FIRE & LIFE SAFETY POLICY INSTITUTE
SAFETY THROUGH BETTER PUBLIC POLICY

ENERGY STORAGE SYSTEMS: IS YOUR COMMUNITY READY?

An explosion at a 4 megawatt battery energy storage systems (BESS) facility in April of 2019 is a reminder that this rapidly proliferating technology introduces new hazards into the community. The serious injury of several Arizona firefighters in that explosion highlights the pressing need to educate local officials and first responders on BESS.

New Technology, New Hazards

BESS technology is key to turning intermittent renewable energy sources into reliable power streams. As policymakers set more ambitious goals for sustainable energy, BESS is becoming an increasingly significant part of our power infrastructure. Industry analysts predict more than $600 billion will be invested in energy storage by 2040.

However, as the Arizona fire illustrates, this technology is not risk free. BESS technologies, which are typically large configurations of chemical batteries, can explode, catch fire, and release toxic gases under certain conditions. They are also subject to the phenomena of thermal runaway, which means they can burn intensely for significant periods of time.

These hazards are dangerous for firefighters and for anyone else nearby an emergency incident. Policymakers must make sure first responders and other officials have the tools necessary to deploy BESS safely.

Deploying BESS Safely

For anyone involved in permitting decisions or emergency response, education and staying current on evolving technologies is key. **If your community hasn't already prepared for BESS installations, the following are steps leaders can take to make sure BESS is deployed as safely as possible:**

1. **Create a permitting process** that will ensure those responsible for safety in the community know where BESS technologies are installed and that those installations meet safety requirements.
2. **Ensure first responders have the proper training** to help keep them safe when responding to an incident involving BESS technology.

Permitting Considerations

Regulations and permitting authorities may vary by jurisdiction or location of the installation. However, officials should ensure that the community's building, fire, and electrical codes are current and that permitting procedures minimize the risks associated with BESS technology. Considerations in a permitting process include the following:

- Whether the BESS equipment is listed by a qualified electrical testing laboratory;
- The safety of the installation (meeting pertinent requirements in the building, fire, and electrical codes);
- Guidelines for interconnection with the local utility;
- Planning for emergency response; and
- Zoning considerations, depending on the location and size of the installation.

ENERGY STORAGE SYSTEMS: IS YOUR COMMUNITY READY? *CONTINUED*

Permitting Resources

Communities developing their own BESS permitting programs can learn from the work of others at the local, state, and federal levels, including by using the following resources:

- Behind-the-Meter Solar + Storage Permitting and Interconnection Guide for Boulder, Colorado;
- Orange County Fire Authority: Stationary Storage Battery Systems, Guideline G-10;
- Energy Storage Permitting and Interconnection Process Guide for New York City: Lithium-Ion Outdoor Systems; and
- Energy Storage System Safety: Plan Review and Inspection Checklist.

In addition, the National Fire Protection Association (NFPA) will release NFPA 855, *Standard for the Installation of Stationary Energy Storage Systems*, in October of 2019. This new standard will address requirements to help minimize the safety risks associated with any type of energy storage system.

Emergency Response Considerations for BESS

First responders need to be aware of BESS technology deployed in the community and be ready to handle different types of systems and incidents. Training and preplanning are critical components to making sure the community's first responders are ready should an emergency arise.

The fire department should also engage in preplanning for events involving BESS or at a premise where BESS is present. If there is an event, firefighters should already know what type of system it is, who the facility manager is, which manufacturer to call for more information, and the tactics and procedures they will need to safely protect life and property.

Emergency Response Resources

NFPA offers training and resources, including the following:

- Online and classroom training to prepare the fire service to respond to an incident involving BESS technology.
- NFPA 1620, *Standard for Pre-Incident Planning*, a document that guides fire departments through the pre-incident planning process and covers everything that should be in an incident plan.

Next Steps

Before deploying BESS, consider taking the following steps:

- ✔ Assess the readiness of permitting and emergency response resources in your community.
- ✔ Make sure there is a plan for how first responders and community officials will respond to an incident.
- ✔ Visit nfpa.org/ess to learn more and to access the latest research and resources.
- ✔ Visit nfpa.org/PolicyInstitute to view additional information from the NFPA Fire & Life Safety Policy Institute.