site. Measurements show the existence of a direct relationship between base station traffic load and power consumption.

What is the nature of electricity consumption in communication bas

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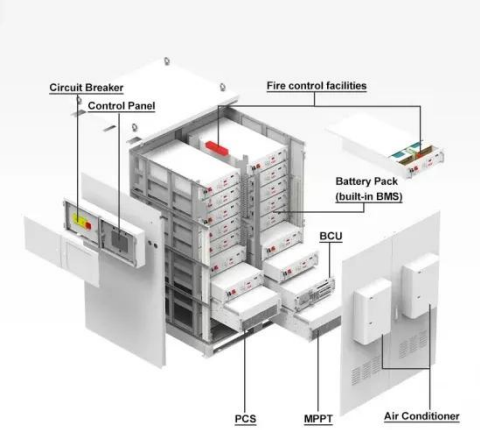

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