

Sodium ion energy storage cost per kilowatt-hour





Overview

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 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.

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.

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 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.



Can sodium-ion batteries help power a sustainable future?

After all, the race to power a sustainable future is as much about bold ideas as it is about overcoming the obstacles in their path. 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 energy storage cost per kilowatt-hour



[Australia's Sodium-Ion Energy Storage Debuts in Europe](#)

The starting price for their sodium-ion batteries is estimated at EUR500 per kilowatt-hour of storage capacity. This pricing aims to be competitive while offering a sustainable ...

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[CATL's Breakthrough Sodium-Ion Tech Slashes Battery Costs by ...](#)

China has achieved a stunning milestone in battery technology that could reshape the global electric vehicle (EV) market. Engineers at CATL -- the world's largest EV battery ...

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[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 ...

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[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 - ...

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[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 ...

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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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[Sodium Ion Energy Storage System Price: The \\$45/kWh ...](#)

But what's driving their sudden price competitiveness? Let's unpack the numbers behind the \$45-\$65/kWh price range that's making engineers rethink century-old energy paradigms .

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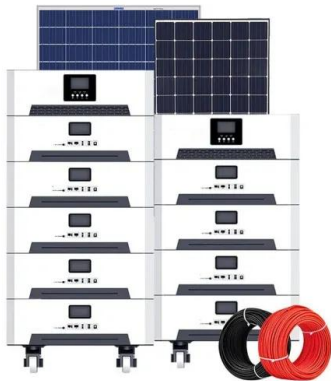




[2022 Grid Energy Storage Technology Cost and ...](#)

Recycling and decommissioning are included as additional costs for Li-ion, redox flow, and lead-acid technologies. The 2020 Cost and Performance ...

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

In this Perspective, we use the Battery Performance and Cost (BatPaC) model to undertake a cost analysis of the materials for sodium-ion and lithium-ion cells, as well as ...

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[Sodium-ion batteries ready for commercialisation: for ...](#)

The cost of a Na-ion battery cell is expected to be around \$40-80/kWh compared to an average of \$120/kWh for a Li-ion cell. Na-ion batteries ...

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[Exclusive: sodium batteries to disrupt energy storage market](#)

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[Sodium-ion batteries ready for commercialisation: for grids, ...](#)

The cost of a Na-ion battery cell is expected to be around \$40-80/kWh compared to an average of \$120/kWh for a Li-ion cell. Na-ion batteries are safer (operating temperature ...

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[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 ...

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[Techno-economics Analysis on Sodium-Ion Batteries ...](#)

Abstract Sodium-ion batteries are considered compelling electrochemical energy storage systems considering its abundant resources, ...

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[Sodium-Ion Battery Market Size \(\\$1.3 Billion\) 2030](#)

The Global Sodium-ion Battery Market is projected to grow from \$483.5 million in 2024 to \$1.3 billion by 2030, registering a CAGR of 17.2% during the forecast period. The market growth is ...

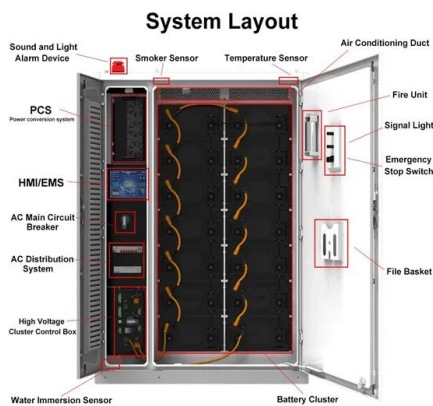
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[Further innovation required to achieve \\$0.05/kWh target for long](#)

The Department of Energy released its cost analysis for 11 technologies one day before announcing several funding and innovation opportunities for long-duration storage ...

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[Future Sodium Ion Batteries Could Be Ten Times Cheaper for ...](#)

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

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[Acculon launches production of sodium-ion battery ...](#)

US-based Acculon Energy has announced series production of its sodium-ion battery modules and packs for mobility and stationary energy ...

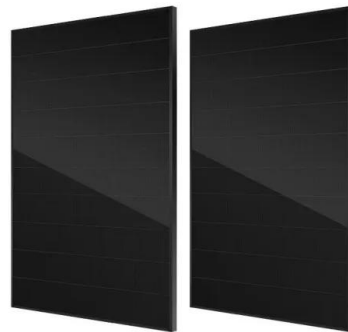
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[Energy Storage Technology and Cost Characterization Report](#)

Detailed cost and performance estimates were presented for 2018 and projected out to 2025. This report was completed as part of the U.S. Department of Energy's Water Power Technologies ...

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[Battery Report 2024: BESS surging in the "Decade of Energy Storage"](#)

For example, sodium-ion technology has been shown to be successfully implemented in grid-scale batteries in a 50MW/100MWh energy storage system, which was ...

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[How much does sodium ion energy storage cost per kilowatt...](#)

The cost of electricity by state. As of February 2023, the average residential electricity rate in the U.S. is about 23 cents per kilowatt-hour (kWh). Importantly, electricity rates can vary widely ...

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[China's first large-scale sodium-ion battery charges to...](#)

The state utility says the 10 MWh sodium-ion battery energy storage station uses 210 Ah sodium-ion battery cells that charge to 90% in a ...

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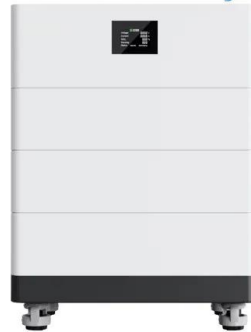


[How does the cost of sodium-ion batteries compare to that of ...](#)

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.

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High Voltage Solar Battery



[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 ...

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