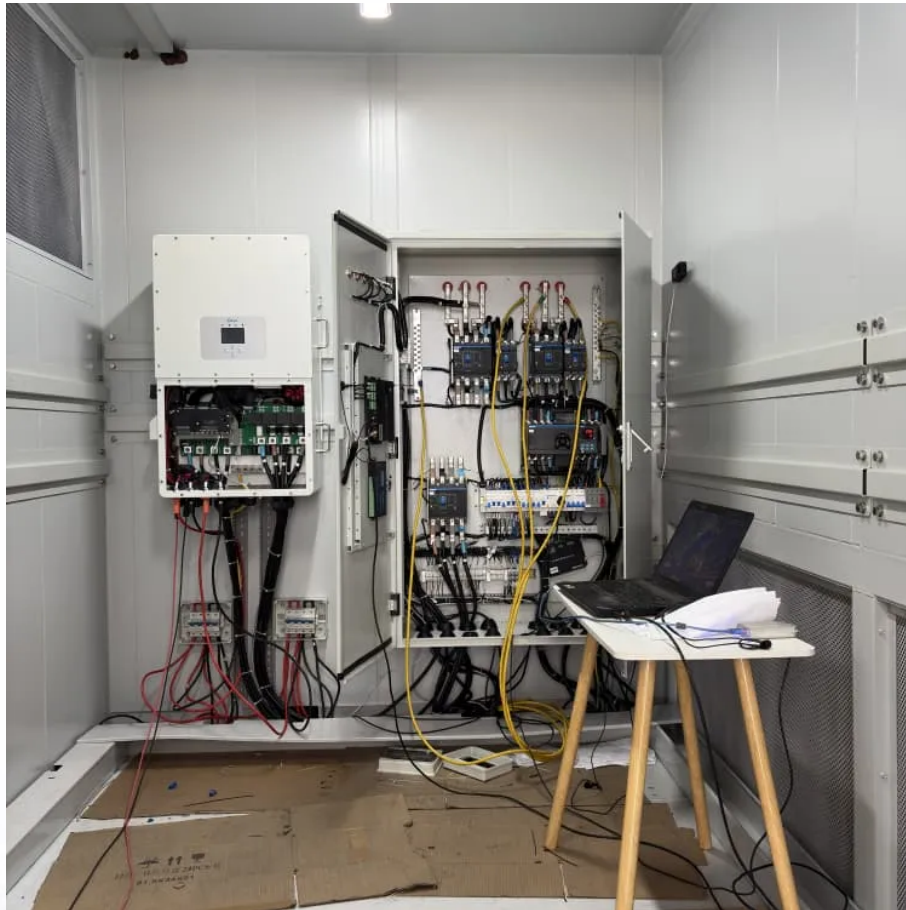


Tirana hybrid energy 5g base station progress





Overview

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 , .

How does 5G ran work?

In 5G-RAN, the gNB systems within designated areas are combined into gNBs-clusters by aggregators. All gNBs-clusters are powered by the power system plane through power feeders, so switching the modes of a certain number of gNBs (sleep/active) and BESSs (charge/idle/discharge) can alter the power injection of the power system.

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.



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