

Energy Storage Lowers Electricity Costs & Reduces Ratepayer Bills

Credit: AES

Energy storage technologies are uniquely positioned to reduce energy system costs and, over the long-term, lower rates for consumers by:

- **Optimizing the grid;**
- **Bolstering reliability; and**
- **Enabling a clean grid.**



How does storage reduce energy costs?

- 1 Supports the integration of more wind and solar generation:** Wind and solar are the cheapest sources of electricity. Energy storage supports the integration of higher and higher shares of renewables, enabling the expansion and incorporation of the most cost-effective sources of electricity generation.
- 2 Reduces energy waste:** Energy storage can help eliminate energy waste and maximize the benefits of renewable energy. Energy storage is the only grid technology that can both store and discharge energy. By storing energy when there is excess supply of renewable energy compared to demand, energy storage can reduce the need to curtail generation facilities and use that energy later when it is needed.
- 3 Improves grid efficiency:** Energy storage is instantly dispatchable to function both as generation and load, so it can help the grid adjust to fluctuations in demand and supply, which optimizes grid efficiency, alleviates transmission congestion, and increases grid flexibility. This reduces overall system costs.
- 4 Limits costly energy imports and increases energy security:** Energy storage improves energy security and maximizes the use of affordable electricity produced in the United States.
- 5 Prevents and minimizes power outages:** Energy storage can help prevent or reduce the risk of blackouts or brownouts by increasing peak power supply and by serving as backup power for homes, businesses, and communities. Disruptions to power supply can be extremely costly and hazardous to health and safety. Energy storage makes the grid more resilient and reliable.

Energy Storage Enhances Grid Reliability & Resilience

Credit: AES

Energy storage is, at its core, a **resilience enabling** and **reliability enhancing** technology. Across the country, states are choosing energy storage as the best and most cost-effective way to improve grid resilience and reliability.

How do energy storage systems strengthen grid reliability?

- 1 Frequency Response and Regulation:** Energy storage ensures the moment-to-moment stability of the electric system at all times.
- 2 Peaking Capacity:** Energy storage meets short-term spikes in electric system demand that can otherwise require use of lower-efficiency, higher-cost generation resources.
- 3 Maximizing Renewable Energy Resource:** Energy storage reduces curtailment of renewable generation resources and maximizes their contribution to system reliability.
- 4 Grid Infrastructure Support:** Energy storage relieves transmission and distribution infrastructure congestion, prevents reliability violations on power lines, enhances the resilience of wires infrastructure, and creates a more flexible power system.
- 5 Increasing Operational Flexibility:** Energy storage facilitates efficient integration of a diversity of generation resources and improves the ability of the electric grid to adapt rapidly to changes in demand and generation.
- 6 Improving Grid Resilience:** Energy storage serves as back-up power for individual homes, businesses, communities, and the broader grid system to minimize and prevent power outages and service interruptions from extreme weather.