

Can a lithium-ion battery withstand a 20,000 charge-discharge cycle?

With its remarkable ability to withstand more than 20,000 charge-discharge cycles while retaining 80 percent capacity, a novel lithium-ion battery with a single crystal electrode has raised the bar for electric vehicle (EV) technology.

How long does a lithium ion battery last?

The team's findings reveal that a single-crystal lithium-ion battery cell endured over 20,000 charging cycles before its capacity fell to 80%--a stark contrast to the 2,400 cycles achieved by a polycrystalline counterpart. This durability equates to roughly eight million kilometers of driving in an electric vehicle.

What is a battery cycle life?

Cycle life, a measure of how many charge-discharge cycles a battery can undergo before experiencing a significant capacity loss, is another key consideration for grid energy storage. Lithium-ion batteries designed for grid applications often have cycle lives as high as 10,000 cycles.

Are lithium-ion batteries a viable energy storage technology?

Lithium-ion batteries have become the dominant energy storage technology due to their high energy density, long cycle life, and suitability for a wide range of applications. However, several key challenges need to be addressed to further improve their performance, safety, and cost-effectiveness.

Could a new technology improve battery life?

Scientists have discovered a pioneering method to radically improve the lifespan of batteries. The new technique, developed by a team from Qingdao Institute of Bioenergy and Bioprocess Technology (QIBEBT) in China, enables a highly-promising type of battery to achieve 20,000 charging cycles with an energy density of 390 Wh/kg.

Why do we need a battery energy-storage technology (best)?

BESTs are increasingly deployed, so critical challenges with respect to safety, cost, lifetime, end-of-life management and temperature adaptability need to be addressed. The rise in renewable energy utilization is increasing demand for battery energy-storage technologies (BESTs).

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breakthrough offers new era of commercial batteries with high energy density and radically extended cycle life

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