BESS in Washington

A practical tool for reliability, affordability, and better use of Washington's energy resources

What is BESS?

Battery energy storage systems, often referred to as BESS, store electricity for later use. When electricity generation exceeds demand, electricity from all energy sources, including wind, solar, hydropower, geothermal, and natural gas, can be stored in batteries and discharged when additional power is needed.

Washington's Energy Needs are Changing

Washington's electricity system is entering a period of significant change. Utilities are planning for growing electricity demand as communities grow, transportation becomes more electrified, and new and existing industries require additional power to support the 21st century economy.

In western Washington, that challenge is already coming into focus. Puget Sound Energy, the state's largest electric utility, projects a resource need of approximately 2 gigawatts by 2030 to serve its 1.2 million customers. That is nearly twice Seattle's average electricity demand.

At the same time, Washington has adopted some of the nation's most ambitious clean energy goals. Under the Clean Energy Transformation Act (CETA), utilities must supply 100 percent clean electricity to Washington customers by 2045.

As utilities work to meet growing demand and clean energy requirements, they are looking for tools that can help maintain reliability, improve flexibility, and manage costs for customers. BESS is one of those tools.

Why BESS Matters Now in Washington

Washington has a major advantage in its hydropower system. Dams provide a large share of the electricity generated in the state, helping Washington maintain one of the cleanest and historically lowest-cost power systems in the country. But hydropower alone is not enough to meet future energy needs. Utilities must plan for growing demand, changing seasonal water availability, fish recovery obligations, competing water uses, and the need for more flexible resources.

Washington's geography presents another challenge. Many of the state's best wind and solar resources are located east of the Cascade mountains, while much of the state's population and electricity demand is concentrated west of the Cascades. Delivering electricity from where it is generated to where it is needed requires major investments in transmission infrastructure, particularly as existing lines reach their limits during periods of high demand.

The Bonneville Power Administration (BPA) owns and operates regional transmission lines that will play an important role in Washington's energy future, but new transmission capacity can take years to plan, permit, finance, and construct. BESS will not eliminate the need for new generation, transmission, or other grid investments. It can help utilities make better use of the infrastructure already in place by storing electricity and delivering it during higher-demand hours.

Depending on the project's purpose and how it is integrated into utility planning, that flexibility may help avoid, defer, or optimize certain infrastructure upgrades while supporting reliability and reducing pressure on future customer rates.

Washington is beginning to see BESS move from planning to operation. Snohomish County PUD's Arlington project is expected to be Washington's first battery energy storage facility when it comes online. Other BESS projects are also being planned or proposed across the state. As more Washington communities evaluate proposed projects, questions about safety, siting, emergency response planning, local permitting, and local impacts will remain important.

Clear standards and predictable review processes can help communities address those questions while enabling needed energy resources to move forward.

Washington Review and Permitting Pathways

Washington clean energy projects, including battery storage, may move through different review and permitting pathways depending on project size, location, impacts, and applicant choice.

In general, a project may be reviewed through:

- A local government-led permitting and environmental review process
- Washington Department of Ecology's coordinated clean energy permitting process
- The Energy Facility Site Evaluation Council process, if applicable

Every project is different, and required permits are determined case by case. Local governments should ask early which pathway the applicant expects to use, what local permits or approvals may be needed, how SEPA review will be handled, and how local agencies, Tribes, emergency responders, and community members will be engaged.

PROJECT SPOTLIGHT

Snohomish PUD's Arlington BESS

Snohomish County PUD's Arlington **project** shows how BESS is beginning to move into operation in Washington. The project is located on the utility's clean energy campus in Arlington and is designed to store electricity when it is available and discharge it during peak demand periods.

For Snohomish PUD, the project is intended to support reliability, improve operational flexibility, and help manage peak power costs. It also illustrates several issues local governments may consider when reviewing BESS proposals, including site location, local permitting, safety standards, emergency response planning, ownership, operations, and how a project fits within a utility's broader resource planning.

Safety Standards Provide a Framework

BESS projects are reviewed against established national safety standards.

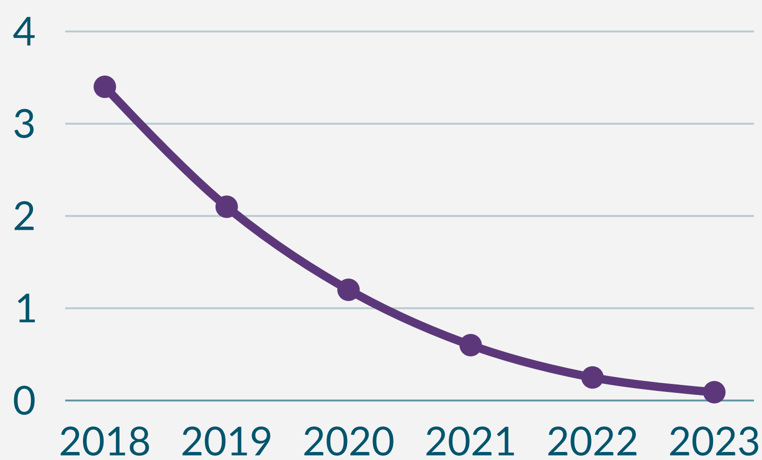
- **National Fire Protection Association (NFPA) 855** provides the primary framework for safe installation, including siting, separation, ventilation, emergency planning, and coordination with local emergency responders.
- **UL 9540A** testing helps evaluate how BESS performs under thermal runaway conditions and informs project design, fire protection, and emergency response planning.

These standards help ensure that project design, local permitting, and emergency planning are informed by current fire-safety testing and real-world failure scenarios.

The Electric Power Research Institute (EPRI) publicly tracks reported BESS failure incidents. Its data show **the global BESS failure rate per deployed capacity dropped 97% from 2018 to 2025** as lessons from earlier projects were incorporated into newer designs and best practices. EPRI also notes that incident data has limitations and may not capture every relevant incident.

BESS Incident Rates Have Declined 97% Since 2018

Reported fire and thermal-runway incidents per GWh of deployed battery energy storage capacity



Source: EPRI Battery Energy Storage System Failure Incident Database

Key drivers in the decline of safety incidents:

- Stronger safety standards and fire-code requirements
- Large scale testing, such as UL 9540A and broader use of NFPA 855
- Improvements in battery management systems, enclosure design, and thermal controls
- Lessons learned from earlier projects incorportated into newer designs and operations

Key Considerations for Decision-Makers

When reviewing a BESS proposal, local leaders do not need to become technical experts. They should expect clear information that connects the project's purpose, site design, safety standards, community benefits, and long-term responsibilities.

Decision Making Checklist:

- [ ] **Need:** What grid or local reliability need is the project intended to serve, including support during periods of high demand?
- [ ] **Affordability:** How could the project help make better use of existing infrastructure, support reliability, or avoid more expensive upgrades? (BESS is one tool among several for meeting future energy needs.)
- [ ] **Site fit:** Why was this location selected, and how will local impacts be addressed?
- [ ] **Safety:** How will the project meet established safety standards, what project-specific testing has been or will be conducted, and have local officials and emergency responders been engaged early in the process?
- [ ] **Community value:** What local benefits may result — such as tax revenue, construction or contracting opportunities, or long-term operations and maintenance work — and how do factors like project size, location, ownership, and local tax structure shape those benefits?
- [ ] **Long-term responsibility:** Who is responsible for ongoing operations, maintenance, and eventual decommissioning?