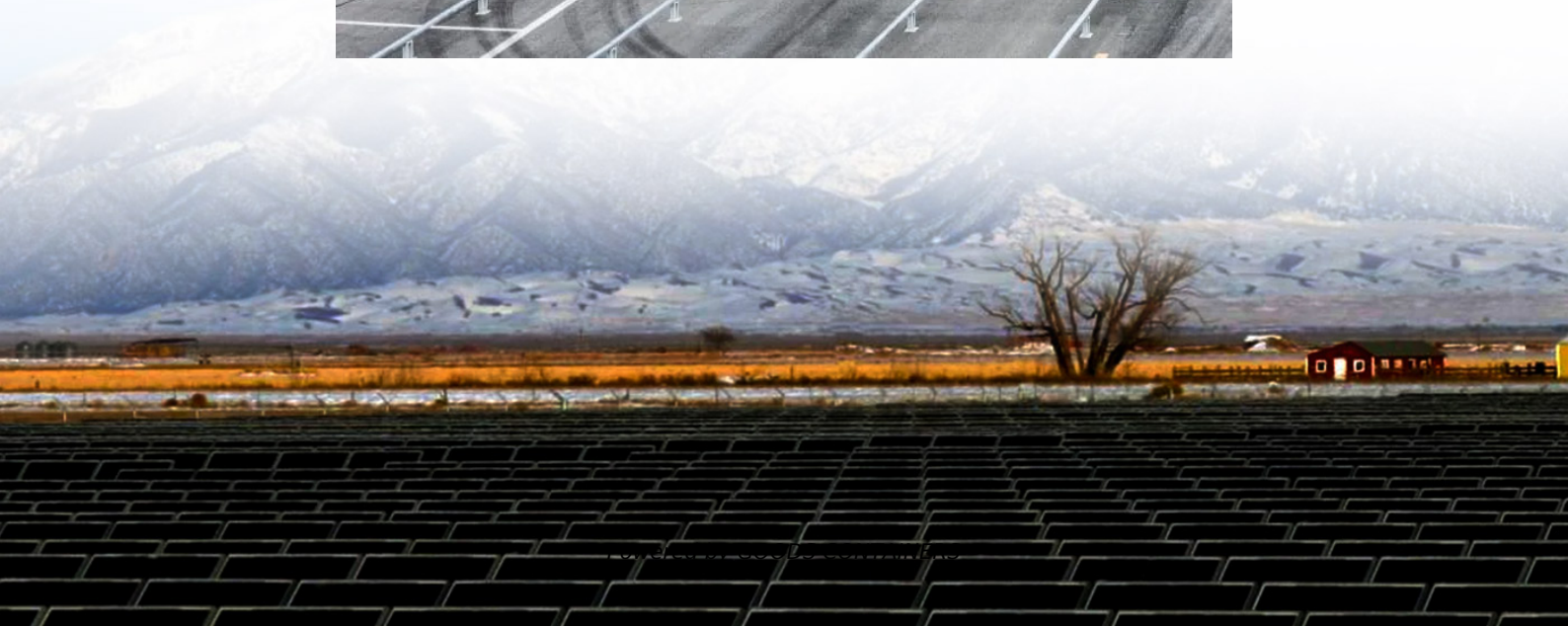


DC device with capacitor energy storage





Overview

What is energy storage in a DC-DC converter?

Energy storage (ES) can be used to stabilize DC grid voltage or to supply power to the load during the outage of the main power supply. In such a case, the voltage control loop of a DC-DC converter should be fast to prevent deep voltage drop. During this mode, ES will be discharged, and the DC-DC converter is going to work in the boost mode.

What are energy storage capacitors?

Energy storage capacitors can typically be found in remote or battery powered applications. Capacitors can be used to deliver peak power, reducing depth of discharge on batteries, or provide hold-up energy for memory read/write during an unexpected shut-off.

What is a DC-DC converter supercapacitor bank?

The DC-DC converter supercapacitor bank is set to work with a 48 V DC microgrid. The supercapacitor-based ES is desired to stabilize the voltage of the DC grid in case of regenerative braking of the motor. The storage is used to supply the grid with energy when voltage goes down or there is an outage of the main power supply.

How to simulate DC-DC converter control for supercapacitor energy storage integration?

Simulation model for DC-DC converter control simulation for supercapacitor energy storage integration with reference voltage set equal to 48 V. The first step response test is the capacitor voltage reference change in the charge mode of the supercapacitor ES. The test is performed by increasing the voltage reference to decrease the charge current.



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