

The cost of sodium energy storage





Overview

The average cost for sodium-ion cells in 2024 is \$87 per kilowatt-hour (kWh), marginally cheaper than lithium-ion cells at \$89/kWh. Are sodium-ion batteries a cost-effective energy storage solution?

Sodium-ion batteries are rapidly emerging as a promising solution for cost-effective energy storage. What Are Sodium-Ion Batteries?

Sodium-ion batteries (SIBs) represent a significant shift in energy storage technology. Unlike Lithium-ion batteries, which rely on scarce lithium, SIBs use abundant sodium for the cathode material.

Will sodium-ion batteries dominate the future of long-duration energy storage?

With costs fast declining, sodium-ion batteries look set to dominate the future of long-duration energy storage, finds AI-based analysis that predicts technological breakthroughs based on global patent data. Sodium-ion batteries' rapid development could see long-duration energy storage (LDES) enter mainstream use as early as 2027.

Are sodium-ion batteries a low-cost option?

Still, achieving a low-cost contender may be several years away for sodium-ion batteries and will require technological advances and favorable market conditions, according to a new study in Nature Energy. Sodium-ion batteries are often assumed to have lower costs and more resilient supply chains compared to lithium-ion batteries.

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 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.

How long does a sodium battery last?

More to the point, the new sodium battery is aimed at storing energy for a period of 10 to 24 hours. That's significant because it meets the long duration energy storage goal of the US Department of Energy. Currently, lithium-ion batteries only provide for about four hours of storage.



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[A cost and resource analysis of sodium-ion batteries](#)

This article explores the economic and resource-based aspects of sodium-ion batteries, offering a comprehensive analysis of their cost-effectiveness and resource ...

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Sodium-ion Batteries: The Future of Affordable Energy Storage

One of the main attractions of sodium-ion batteries is their cost-effectiveness. The abundance of sodium contributes to lower production costs, paving the way for more ...

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

Application-Specific Cost Considerations Electric Vehicles (EVs): For EVs, lithium-ion batteries currently dominate due to their higher energy density. However, sodium-ion ...

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The Race To Replace Lithium: Is Sodium the Future of Batteries?

Despite much potential, sodium-ion batteries still face an uphill struggle. The amount of energy they hold per pound tends to be lower than lithium-ion batteries. So, ...



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Techno-economics Analysis on Sodium-Ion Batteries: Overview ...

Sodium-ion batteries are considered compelling electrochemical energy storage systems considering its abundant resources, high cost-effectiveness, and high safety. ...

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

Overall, sodium-ion batteries offer a cost-effective alternative to lithium-ion batteries, especially for applications that prioritize sustainability and cost over high energy ...

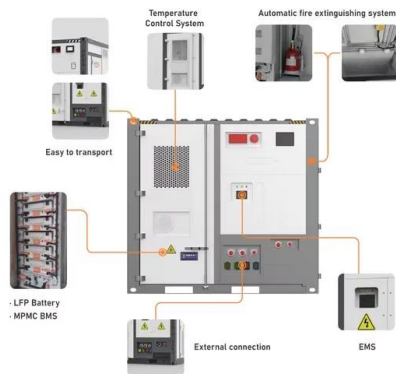
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Sodium-ion batteries face uphill struggle to beat lithium-ion on cost

One of the most impactful ways to improve competitiveness is increasing sodium-ion energy densities to decrease materials intensity. At this point, the cost per unit of energy ...

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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 ...

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An outlook on sodium-ion battery technology toward practical

The growing concerns over the environmental impact and resource limitations of lithium-ion batteries (LIBs) have driven the exploration of alternative energy storage ...

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[Sodium-ion batteries Market Size, Share , CAGR of ...](#)

The sodium-ion battery (SIB) market is emerging as a strong alternative to traditional lithium-ion (Li-ion) batteries, particularly for large-scale energy ...

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The future cost of electrical energy storage based on experience ...

Electrical energy storage could play a pivotal role in future low-carbon electricity systems, balancing inflexible or intermittent supply with demand. Cost projections are ...

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[Sodium-ion batteries need breakthroughs to compete](#)

So, possible lower materials prices aside, the cost per unit of energy stored remains higher for sodium-ion batteries. This likely would limit widespread commercial ...

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