

# Q&A:

## Battery Energy Storage System Safety



### Q1. Are battery storage systems safe?

Safety is Tenaska's highest priority in the development, design, construction and operations of BESS facilities. Our projects feature state-of-the-art technology, supplied by an experienced manufacturer that has demonstrated that the equipment meets or exceeds all applicable safety codes and standards. This includes rigorous destructive testing. We are working with independent fire safety experts on all aspects of the project to ensure we incorporate the latest industry safety features.

There are more than 20,000 BESS enclosures operating safely across the U.S. While there have been rare, yet much-publicized, safety incidents, no member of the general public has ever been injured from a malfunction at a utility-scale battery energy storage project. The industry has learned from these incidents and has incorporated enhancements to BESS equipment design and operation to mitigate safety risk.

### Q2. If there is a fire, will there be any release of gas or other contaminants into the air?

Battery fires have the potential to create a temporary impact on localized air quality. Extensive testing during and after actual energy storage fires, based on UL 9540A standards, have shown combustion to be no more toxic than a "normal" residential or office building fire. In the case of thermal runaway or fire, the batteries themselves do emit gas, primarily hydrogen, carbon monoxide, carbon dioxide, and methane. The source of the gas emissions from an energy storage fire come from the materials used to construct the battery enclosures, such as plastics and insulation.

### Q3. If there is a fire, will nearby neighbors need to evacuate?

The decision to evacuate is based solely on first responder incident evaluation. Any evacuation requirements would be determined and communicated by local authorities. Battery fires have a temporary impact of localized air quality similar to residential or commercial fires. Under typical weather and wind conditions, evacuation would be highly unlikely. Prior to project construction, a third-party fire expert will complete a hazard mitigation analysis study that will carefully analyze the impacts to the surrounding area should a safety event occur. These findings are shared with first responders and are utilized as part of the emergency response training that is provided.

### Q4: What safety systems are in place?

The Battery Management System (BMS) continuously monitors the state of batteries, including temperature, voltage and current. BMS' rapid detection of abnormalities can help prevent malfunctions, including thermal runaway, by initiating safety measures such as isolation and shutdown of impacted components.

BESS components undergo rigorous testing for certification by global safety organizations. Designs adhere to codes set by

the National Fire Protection Association, the International Fire Code and electric codes.

### Q5. How often are crews managing and monitoring the site?

A. BESS facilities are monitored remotely 24/7, with the ability to shut down equipment on demand. Regularly scheduled on-site maintenance is performed by technicians on an ongoing basis.

### Q6. Do battery storage systems pose any environmental threats?

Overall, BESS facilities help improve air and water quality by storing excess power – often from renewables – for later use. This lessens the need for power generated from older, less-efficient fossil fueled sources. BESS facilities have no air emissions and don't use water during operation.

BESS have far more safety and monitoring features than household items with similar battery chemistries, such as cell phones, cordless drills or laptop computers. BESS systems do not contain any fuel, lead, mercury, cadmium, chromium or other heavy metals. The batteries themselves don't have meaningful quantities of free liquid inside them because the electrolyte within the battery has been absorbed by other components within the cell. For this reason, lithium-ion batteries are not prone to leakage, even in the event of a cell malfunction or fire.

### Q7. What type of security will the project have?

Periodic on-site security checks will be conducted and the facility will be monitored via video surveillance systems 24/7.

### Q8: Are your systems compliant with industry standards and regulations?

Yes, all of our systems will meet or exceed all applicable codes and standards. This will include rigorous testing and certification processes to ensure compliance with industry standards and regulatory requirements.

### Q9: How does your company ensure the ongoing safety and reliability of the systems?

BESS facilities are inherently designed to support the reliability and stability of the bulk electric power system. This reliability translates to continuous power supply to residences and critical community institutions like hospitals and schools.

We are committed to developing a BESS project comprised of equipment and a configuration that can reliably and safely serve this purpose. We prioritize ongoing safety and reliability through regular maintenance, monitoring and updates. Our team of experts stay informed of technological advancements and industry best practices to continuously improve our systems.