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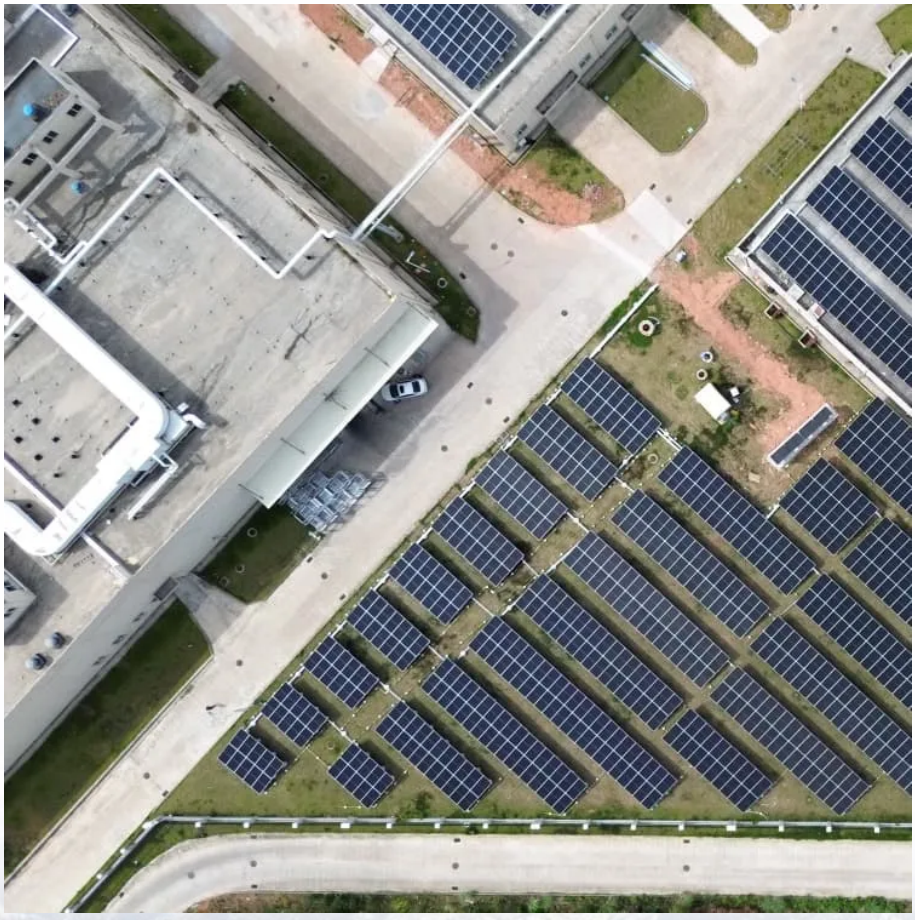
Can energy storage devices be charged and discharged simultaneously



Overview

The concept of dual functionality in energy storage refers to the ability of a system to both store energy (charging) and supply energy (discharging) simultaneously or in a strategic manner.Can a battery be charged and discharged simultaneously?

There is no simultaneous charging and discharging going on. Draw out the circuit and follow the currents. You can conceptualize the above example as 1 A charging the battery and 3 A discharging it, but the battery sees the sum. Again, draw a diagram and it should be more clear. Handwaving makes everything difficult to understand.

Do TES systems need to be charged and discharged simultaneously?

To avoid frequent switches between the charging/discharging mode and to keep a continuous operation, TES systems need to be charged and discharged simultaneously. However, the work on the cases of simultaneous charging and discharging (SCD) process receives attention in just recent 15 years and is still inadequate.

Can simultaneous charging and discharging process be used in heat exchangers?

However, the work on the cases of simultaneous charging and discharging (SCD) process receives attention in just recent 15 years and is still inadequate. To the authors’ best knowledge, Liu et al. studied an SCD process in a heat pipe heat exchanger with PCM in 2006.

Why is the ESU charged and discharged simultaneously?

Unequal charging/discharging flow rates Different flow rate combinations of the heating water and cooling water can affect the thermal behavior of the ESU. Accordingly, the ESU is charged and discharged simultaneously under two unequal flow combinations of heating and cooling water.

Can a BMS charge a battery simultaneously?

Certainly, the BMS has the capability to control both the battery charger and the load concurrently. Components such as BMS charging circuits and BMS charging boards facilitate this coordination.

What is the balanced charging/discharging power?

The balanced charging/discharging power is approximately 52 W. By comparison of Fig. 6 and Fig. 8 (b), it can be seen that the balanced power is still lower than that under the equal flow rate. It is noted that the initial charging power decreases to approximately 130 W, owing to the reduction of the charging flow rate.

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