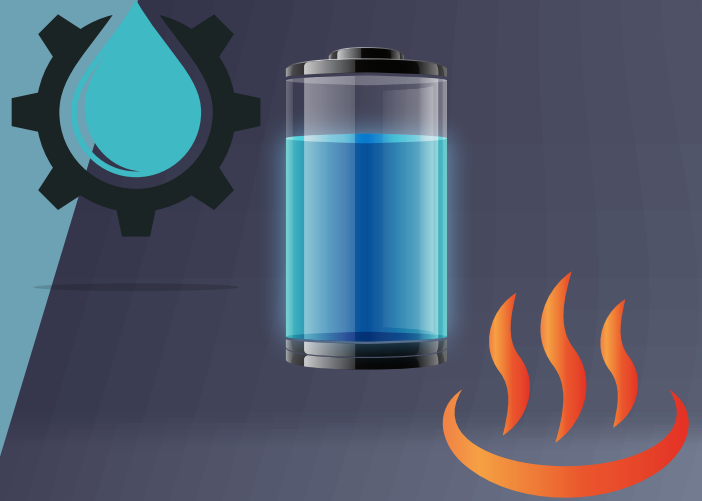


Energy Storage Basics

Types of Energy Storage

Of all the many energy storage technologies, each fall under one of three basic types:

- Electrochemical (e.g., batteries and capacitors)
- Electromechanical (e.g., pumped hydro, compressed air, flywheels)
- Thermal (e.g., concentrated solar, building HVAC systems, electric water heaters)



Energy Storage Services

Storage can enhance reliability and resilience and help utilities manage load via:

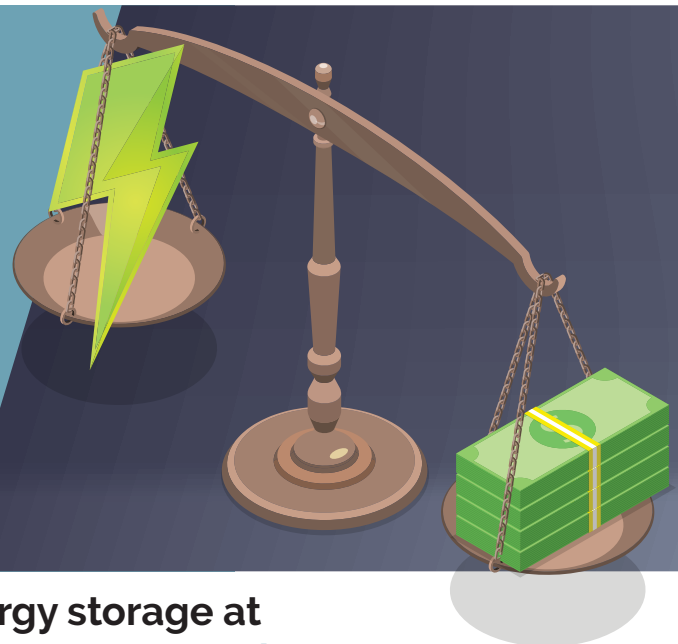
- Supporting microgrids
- Integrating intermittent resources, such as wind and solar
- Providing ancillary services including black start, voltage support, frequency regulation, spinning or non-spinning reserve
- Managing peak demand, which helps utilities optimize assets, maintain resource adequacy, and defer distribution and transmission upgrades
- Conducting energy arbitrage



Economics

Weighing the costs and financial benefits of energy storage technologies can be challenging. When deciding which technology might be right for your utility, keep in mind:

- Costs are coming down for many storage technologies
- Capital costs vary widely from technology to technology
- Some technologies are better suited for certain types of services (see "Energy Storage Services" fact sheet)
- "Stacking" services can help maximize the value of a storage asset, but is not allowed or feasible (whether from regulations, market rules, or availability requirements)



Learn more about energy storage at
www.PublicPower.org/Energy-Innovation