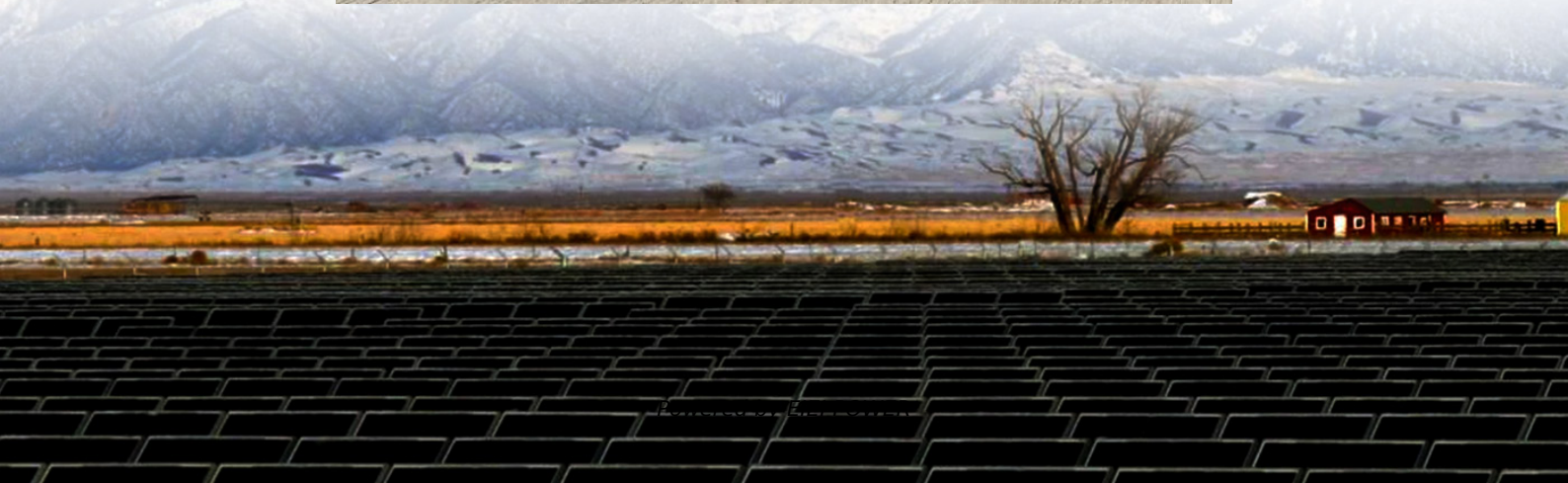


# Reasons for reducing base stations in long-distance communication





## Overview

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Will communication base stations reduce electricity consumption?

Our findings revealed that the nationwide electricity consumption would reduce to 54,101.60 GWh due to the operation of communication base stations (95% CI: 53,492.10–54,725.35 GWh) (Figure 2 C), marking a reduction of 35.23% compared with the original consumption. We also predicted the reduction of pollutant emissions after the upgrade.

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 effective are communication base stations in reducing air pollution?

In Figure 5 A, after implementing optimization measures to communication base stations, the cases of COPDs related to air pollution caused by communication base stations in 2021 would be reduced to 13,004 (65% reduction). The effectiveness of these optimizations becomes more pronounced in the following year.

How important is electricity usage optimization in communication base stations?

The results indicate that the optimization of electricity usage in the rapid development scenario of communication base stations yields the most significant improvement, surpassing the base station layout optimization scenario by 1.14 times.



## Reasons for reducing base stations in long-distance communication

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users' ...



### Low-carbon upgrading to China's communications base stations ...

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Dec 2, 2025 · Multiple smaller base stations are greener than a single powerful one: Densification of Wireless Cellular Networks Agrim Gupta, Ish Jain and Dinesh Bharadia





## Optimization Control Strategy for Base Stations Based on Communication

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## Energy-efficiency schemes for base stations in 5G ...

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