

## SolarTech Power Solutions

# Sodium flow battery



## Overview

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What is a Technology Strategy assessment on sodium batteries?

This technology strategy assessment on sodium batteries, released as part of the Long-Duration Storage Shot, contains the findings from the Storage Innovations (SI) 2030 strategic initiative.

What are aqueous sodium-ion batteries?

Because of abundant sodium resources and compatibility with commercial industrial systems, aqueous sodium-ion batteries (ASIBs) are practically promising for affordable, sustainable and safe large-scale energy storage.

Are aqueous sodium ion batteries a viable energy storage option?

Nature Communications 15, Article number: 575 (2024) Cite this article Aqueous sodium-ion batteries are practically promising for large-scale energy storage, however energy density and lifespan are limited by water decomposition.

Are aqueous sodium ion batteries durable?

Concurrently Ni atoms are in-situ embedded into the cathode to boost the durability of batteries. Aqueous sodium-ion batteries show promise for large-scale energy storage, yet face challenges due to water decomposition, limiting their energy density and lifespan.

What is a sodium ion battery?

Sodium-ion batteries (NaIBs) were initially developed at roughly the same time as lithium-ion batteries (LIBs) in the 1980s; however, the limitations of charge/discharge rate, cyclability, energy density, and stable voltage profiles made them historically less competitive than their lithium-based counterparts.

How do sodium ion batteries work?

During discharge, the ions travel back to the cathode, releasing stored energy. The cathode materials, such as Prussian blue analogues (PBAs), are highly suited for sodium-ion batteries because of their open framework structure and large interstitial spaces, which can accommodate the relatively larger sodium ions.

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