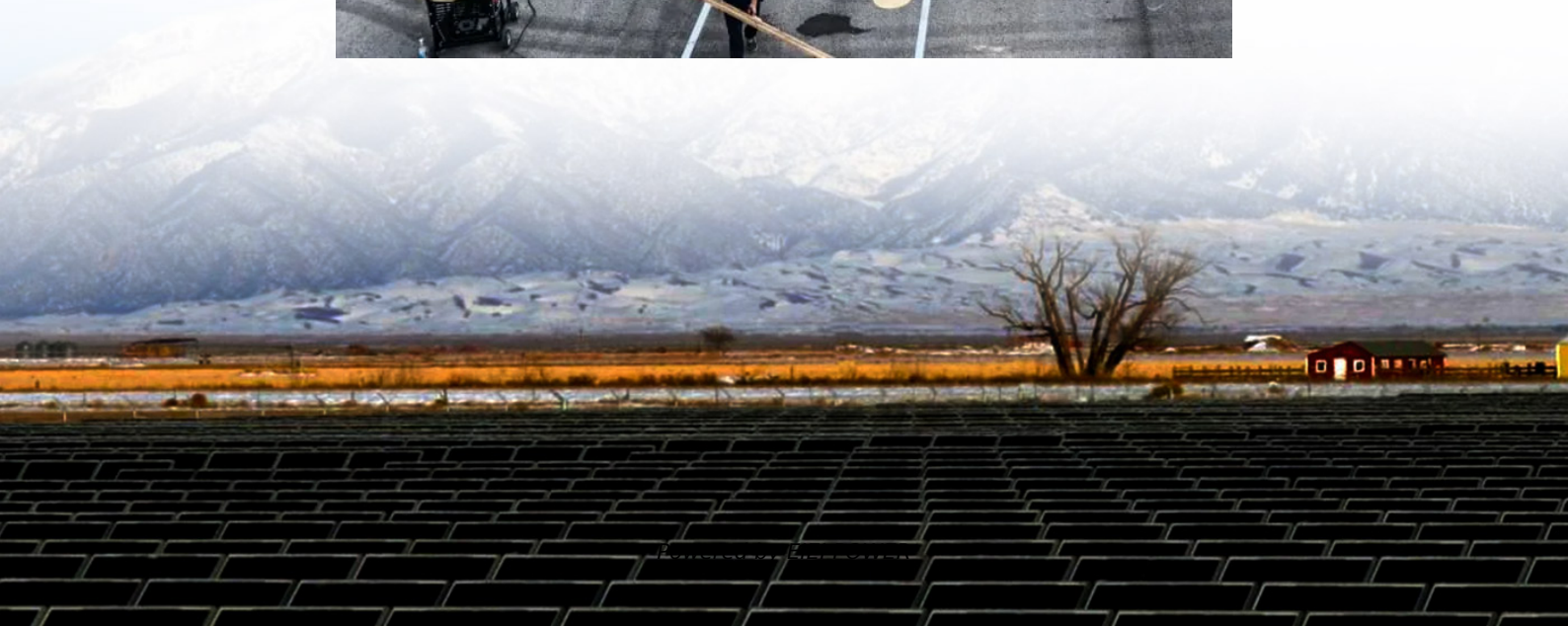


# Base station refined energy management





## Overview

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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.

What are the components of a base station?

A typical base station consists of different sub-systems which can consume energy as shown in Fig. 4. These sub-systems include baseband (BB) processors, transceiver (TRX) (comprising power amplifier (PA), RF transmitter and receiver), feeder cable and antennas, and air conditioner ( Ambrosy et al., 2011 ).

What is energy resource management?

Energy resource management involve schemes such as energy cooperation and optimization of different energy sources ( Oh et al., 2013 ). Multi-radio access network technologies (Multi-RAT) management and novel paradigms for delay tolerant services are also some resource management techniques.

How can radio resources be manipulated to conserve energy?

The radio resources can be manipulated to conserve energy by adapting the capacity and/or converge of the green BS. This is demonstrated in ( Valerdi et al., 2010 ), where both aspects are optimized according to the available renewable energy and battery back-up available.



## Base station refined energy management

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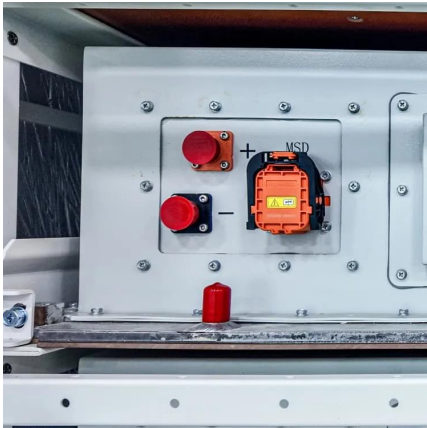
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