

## SolarTech Power Solutions

# Is it good to use synchronous motors in 5G base stations



## Overview

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Why is synchronization important in 5G?

In 5G, synchronization plays an even more significant role by enabling the high capacity and low latency that users expect. For instance, while a 3 Gb movie might take about 30 minutes to download on a 4G network, the same movie can be downloaded in just 35 seconds on a 5G network. Figure 1.

Why do we need a 5G base station?

The limited penetration capability of millimeter waves necessitates the deployment of significantly more 5G base stations (the next generation Node B, gNB) than their 4G counterparts to ensure network coverage . Notably, the power consumption of a gNB is very high, up to 3–4 times of the power consumption of a 4G base stations (BSs).

How a 5G network can support a power system?

The 5G network and power system are coupled energetically by power feeders. Based on gNB-sleep actions and mode switching of their BESSs, 5G network can provide power support to the power system when the grid frequency deviation reaches the threshold.

Why is time and phase synchronization important for 5G spectrum utilization?

Efficient spectrum utilization is crucial to maximizing the return on this investment. Time and phase synchronization plays a critical role in optimizing 5G spectrum utilization, focusing on time Division Duplex (TDD), Carrier Aggregate (CA), and the synchronization strategies supported by the O-RAN Alliance.

How to choose a 5G energy-optimised network?

Certain factors need to be taken into consideration while dealing with the efficiency of energy. Some of the prominent factors are such as traffic model, SE, topological distribution, SINR, QoS and latency. To properly examine an

energy-optimised network, it is very crucial to select the most suitable EE metric for 5G networks.

Are 5G network operators motivated to cooperate with the power system?

On the one hand, 5G network operators are highly motivated to cooperate with the power system in energy matters, given that the numerous gNBs with their high energy consumption result in significant electricity bills that can be troublesome for the operators , .

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