

# RIVER TURN ENERGY CENTER

## FREQUENTLY ASKED QUESTIONS ON BATTERY ENERGY STORAGE SYSTEMS



## General Q&A

### Why are batteries needed?

As the U.S. energy landscape evolves to more renewable energy sources, such as wind and solar generation, and less conventional fossil fuel generation, energy storage will play an essential role in stabilizing the grid. The electric grid matches supply and demand at every moment to function reliably. Energy storage systems store excess energy in times of low demand to be used later, especially during peak demand hours and emergency or grid outages. Storage helps place energy on the grid when needed instead of only when the wind is blowing or the sun is shining.

### How is energy storage useful on a grid scale?

Energy storage is needed on a grid scale for three main reasons:

1. When charged with renewable energy like solar, energy storage delivers firm, flexible, clean energy and capacity.
2. Energy storage can store energy in times of excess production and discharge that energy when it is needed.
3. Energy storage provides a real-time balance of power supply and demand, creating more reliable, stable, and productive power grids for our country.

### How does an energy storage system work?

In the most basic explanation, an energy storage system charges by taking AC power from the grid or colocated generation facility and converting it to DC power to store in batteries. The system will automatically stop charging once the battery is at full charge. When there is an energy need on the grid, the system discharges energy back to the grid by converting the energy from DC back into AC.

### Is energy storage technology safe?

Energy storage has been a part of our electricity grid since the 1930s and has a safety record that is similar to, or better than, other electricity generation, distribution, or management methods. Energy storage facilities have multiple layers of protection and monitoring systems in place to help mitigate any unsafe conditions. Additionally, these facilities are secured with perimeter fencing around the entire site to prevent unauthorized access.

### Is energy storage clean?

Energy storage has no direct emissions, requires no pipelines, and recycles electricity. Its systems typically require a minimal footprint. It recycles electricity. But energy storage will also help cut emissions as it takes more of the load off traditional generation or allows it to operate in a more efficient manner.<sup>1</sup>

## Environmental & Impacts Q&A

### What positive impacts will an energy storage facility have on the local community?

Energy storage facilities provide positive impacts to the local economy through increased tax revenues to local governments, the creation of new jobs (during the construction phase), and landowner royalties. At the same time, energy storage facilities do not strain public infrastructure, schools, or emergency services, making energy storage facilities a true silent revenue generator that benefits the entire community over several decades.

## Fire & Safety Q&A

### What about thermal runaway and fires? What is the likelihood of a battery fire?

Lithium-ion cells rarely experience failure leading to fire, however, modern codes and standards such as NFPA-855 and UL-9540a require several independent preventative features to be included in order to minimize the risk of fire. With these features in place and fully operational, the likelihood of a fire is reduced even further. These features include a battery management system, remote monitoring, gas detection, ventilation, and in some installations, fire suppression. All of Savion's battery storage projects are designed to comply with the requirements of NFPA-855.

Energy storage safety incidents are very rare — there have been less than 20 incidents at operating energy storage facilities in the United States. However, as part of an effort for continuous improvement, the industry is prioritizing the incorporation of the latest best practices and strategies to maintain safety.<sup>2</sup>

### What are the steps in a typical fire safety plan for a battery storage system?

A fire safety plan is an extensive document that will be approved by the fire marshal. It will include a site equipment and hazard overview and map; a list of emergency contacts; documentation of the proper reporting and response procedures; descriptions of location and alarm indication, signage, and emergency switches; description of the fire protection and firefighting equipment; and will list required protective equipment (PPE) and safety data sheets.

### Does an energy storage system create noise?

The energy storage equipment will be designed to be consistent with local noise requirements. The noise emitted is no higher than most electrical transformers or HVAC condensers.

Once the construction phase of the energy storage system is complete and the facility is operational, the primary source of noise will be fans associated with the inverter and battery cooling systems and will be similar to the sound emitted from commercial rooftop HVAC units.

## Technical Q&A

### How do these batteries compare to the batteries in my phone or computer?

All batteries accept, store, and release electricity on demand. Batteries use chemistry, in the form of chemical potential, to store energy.

The batteries used for grid-scale applications are similar to the lithium-ion batteries in your phone or laptop computer, except they are much larger and monitored closely on a 24/7 basis by trained professionals. Grid-scale battery systems utilize the same types of battery cells found all around us but are incorporated into a state-of-the-art grid-scale resource. Grid-scale batteries are rechargeable, and the heavy-duty design of grid-scale batteries allows them to be charged and discharged daily for decades.

## Decommissioning Q&A

### How long do batteries last?

Batteries can last twenty years or more, depending on their usage. They will undergo some degree of degradation over their lifetime, where they will experience reduced capacity—like how a cell phone battery loses charge capacity over time.

### What happens to them at the end of life?

Batteries will be removed from the system and recycled in accordance with applicable requirements.

### Will there be a decommissioning plan?

Many permitting requirements include a decommissioning plan as well as a decommissioning bond.

1 American Clean Power, "Resources-Thought Leadership-FAQs-Is energy storage clean," EnergyStorageAssociationArchive.org, 2023, <http://energystorageassociationarchive.org/resources/thought-leadership/faqs/>

2 Electric Power Research Institute, Inc., "Insights from EPRI's Battery Energy Storage Systems (BESS) Failure Incident Database," EPRI.com, 2024, <https://www.epri.com/research/products/000000003002030360>