

# **Sodium-ion battery energy storage cost per kilowatt-hour**





## Overview

---

PSH and CAES, at \$165/kWh and \$105/kWh, respectively, give the lowest cost in \$/kWh if an E/P ratio of 16 is used inclusive of BOP and C&C costs. PSH is a more mature technology with higher rates of round-trip efficiency. How much would a sodium ion battery cost in the future?

Based on material costs of \$4 per kWh there could be \$8 to \$10 per kWh sodium ion batteries in the future. This would be ten times cheaper than energy storage batteries today. Soda Ash Mine in Wyoming.

How much will sodium ion batteries cost in 2028?

Assuming a similar capex cost to Li-ion-based battery energy storage systems (BESS) at \$300/kWh, sodium-ion batteries' 57% improvement rate will see them increasingly more affordable than Li-ion cells, reaching around \$10/kWh by 2028.

Are sodium ion batteries a good investment?

Analysing 30 LDES technologies, the research found sodium-ion batteries to hold the most promise due to their fast improvement rate – around 57% in 2024. They offer more efficiency in round-trip energy use, greater operational flexibility and lose less energy during storage and supply.

How much does sodium ion cost per kWh?

However, the second generation sodium ion could reach \$40 per kWh. Iron LFP batteries could get to \$50/kWh with really high volume and efficiency at the cell level. The future low price of sodium ion would make for insanely cheap fixed storage products like the Tesla Megapack and Powerwalls. They also do not have practical material limits.

What are sodium ion batteries?

Sodium-ion batteries represent a notable shift from traditional lithium-ion technology. Unlike lithium, which is relatively scarce and expensive, sodium is



derived from common salt, making it both widely available and cost-effective. This abundance positions sodium-ion batteries as a more sustainable alternative to lithium-based counterparts.

Are sodium ion batteries a viable alternative to lithium-ion?

CATL has introduced sodium-ion batteries with a potential cost reduction to \$10/kWh, using sodium's abundance and safety to address energy storage challenges. Sodium-ion batteries are a sustainable alternative to lithium-ion technology, offering lower costs, inherent safety, and suitability for EVs and renewable energy systems.



## Sodium-ion battery energy storage cost per kilowatt-hour

---

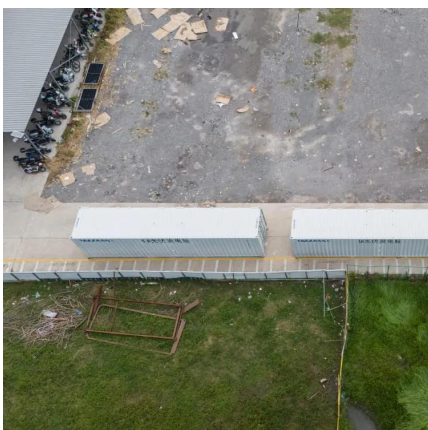


### Sodium-Ion Battery Price Trends: A Comprehensive Guide for 2023

Sodium-ion batteries are becoming increasingly competitive in the energy storage market. As reported by poweringautos , the projected price for sodium-ion batteries in ...

### How does the cost of sodium-ion batteries compare to lithium-ion

The cost of sodium-ion batteries compared to lithium-ion batteries shows significant advantages in several real-world applications. Here's a breakdown of their cost comparison: ...



### How Inexpensive Must Energy Storage Be for Utilities to Switch ...

High-temperature sodium-sulfur batteries cost \$500/kWh, but with more development, their costs could fall by up to 75 percent by 2030, according to the International ...

### Exclusive: sodium batteries to disrupt energy storage ...

Assuming a similar capex cost to Li-ion-based battery energy storage systems (BESS) at





\$300/kWh, sodium-ion batteries' 57% ...



### **Sodium Ion Energy Storage System Price: The \$45/kWh ...**

With global energy storage demand projected to reach 1.2 TWh by 2030 according to the 2024 Global Energy Storage Monitor, sodium-ion batteries are emerging as the dark horse of ...



### **A cost and resource analysis of sodium-ion batteries**

The background leading to such promises is carefully assessed in terms of cell and battery production, as well as raw material supply risks, for sodium-ion and modern lithium-ion ...



