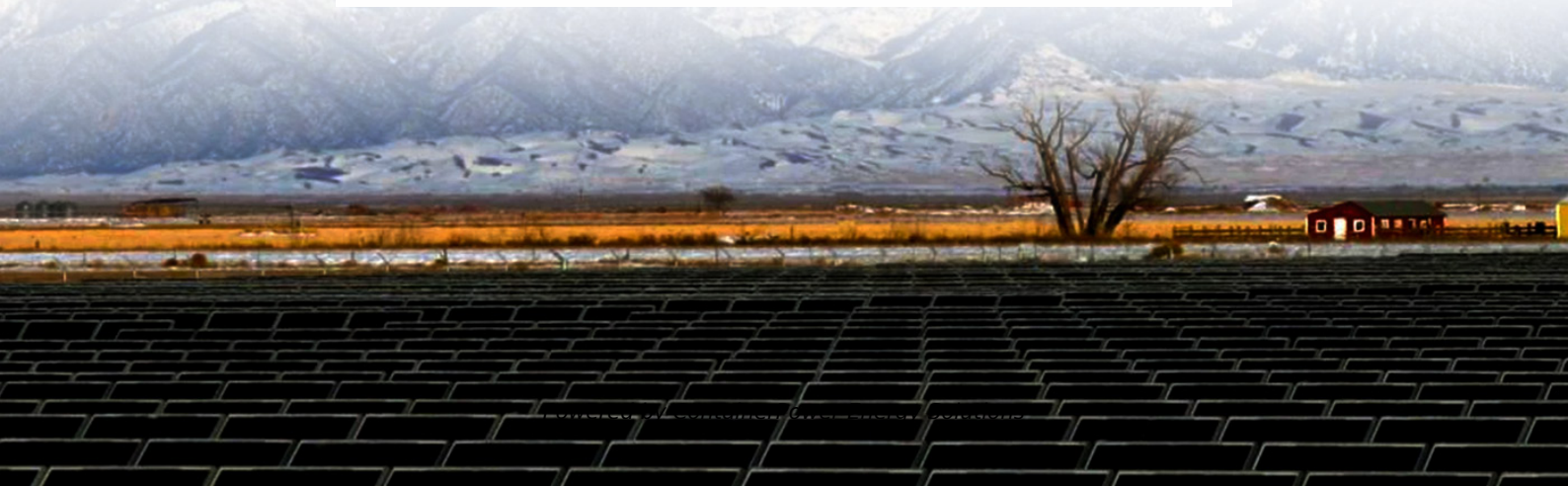
ContainerPower Energy Solutions

Development of communication base stations for the Azerbaijan power grid



Overview

What is a smart grid in Azerbaijan?

The smart grid is a technological advance that efectively balances the supply and demand of electricity and mitigates the intermittency stemming from renewable electricity supply that mainly relies on solar and wind. In Azerbaijan, wind and solar power currently makes up less than 1 percent of the country’s total electricity production.

What is the energy consumption of 5G communication base stations?

Overall, 5G communication base stations’ energy consumption comprises static and dynamic power consumption . Among them, static power consumption pertains to the reduction in energy required in 5G communication base stations that remains constant regardless of service load or output transmission power.

What are the basic parameters of a base station?

The fundamental parameters of the base stations are listed in Table 1. The energy storage battery for each base station has a rated capacity of 18 kWh, a maximum charge/discharge power of 3 kW, a SOC range from 10% to 90%, and an efficiency of 0.85.

Why is Azerbaijan not able to connect renewable sources?

The capacities of Azerbaijan right now have been so negligible that 1. First, overhead lines, transformers, and substations, the main parts of the transmission, were built during the Soviet period and pose limit s to connecting renewable sources. 2. Second, renewables need a good planning system and network dispatch centres. SCADA.

What is the equipment composition of a 5G communication base station?

Figure 1 illustrates the equipment composition of a typical 5G communication base station, which mainly consists of 2 aspects: a communication unit and a

power supply unit.

What are the operational constraints of 5G communication base stations?

The operational constraints of 5G communication base stations studied in this paper mainly include the energy consumption characteristics of the base stations themselves, the communication characteristics, and the operational constraints of their internal energy storage batteries.

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