Consequences of Green Base Station Communication

Are green cellular base stations sustainable?
This study presents an overview of sustainable and green cellular base stations (BSs), which account for most of the energy consumed in cellular networks. We review the architecture of the BS and the power consumption model, and then summarize the trends in green cellular network research over the past decade.

What is the impact of base stations?
The impact of the Base Stations comes from the combination of the power consumptionof the equipment itself (up to 1500 Watts for a nowadays macro base station) multiplied by the number of deployed sites in a commercial network (e.g. more than 12000 in UK for a single operator).

Are green communication networks a common energy consumption problem?
Vinay et al. present an overview of issues with consumption of energy in green communication networks and describe energy-saving methods. Green communication networks are a common energy consumption problem,and this section describes the methods used to improve their energy efficiency.

Can dynamic base station reduce energy consumption?
According to Oh et al. , it can reduce the energy utilization of wireless cellular networks. Dynamic base station (BS) was explored by developing an energy-saving switching-on/off technique (SWES), with various on/off decisions made. As a result, energy consumption was reduced by 55% during the week and 80% during the weekend.

How can mobile network architecture contribute to green networking?
The representation of the mobile network architecture along with the expanded view of the 5G base station has been depicted in Fig. 5. Improving hardware componentscan contribute toward green networking. It entails reducing BS's energy consumption by using energy-efficient hardware.

Why are green wireless communications important?
Green wireless communications have been an important area of study targeting the trade-off between increased mobile communications and energy consumption . The use of such technology is motivated by the prospect of higher data rates and improved performance over the existing networks[2,3].

The objective of this work was to perform a complete review of the existing scientific literature to update the knowledge on the effects of base station antennas on humans. Studies ...

Several techniques have been deployed to reduce the energy consumption of the base station in what is called a green base station. This paper presents an insight into these approaches and ...

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Energy Efficiency Gain of Cellular Base Stations with Large-Scale Antenna Systems for Green Information and Communication Technology

The main goal of designing green base stations is to save energy and reduce power consumption while guaranteeing user service and coverage and ensuring the base station"s capability for ...

We review the architecture of the BS and the power consumption model, and then summarize the trends in green cellular network research over the past decade.

A literature review is presented on energy consumption and heat transfer in recent fifth-generation (5G) antennas in network base stations. The review emphasizes on the role of ...

Perhaps the two most important reasons to pursue the development of green communications networks are increases in carbon dioxide emissions (CO 2) and increases in ...

Although, 5G services bring convenience to users, the environmental implications associated with the 5G base stations have become a major concern.

Rapid growth in mobile communication technology in Abuja has led to numerous base stations, causing electromagnetic pollution in residential, school, and market areas, resulting in ...

Why Solar Energy for Communication Base Stations? Being a clean and renewable energy source, solar energy emits much less greenhouse gas compared to the ...

This chapter aims a providing a survey on the Base Stations functions and architectures, their energy consumption at component level, their possible improvements and the major problems ...

Over large distances, the signals must be relayed by a communication network comprising base stations and often supported by a wired network. The power of a base station varies (typically ...

Wireless base-stations are one of the major contributors to the oper-ational carbon footprint, as a consequence of transmit-ting at high power levels to achieve the required com-munication ...

This paper reviews the recent studies conducted on green networking and communication for next-generation networks with adverse effect on the climate. Technological ...

Mobile communications are increasingly contributing to global energy consumption. In this article, a holistic approach for energy efficient mobile radio networks is ...

Schematic representation of the base station"s essential hardware components. Adapted from [50]. 2.6.3

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Electric Load Leveling A green base station offloading model was ...

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