### **CATL Sodium-Ion Batteries Cuts Costs By 90% : \$10/kWh ...**

By harnessing the natural abundance of sodium, an element found in something as common as table salt, CATL has slashed energy storage costs to an unprecedented \$10 ...





## Sodium-ion Battery vs Lithium-ion Battery (2025 Update)

In the coming years, as sodium battery production scales up, the cost is expected to drop significantly (about \$42 per kWh of energy). Another ...

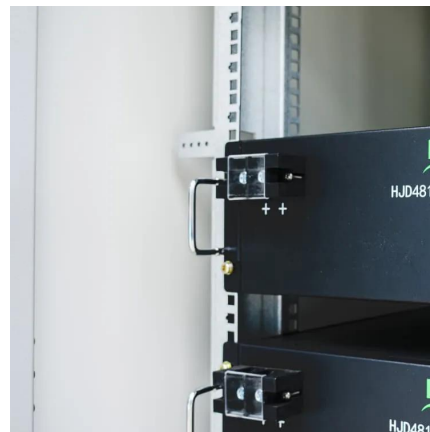


## Cost Projections for Utility-Scale Battery Storage: 2023 Update

Executive Summary In this work we describe the development of cost and performance projections for utility-scale lithium-ion battery systems, with a focus on 4-hour duration ...

## Comprehensive review of Sodium-Ion Batteries: Principles, ...

Sodium-ion batteries (SIBs) are emerging as a potential alternative to lithium-ion batteries (LIBs) in the quest for sustainable and low-cost energy storage solutions [1], [2]. The ...



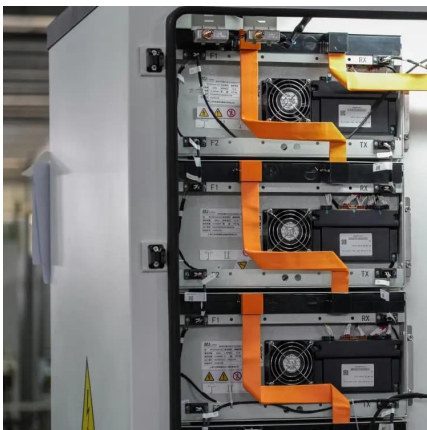
## Battery storage and renewables: costs and markets to 2030

Battery electricity storage is a key technology in the world's transition to a sustainable energy system. This study shows that battery storage systems offer enormous deployment and cost ...



Figure 1. Recent & projected costs of key grid

Meanwhile, the costs of pumped hydro storage are expected to remain relatively stable in the coming years, maintaining its position as the cheapest form - in terms of \$/kWh - ...

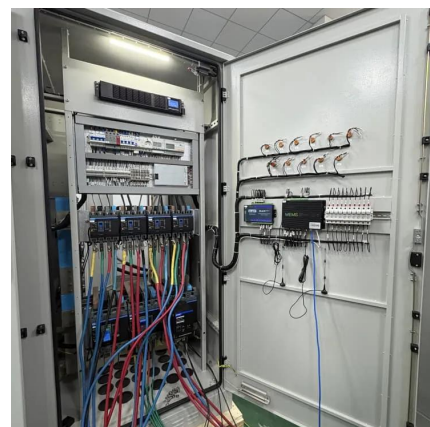


### **CATL Sodium Ion Batteries Lower Cost Than Lithium Ion Batteries**

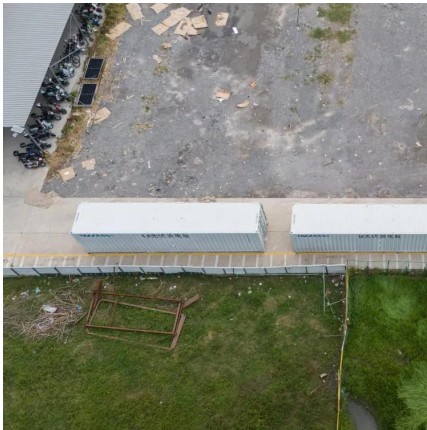
CATL's first-gen sodium batteries already power 250,000 urban delivery vans across China, offering 120-160Wh/kg energy density. The \$10/kWh is misleading (only raw ...

