Invenergy

ENERGY STORAGE

Invenergy's approach to energy storage safety

Invenergy's work across our diverse portfolio of technologies is guided by a core set of safety beliefs, including holding each other accountable, providing rigorous hands-on training, staying alert to risks and empower employees to stop work if conditions are unsafe.

These safety beliefs guide our approach to safety and reliability of our battery systems and the employees who operate them.

27
Battery projects successfully developed

5,000+
MW hours awarded, in construction, or in operation

12
Years of experience operating energy storage facilities

150,000+
Hours of battery system runtime experience

The elements of Invenergy's storage safety plan

Equipment & system design

Safe operation of advanced energy storage systems begins with safe equipment and compliance with safety codes and regulations. Invenergy's equipment suppliers follow stringent quality standards, and equipment at our project sites is tested and certified by third-party professionals. Invenergy is an industry leader in advancing responsible project design, promoting safer battery products, and emergency response planning with first responders.

Emergency response plans & training

Every Invenergy project has a site-specific Emergency Response Plan (ERP) that outlines protocols from construction through operations with contractors and local authorities. Invenergy's storage project ERPs require quarterly safety drills and annual safety training with local first responders.

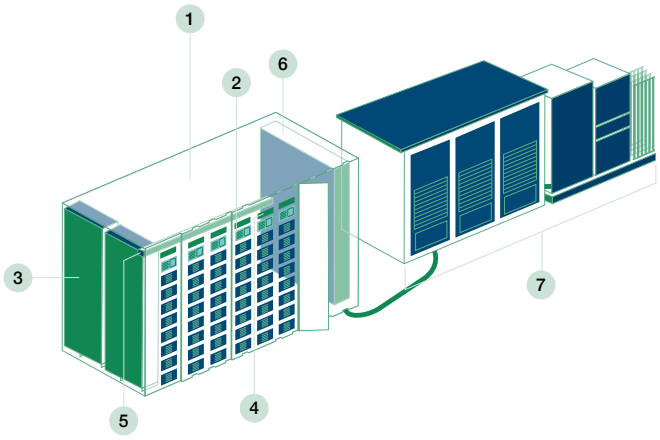
Remote monitoring & automated emergency response

Each advanced energy storage project is equipped with a battery management system (BMS) that constantly monitors key equipment safety parameters, alerts Invenergy teams of unsafe conditions, and can automatically stop operations if necessary. For Invenergy-operated projects, an alarm is also sent to the Generation Control Center, which has a redundant remote shut-down capability that will alert local Invenergy technicians or notify local emergency services if necessary.

Codes & standards

Invenergy complies with several major energy storage project codes and standards in its battery systems designs, such as the International Fire Code and the National Fire Protection Association 855. Additionally, Invenergy works with manufacturers to ensure all equipment has been stringently tested and certified to prominent safety standards, including UL 9540A fire testing and UL 9540 safety listings. To help further evolve the industry's storage safety best practices, Invenergy is also a member of the American Clean Power Energy Storage Safety, Codes, & Standards Committee and an active participant in National Fire Protection Association energy storage task groups.

Invenergy battery storage components and key safety features*



**The above diagram shows a basic DC Block. Battery storage systems vary significantly in appearance and layout but retain the same basic components.*

1. AC or DC Block

Enclosure with battery racks and supporting management & detection systems

2. Power Conversion System (PCS)

A bi-directional inverter and transformer

- → DC Block: both are exterior
- → AC Block: inverter is in the enclosure with the battery racks, transformer is exterior

3. Battery Management System (BMS)

Monitors temperature, voltage, and status of each cell, module, and rack to ensure operation within safe limits

4. Thermal Management

Maintains optimal temperature

5. Internal Gas, Heat, Smoke Detectors and/or External Flame or Temperature Detectors

Enclosure with battery racks and supporting management & detection systems

6. Exhaust Ventilation or Exhaust Vent and Sparker System

- → Exhaust ventilation activates in case of emergency to manage & prevent pressure build up
- → Exhaust vent and sparker systems help prevent pressure build up

7. Electrical Compartment

Houses connections to power conversion system (PCS) and communication ports for supporting systems

Invenergy's safety culture

Strong safety standards are the backbone of Invenergy Services. Through a focus on continuous improvement and an ongoing approach to learning, our culture of safety puts the well-being of our people and the energy centers they manage front and center.

Training

Our personnel are dedicated to making each day on the job as safe as possible for themselves and their teams.

Dedicated professional staff

Invenergy has on-site safety representatives at every site as well as regional and corporate environmental, health and safety teams driving an organization-wide commitment to safety. Invenergy's progressive and open safety culture delivers consistent near-miss and incident reporting.

Fleet-wide best practices

Invenergy benchmarks and incentivizes compliance at project and corporate sites using leading safety indicators, ranging from daily safety meetings, peer-to-peer safety observations, site safety drills and submissions of monthly safety suggestions and site improvements.

The Generation Control Center

From the Generation Control Center, we monitor and manage our fleet of North American land-based wind, solar and advanced energy storage generation facilities. We provide centralized services to power markets, off-takers and transmission providers in real time to meet their needs now and in the future.

A proven track record in energy development

Invenergy is North America's largest privately held developer, owner, and operator of innovative, reliable power infrastructure. Backed by 25 years of trusted execution and operational excellence, Invenergy's end-to-end expertise provides customers with smart, scalable energy solutions across natural gas, solar, land-based wind, energy storage, transmission, and domestic manufacturing. Headquartered in Chicago, Invenergy and its affiliates have successfully developed over 220 projects totaling more than 38 gigawatts and reliably operates over 25 gigawatts of large-scale power infrastructure projects across four continents.