

# Battery Energy Storage Systems (BESS): Benefits

## Lower Electricity Costs & Reduce Ratepayer Bills

Energy storage technologies are positioned to reduce energy system costs, and lower rates for consumers by optimizing the grid, bolstering reliability, and enabling a clean grid

## How Does Storage Reduce Energy Costs?

### Supports the Integration of More Wind and Solar Generation

- Wind and solar are the cheapest sources of electricity, so the integration of higher shares of renewables, enables the expansion of most cost-effective sources of electricity



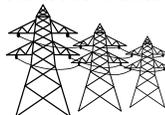
### Reduces Energy Waste

- BESS helps eliminate energy waste and maximize the benefits of renewable energy
- By storing energy when there is excess supply of renewable energy compared to demand, BESS reduces the need to curtail generation facilities and use that energy later when needed



### Improves Grid Efficiency

- BESS is instantly dispatchable to function as generation and load, so it helps the grid adjust to fluctuations in demand and supply, optimizing grid efficiency, alleviating transmission congestion, and increasing grid flexibility
  - Reduces overall system costs



### Limits Costly Energy Imports & Increases Energy Security

- BESS improves energy security and maximizes the use of affordable electricity produced in the US



# Battery Energy Storage Systems (BESS): Benefits

## Energy Storage Enhances Grid Reliability & Resilience

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

## How Does Storage Strengthen Grid Reliability?

### Frequency Response and Regulation

- BESS ensures the moment-to-moment stability of the electric system at all times

### Peaking Capacity



- BESS meets short-term spikes in electric system demand that otherwise requires use of lower-efficiency, high-cost generation resources

### Maximizing Renewable Energy Resources

- BESS reduces curtailment of renewable generation resources and maximizes their contribution to the system reliability



### Grid Infrastructure Support

- BESS relieves transmission and distribution infrastructure congestion, prevents reliability violations on power lines, and creates more flexibility in the power system

### Increasing Operational Flexibility

- BESS facilitates efficient integration of diverse generation resources and improves the ability of the electric grid to adapt rapidly to changes in demand and generation

### Improving Grid Resilience



- BESS serves as back-up power for the grid system to minimize and prevent power outages from extreme weather

