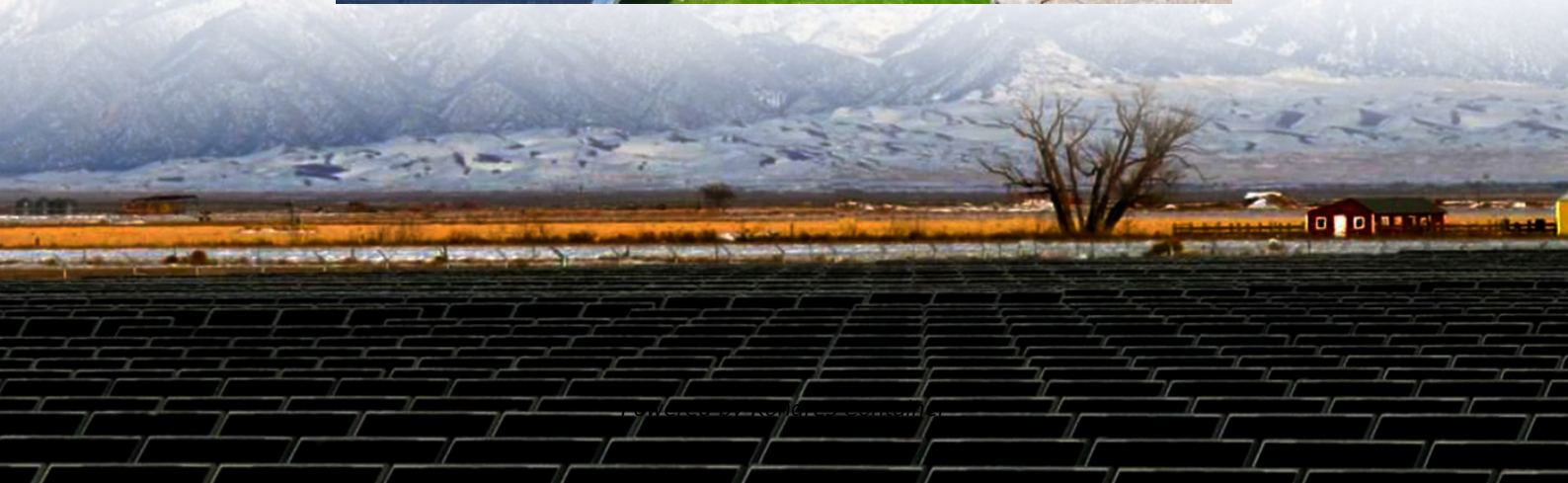


## Kongres Container

# Does upgrading communication base stations to 5G count as increasing capacity



## Overview

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Does 5G configuration affect base station capacity?

In this study, we mainly focused on the commercial 5G non-standalone networks, 2 and the configurations (transmit and receive antennas, spectrum frequency and bandwidth) defined in this part has a decisive impact on base station capacity (see Eq.1).

How to increase bandwidth & capacity in a 5G network?

Carrier Aggregation: Use techniques like carrier aggregation to combine multiple frequency bands to increase bandwidth and capacity. 3. Network Architecture: Core Network: Ensure the core network (5G Core) has sufficient capacity to handle the increased traffic, support network slicing, and provide low latency.

Does 5G require a tall and large structure?

The 5G network does not require a tall and large structure to deploy 5G cell site, unlike the current generation network (e.g., 4G). It can be deployed in an existing structure (e.g., edges of the buildings or the lamp post beside the road, etc.) in any deployment area.

What makes 5G so powerful?

The technologies that make 5G powerful include features such as faster speeds, reduced latency, increased capacity, and the ability to connect a wide range of devices and objects. However, implementing 5G networks involves upgrading existing infrastructure and deploying new infrastructure, which can be both costly and time-consuming.

How will 5G reach high capacity?

To reach high capacity, 5G will need to use existing C-band spectrum and mmWave frequency bands. The mmWave signals impose challenging propagation conditions that large antenna arrays can alleviate. Antenna array

need RF circuits behind each radiating element. 5G systems will deploy a mix of access points and even smart relays to reach users.

What is a 5G base station?

They help fill coverage gaps, improve network reliability, and handle high data traffic. In cities, more than 60% of 5G base stations are small cells, placed on rooftops, lampposts, and building facades. These mini base stations are crucial for delivering consistent 5G speeds in crowded areas like stadiums, shopping malls, and business districts.

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