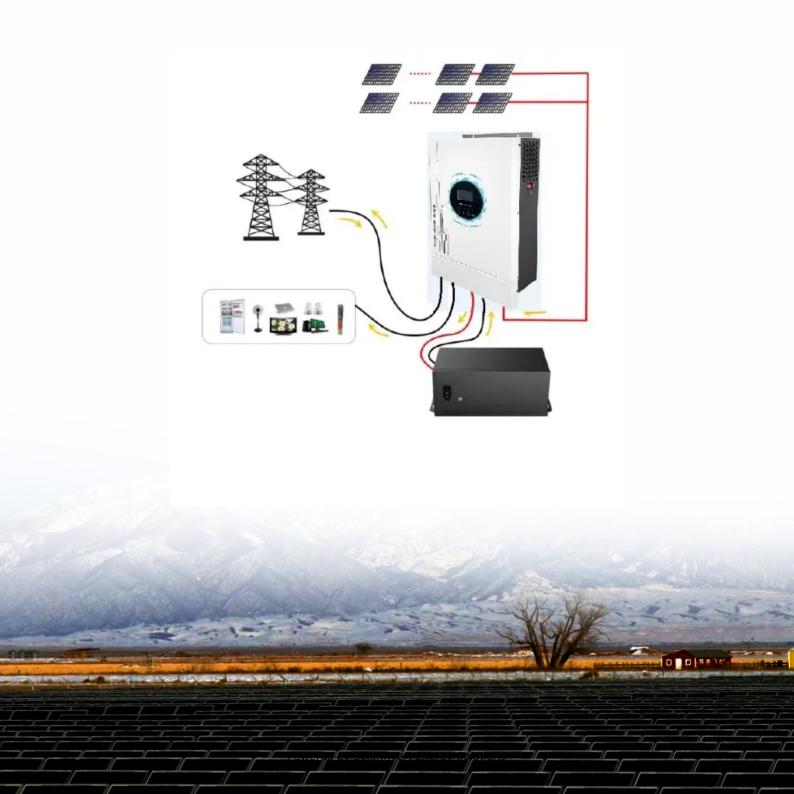


SolarInvert Energy Solutions

Current cost-effective energy storage solutions





Overview

From iron-air batteries to molten salt storage, a new wave of energy storage innovation is unlocking long-duration, low-cost resilience for tomorrow's grid. Which energy storage option is most cost-effective?

The application analysis reveals that battery energy storage is the most costeffective choice for durations of <2 h, while thermal energy storage is competitive for durations of 2.3–8 h. Pumped hydro storage and compressedair energy storage emerges as the superior options for durations exceeding 8 h.

Which energy storage technologies are included in the 2020 cost and performance assessment?

The 2020 Cost and Performance Assessment provided installed costs for six energy storage technologies: lithium-ion (Li-ion) batteries, lead-acid batteries, vanadium redox flow batteries, pumped storage hydro, compressed-air energy storage, and hydrogen energy storage.

What are energy storage technologies?

Informing the viable application of electricity storage technologies, including batteries and pumped hydro storage, with the latest data and analysis on costs and performance. Energy storage technologies, store energy either as electricity or heat/cold, so it can be used at a later time.

What are energy storage solutions?

From lithium-ion batteries to redox flow batteries, these innovative technologies store excess energy generated from renewable sources like solar and wind. Energy Storage Solutions play a critical role in stabilizing grids, reducing reliance on fossil fuels, and promoting a cleaner, sustainable energy future.

Is thermal energy storage a cost-effective choice?



Sensitivity analysis reveals the possible impact on economic performance under conditions of near-future technological progress. The application analysis reveals that battery energy storage is the most cost-effective choice for durations of <2 h, while thermal energy storage is competitive for durations of 2.3–8 h.

Which energy storage technology has the best economic performance?

When the storage duration is 1 day, thermal energy storage exhibits the best economic performance among all energy storage technologies, with a cost of <0.4 CNY/kWh. Even with increased storage durations, the economic performance of TES and CAES remains considerable. Fig. 8. Economic performance under the day-level energy storage scenario.



Current cost-effective energy storage solutions



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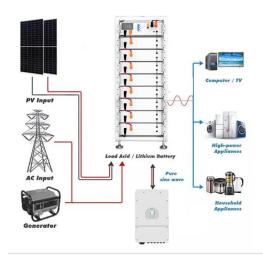
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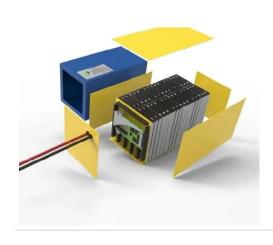
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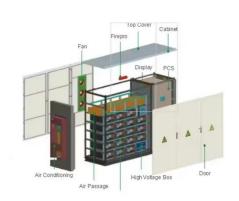
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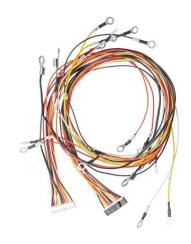
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