

## SolarTech Power Solutions

# 50 degree solid-state energy storage battery



## Overview

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Are solid-state batteries the future of energy storage?

Solid-state batteries (SSBs) are frequently hailed as the future of energy storage. They promise significant improvements over conventional lithium-ion batteries in key areas such as energy density, safety, and charging speed.

What is a solid-state battery?

Solid-state batteries can play a crucial role in utility-scale energy storage. Their fire resistance makes them desirable for large-scale grid batteries in populated areas. Aerospace, robotics, and various specialized fields are interested in SSBs due to their potential for high energy density and enhanced safety.

Are solid-state lithium-ion batteries safe in grid energy storage?

Additionally, the safety of solid-state lithium-ion batteries is re-examined. Following the obtained insights, inspiring prospects for solid-state lithium-ion batteries in grid energy storage are depicted. Thacker S, Adshead D, Fay M, Hallegatte S, Harvey M, Meller H, O'Regan N, Rozenberg J, Watkins G, Hall JW. Nat Sustain, 2019, 2: 324-331.

What is a solid-state battery (SSB)?

The solid-state battery (SSB) is a novel technology that has a higher specific energy density than conventional batteries. This is possible by replacing the conventional liquid electrolyte inside batteries with a solid electrolyte to bring more benefits and safety.

Are solid-state lithium-ion batteries a safe alternative to liquid electrolytes?

Pursuing superior performance and ensuring the safety of energy storage systems, intrinsically safe solid-state electrolytes are expected as an ideal alternative to liquid electrolytes. In this review, we systematically evaluate the priorities and issues of traditional lithium-ion batteries in grid energy storage.

How long does a solid state battery last?

**Longevity (Cycle Life):** A well-engineered solid-state battery offers a longer lifespan compared to conventional lithium-ion batteries. Solid-state designs aim to eliminate failure mechanisms that cause capacity fade.

QuantumScape's results show 95% capacity retention after 1,000 cycles, suggesting very low degradation rates in their technology.

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