Sodium metal supplies new energy storage batteries

What is a sodium metal battery (SMB)?
Sodium metal batteries (SMBs) are one of the most versatile platforms for high energy density and cost-effective electrochemical energy storage systems.

Is sodium a good battery material?
It's an Earth-abundant and cost-effective material with wide availability that supports the development of scalable and affordable battery systems, particularly for stationary applications like grid storage. However, sodium's unique chemistry introduces challenges, particularly at the interface where the sodium anode meets the solid electrolyte.

How can sodium metal batteries be improved?
Numerous strategies have been investigated to enhance the performance and stability of sodium metal batteries (SMBs), including interface engineering, electrolyte modification, and the design of sodiophilic hosts and structured current collectors.

Can a sodium compound stabilize a solid-state battery?
ScienceDaily. ScienceDaily, 17 October 2025. < / releases / 2025 / 10 / 251016223116.htm>. Researchers discovered how to stabilize a high-performance sodium compound, giving sodium-based solid-state batteries the power and stability they've long lacked.

We elucidate the mechanisms of sodium deposition, dendrite formation, and their impacts on battery performance, with the focus on ...

Iron-sodium batteries revive a 1980s technology to provide 8- to 24-hour grid storage with cheap materials and intrinsic safety.

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The EV battery giant said its sodium-ion batteries will be used for battery swapping, passenger vehicles, commercial vehicles, and energy storage. CATL Choco-Swap ...

This cross-journal Collection brings together the latest developments in electrodes, electrolytes, and battery components used in ...

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Researchers discovered how to stabilize a high-performance sodium compound, giving sodium-based solid-state batteries the power ...

As research and development efforts continue in academia, national laboratories, and industry, widespread use of safe, cost-effective molten sodium batteries as well as ...

Battery storage is essential to a fully-integrated clean energy grid, smoothing imbalances between supply and demand and accelerating the transition ...

Constructing high cycling stability and rate performance under limited or ideally zero sodium excess, namely initially anode-free design, which can obtain the ultimate energy ...

Solar and wind energy require low-cost grid storage to be economic at high penetrations. Sodium-metal chloride batteries have been produced commercially for more ...

Inlyte"s sodium-iron battery tech offers a safer, cheaper, and longer-lasting alternative to lithium-ion for long-duration energy storage. ...

The Baochi Energy Storage Station that just opened in Yunnan province, China, is a hybrid system that uses both lithium-ion and ...

Project aims to develop safer, low-cost solid-state sodium batteries for a more resilient, reliable energy grid. Over the next decade, global energy demand is expected to ...

The recent proliferation of sustainable and eco-friendly renewable energy engineering is a hot topic of worldwide significance with regard to combatti...

If researchers can combine room-temperature efficiency with the safety and lifetime already shown in the lab, sodium metal batteries could anchor large renewable ...

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In 2026, sodium batteries will see large-scale adoption in battery swap, passenger vehicles, commercial vehicles, and energy storage, CATL said yesterday at a supplier ...

The Baochi Energy Storage Station that just opened in Yunnan province, China, is a hybrid system that uses both lithium-ion and sodium-ion batteries and has a capacity of 400 ...

Additionally, alternative battery technologies, such as solid-state, sodium-ion, and metal-air systems, are explored for their potential to complement or surpass lithium-ion ...

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