RENEWABLE NORTHWEST

BESS in Idaho

A practical tool for reliability, affordability, and better use of Idaho'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.

Idahos's Energy Needs are Growing

Families, farms, dairies, schools and businesses need dependable electricity every hour of the day. As Idaho communities grow and electricity demand increases, utilities need practical tools that can help keep power reliable, flexible, and affordable.

BESS helps Idaho make better use of the grid we already have. By storing electricity when demand is lower and delivering it during higher-demand hours, BESS can help utilities make better use of existing infrastructure and may help avoid or defer certain upgrades, depending on the project's purpose and how it is integrated into utility planning. Over time, that can help reduce pressure on future customer rates.

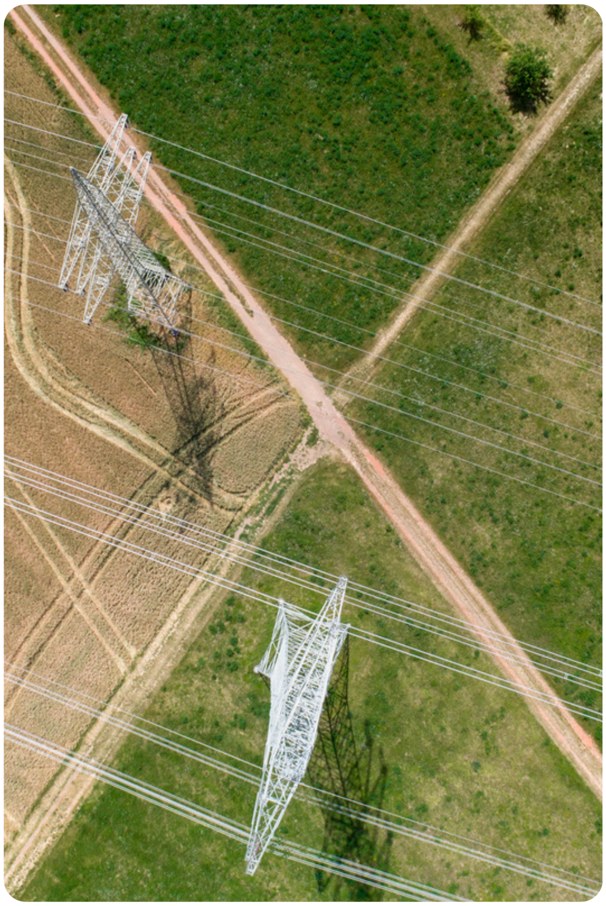
That matters for ratepayers as electricity demand rises quickly across Idaho Power's 24-county service territory, where demand from 2025 to 2029 is projected to grow 8.3% annually. This is a historic increase comparable to decades of prior load growth compressed into just a few years.

Why BESS Fits in Idaho

BESS works hand-in-hand with Idaho's energy resources. It does not generate electricity on its own. Instead, it helps utilities get more value from the energy already available on the system, especially during periods of high demand or higher costs.

That flexibility matters in a state with growing communities, major agricultural and industrial energy needs, rural electric cooperatives, irrigation and dairy operations, and transmission and distribution systems that must serve both urban growth and rural communities. BESS can help utilities manage peak demand, improve system flexibility, and make nearby energy infrastructure more useful.

BESS projects can also provide direct local benefits, including tax revenue, construction activity, local contracting opportunities, and long-term operations and maintenance needs. When paired with or located near generation projects, BESS can further increase the value of those resources by helping deliver electricity when customers need it most.



Idaho Review and Permitting Pathways

BESS projects in Idaho may move through different review and permitting pathways depending on project size, location, ownership, interconnection, and local code requirements. In many cases, local governments play an important role through land use review, conditional use permits, building permits, site design standards, public hearings, and coordination with emergency responders.

Other agencies or entities may also be involved depending on the project, including utilities, rural electric cooperatives, the Idaho Public Utilities Commission, state agencies, federal land managers, transportation agencies, and environmental regulators. Local governments should ask early which approvals apply, who has jurisdiction over each part of the project, how emergency responders will be engaged, and what information the applicant must provide.

PROJECT SPOTLIGHT

Boise Bench Substation Battery Project

Idaho Power's Boise Bench Substation Battery Project provides a concrete example of how BESS can be used to address local growth and peak demand. Idaho Power describes the project as a battery installation at its Boise Bench Substation property near Amity and Holcomb roads, with full buildout capacity of up to 200 megawatts.

The project also shows how site-specific issues can be part of BESS review. Idaho Power's public materials describe why the substation location was selected, how the project would connect to nearby electrical infrastructure, what the batteries would look and sound like, how screening and landscaping could be used, and how safety systems and emergency response coordination would be addressed.

Safety Standards Provide a Framework

BESS projects are reviewed against established national safety standards.

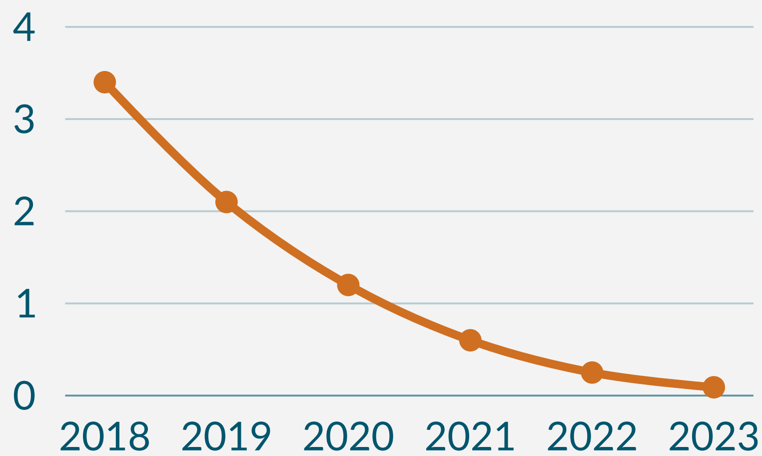
- **National Fire Protection Association (NFPA) 855** provides the primary framework for safe installation, including siting, separation, ventilation, emergency planning, and coordination with local emergency responders.
- **UL 9540A** testing helps evaluate how BESS performs under thermal runaway conditions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