### **First sodium-ion battery storage station at grid level opens with ...**

Clean electricity generation paired with the first grid-level sodium battery energy storage system can bring costs down to just \$0.028 per kWh. The 10 MWh storage capacity is ...







## Energy Storage Technology and Cost Characterization Report

This report defines and evaluates cost and performance parameters of six battery energy storage technologies (BESS) (lithium-ion batteries, lead-acid batteries, redox flow batteries, sodium ...

### CATL will Mix Cheaper Sodium Ion Batteries With ...

A hybrid mix of \$40 per kwh hour sodium ion batteries and \$80 per kwh lithium iron phosphate batteries would be \$60 per kWh for the overall ...



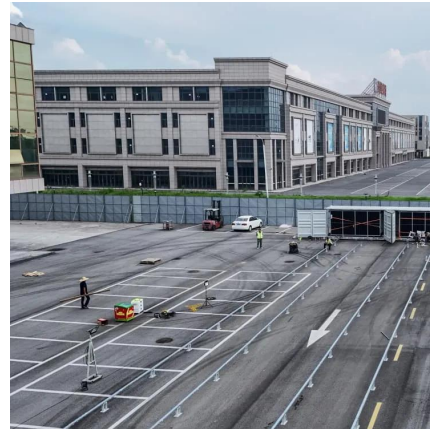
### Sodium battery energy storage cost per kilowatt-hour

A 10 kilowatt-hour (kWh) lithium ion battery will take up less space inside your home than a 10 kWh sodium ion battery would, even though they have the same capacity. Lithium ion ...

### How does the cost of sodium-ion batteries compare to that of ...

The cost of manufacturing sodium-ion batteries is estimated to be around \$50 per kilowatt-hour (kWh), which is lower than the \$70 per kWh for lithium-ion batteries. Additionally, ...





## Future Sodium Ion Batteries Could Be Ten Times Cheaper for ...

Based on material costs of \$4 per kWh there could be \$8 to \$10 per kWh sodium ion batteries in the future. This would be ten times cheaper than energy storage batteries ...

## Sodium-ion batteries ready for commercialisation: for ...

Though there's enough Lithium in the world to support global electrification targets, tightening demand and supply chain constraints point at ...



## Sodium-Ion Battery Vs. Lithium-Ion Battery: Which ...

So, sodium has some significant advantages when it comes to availability and cost, but there are some key hurdles for adoption in EVs. Right ...



## **Sodium-ion batteries ready for commercialisation: for grids, ...**

Though there's enough Lithium in the world to support global electrification targets, tightening demand and supply chain constraints point at the urgent need for an alternative. ...



## **Future Sodium Ion Batteries Could Be Ten Times Cheaper for Energy Storage**

Based on material costs of \$4 per kWh there could be \$8 to \$10 per kWh sodium ion batteries in the future. This would be ten times cheaper than energy storage batteries ...

## **First sodium-ion battery storage station at grid level ...**

Clean electricity generation paired with the first grid-level sodium battery energy storage system can bring costs down to just \$0.028 per kWh. ...



## **Exclusive: sodium batteries to disrupt energy storage market**

Assuming a similar capex cost to Li-ion-based battery energy storage systems (BESS) at \$300/kWh, sodium-ion batteries' 57% improvement rate will see them increasingly ...



## **BESS Costs Analysis: Understanding the True Costs of Battery Energy**

Exencell, as a leader in the high-end energy storage battery market, has always been committed to providing clean and green energy to our global partners, continuously ...



## **CATL Sodium-Ion Batteries Cuts Costs By 90% : \$10/kWh Energy ...**

By harnessing the natural abundance of sodium, an element found in something as common as table salt, CATL has slashed energy storage costs to an unprecedented \$10 ...

## **Sodium Batteries to Disrupt Energy Storage Market by 2027**

The average cost for sodium-ion cells in 2024 is \$87 per kilowatt-hour (kWh), slightly cheaper than Lithium-ion cells at \$89/kWh. Assuming similar capital expenditures, sodium-ion ...





## Contact Us

---

For catalog requests, pricing, or partnerships, please visit:  
<https://www.talbert.co.za>