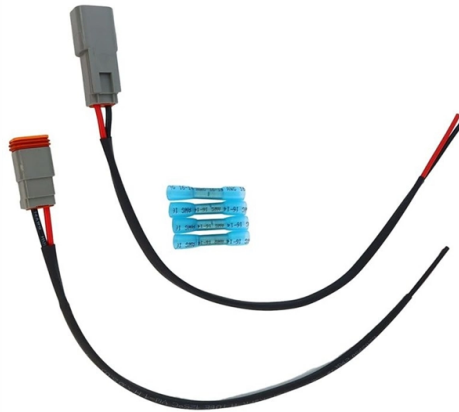


# Base Station Energy Solution Energy-Saving Type for Railway Communication



## Overview

The engineering research idea proposed here is to discover a sustainable, self-powered solution by harvesting high electromagnetic field flux energy generated by currents of electrified railway systems around masts to power small cell base stations for the next generation of 5G. The engineering research idea proposed here is to discover a sustainable, self-powered solution by harvesting high electromagnetic field flux energy generated by currents of electrified railway systems around masts to power small cell base stations for the next generation of 5G. d improve efficiency. Rail companies are large consumers of energy and are often the single highest electricity consumption in rail). A survey was conducted with European rail infrastructure managers and operators and then compared to published literature. The survey revealed that a large. This paper proposes an intelligent reflecting surface (IRS)-assisted energy efficiency optimization algorithm to address the problem of energy efficiency (EE) degradation in high-speed rail communication systems caused by line-of-sight link blockages between base stations and trains. Users can use the energy storage system to discharge during load peak periods and charge from the grid during low load periods, reducing peak load demand and saving electricity. In order to unlock the challenge and increase rail capability, the railway industry and governments worldwide are preparing 5G communication infrastructure for the next generation and beyond, aiming to provide ultra-high performance connection with millisecond latency, gigabit per second.

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The engineering research idea proposed here is to discover a sustainable, self-powered solution by harvesting high electromagnetic field flux energy generated by currents of electrified railway systems

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Abstract 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

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Predict CBS's electricity savings and carbon emission reduction in summer. The cooling requirements of communication base stations (CBSs) align with the effects of radiative cooling

Energy-saving Solutions for Base Stations in High-Speed Railway ...

This paper analyzes the problem of insufficient energy-saving means during network idle periods in the current 5G base station deployments for high-speed railway dedicated networks,

A dynamic energy-saving strategy for green cellular railway ...

Energy saving is seldom contemplated in cellular railway communication network because safety is always the main focus. However, we analyzed train schedules and determined that

Research on ventilation cooling system of communication base stations ...

To meet the design requirements of the green base stations , and reduce operation cost of base station, this paper focuses on the effects of building structural design and

A dynamic energy-saving strategy for green cellular railway ...

A solution with a new architecture was presented for energy saving, considering current cellular networks cannot meet the design requirements of energy efficiency.

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