

## **Energy Storage Transformation**

Power System

What is the future of energy storage?

Storage enables electricity systems to remain in balance despite variations in wind and solar availability, allowing for cost-effective deep decarbonization while maintaining reliability. The Future of Energy Storage report is an essential analysis of this key component in decarbonizing our energy infrastructure and combating climate change.

What is a high-power storage system?

High-power storage systems provide a dependable backup for power outages or variations in renewable energy output, guaranteeing a continuous supply of electricity to vital loads. These technologies can immediately supply electricity during unanticipated situations, eliminating grid interruptions.

Is energy storage a cost-competitive flexibility provider?

Energy storage, particularly battery energy storage systems (BESS), are becoming a cost-competitive flexibility provider. Modifications to policy, market and regulatory frameworks ensure BESS can participate in the power system to provide flexibility services.

Why is flexibility important in a transformed power system?

In a transformed power system with higher shares of variable renewable energy (VRE), the importance of flexibility options beyond power plants increases sharply. This can open synergies with other developments in the energy sector, such as the deployment of electric vehicles (EVs).

Why are power systems undergoing significant change?

Power systems around the world are undergoing significant change, driven particularly by the increasing availability of low-cost variable renewable energy (VRE), the deployment of distributed energy resources (DER), advances in digitalisation and growing opportunities for electrification.

What are the different types of energy storage technologies?

Other storage technologies include compressed air and gravity storage, but they play a comparatively small role in current power systems. Additionally, hydrogen - which is detailed separately - is an emerging technology that has potential for the seasonal storage of renewable energy.



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