

YAPHANK
ENERGY STORAGE

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 to stabilize the grid. The electric grid works by matching supply and demand at every moment for the grid to function reliably. Energy storage systems store excess energy in times of low demand to be used later when it is needed, especially during peak demand hours and in times of emergency or grid outages. Storage helps to place energy on the grid when it is needed, instead of only when it is being produced 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 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 co-located 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?

Yes. Energy storage has been a part of our electricity grid since the 1930s and has a safety record that is similar or better than other electricity generation, distribution, or management methods. Energy storage facilities have multiple layers of automatic protection systems and are typically enclosed by fencing, which prevents children and the general public from coming into contact with the installations, thus preventing unsafe conditions.

Is energy storage clean?

Yes. Energy storage has no direct emissions. It requires no pipelines. Its systems typically require a minimal footprint. It recycles electricity. Energy storage will also help cut emissions as it takes more of the load off traditional fossil-fuel based generation. (ESA, 2019)

Why here?

We chose the site near the corner of William Floyd Parkway and Ramsey Road to maximize benefits to the grid and ratepayers. It is directly adjacent to transmission lines, which means it will service energy users efficiently, and electricity will flow easily in and out of the grid when required. Additionally, the parcel location is within an area that is zoned for industrial facilities.

What is the expected layout for Yaphank Energy Storage?

The Yaphank facility will be enclosed and utilize a dedicated-use climate-controlled building(s) that will house multiple aisles of batteries in an open-rack configuration connected to inverters outside of the building.

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 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.

What maintenance do batteries need? How often?

Annual maintenance is conducted that involves visual inspections, various system checks and tests, and cleaning and adjustment as required.

Fire & Safety

Isn't there a danger of batteries malfunctioning and causing a fire?

Lithium-ion cells rarely experience failure leading to fire. Furthermore, modern safety codes and standards such as NFPA-855 and UL-9540A require several independent preventative features to be included in each battery housing, to minimize the risk of fire. These features include a battery management system, remote monitoring, gas detection, ventilation, and fire suppression. With all these features in place and fully operational, the likelihood of a fire is reduced even further.

How does the battery's control system help prevent fires?

Water used for fire suppression/cooling to address battery fires is normal fire water piped from city/town sources, hydrants, or other typical fire water sources such as well water or water on fire trucks. No special foam or liquid is required. While also not required, inert, non-toxic "clean agent" non-water-based automatic fire suppression such as FM-200 or NOVEC 1230 may be used in select locations within the building/containers/racking on some systems as additional countermeasures to limit internal damage.

Some enclosure designs are designed to safely allow an internal fire to eventually burn itself out. In these instances, the fire department will monitor the enclosure to ensure fire is not spreading to adjacent equipment.

Environmental & Impacts

What can I expect during construction?

The process for constructing an energy storage facility is relatively simple. The construction process may require some heavy machinery or trucks. Typically, there are a few deliveries per day but not enough to provide a large increase in traffic. Workers arrive and leave at the beginning and end of each workday and work occurs during typical business hours.

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.

Why do energy storage systems make good neighbors?

Energy storage projects produce no emissions, waste, or byproducts.

Grid energy storage systems do not generate electricity.

The siting of a typical system consists of multiple enclosures, each with multiple battery racks and electrical equipment to safely charge/discharge electricity to and from the grid.

Systems are safe to humans, property, and the environment; operate quietly and are easily placed in urban, suburban, and rural settings.

Energy storage projects may also be a good use of unused industrial zoned properties.

What happens to them at the end of life?

At the end of life, batteries are removed from the system and recycled in accordance with applicable requirements.

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.