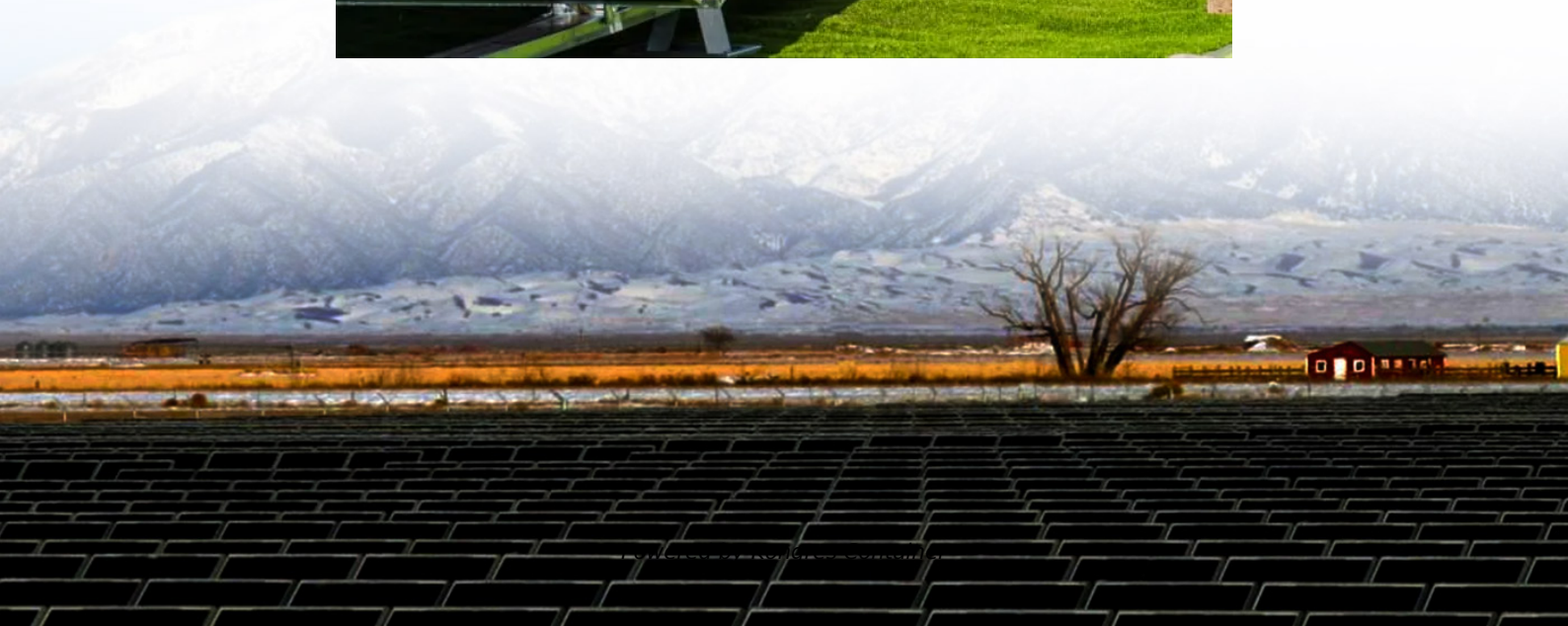


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Green Communication Base Station Wind Power



Overview

As its major contribution, this study highlights the uses of renewable energy in cellular communication by: (i) investigating the system model and the potential of renewable energy solutions for cellular BSs; (ii) identifying the potential geographical locations for renewable-energy-powered BSs; (iii) performing case studies on renewable-energy-powered cellular BSs and suggesting future research directions based on our findings; (iv) examining the present deployment of sustainable and green BSs; and (v) studying the barriers that prevent the widespread use of renewable-energy-powered BSs and providing recommendations for future work. How to make base station (BS) green and energy efficient?

This paper aims to consolidate the work carried out in making base station (BS) green and energy efficient by integrating renewable energy sources (RES). Clean and green technologies are mandatory for reduction of carbon footprint in future cellular networks.

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.

Can low-carbon communication base stations improve local energy use?

Therefore, low-carbon upgrades to communication base stations can effectively improve the economics of local energy use while reducing local environmental pollution and gaining public health benefits. For this research, we recommend further in-depth exploration in three areas for the future.

How much energy does a communication base station use a day?

A small-scale communication base station communication antenna with an average power of 2 kW can consume up to 48 kWh per day. 4,5,6 Therefore,

the low-carbon upgrade of communication base stations and systems is at the core of the telecommunications industry's energy use issues.

What is a base station energy optimization?

The optimization covers configurations of base station energy supply equipment (e.g., investment in photovoltaics [PV] and energy storage capacity) and operational locations (e.g., urban vs. rural deployments).

What is a low-carbon base station?

(A) The low-carbon base station consists of a power converter, power grid, photovoltaic, energy storage battery, and base station. The low-carbon base station system maintains communication with the control cloud platform and the micro base station.

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