Carson Power LLC
110 William St 24 Floor
New York, NY 10038
www.carson-power.com

Memorandum: Battery Energy Storage System (BESS) Fire Safety and Community Benefit Overview

Carson Power LLC
Date: 9/18/25
Subject: Fire Safety and Compliance of Proposed Battery Energy Storage System

Purpose

This memorandum is provided to outline fire safety, community benefits, and regulatory compliance measures that will be implemented for the proposed Battery Energy Storage System (BESS) to be installed within New York State (NYS). The system is designed in accordance with all applicable NYS codes, standards, and best practices, to ensure safe and reliable operation while connected to the local distribution grid.

System Overview

- The proposed BESS will use lithium-ion battery technology, which is currently the industry standard for utility-scale and community-scale storage projects.
- The system will consist of pre-manufactured, factory-tested, UL-listed battery cabinets, not open-rack installations.
- While the current design anticipates the use of Tesla BESS equipment, final selection of equipment is subject to procurement outcomes. All equipment ultimately selected will be of equivalent safety, quality, and certification standards.

Community Benefit

- A 5 MW / 4-hour Distributed Generation Battery Energy Storage System (DG BESS) benefits the community by absorbing excess energy when demand—and prices—are low, then discharging during peak demand to offset expensive grid-supplied power, helping keep energy prices more stable and affordable. It reduces reliance on peaker plants, lowers carbon emissions, and bolsters local grid reliability by providing capacity support, rapid outage response, and voltage regulation.
- For those who want a transparent view into how this impacts market dynamics or simply wish to explore power pricing directly, the New York Independent System Operator (NYISO) offers a Real-Time Data Dashboard on its website. This dashboard includes interactive maps and visualizations of day-ahead and real-time locational marginal pricing (LMP), load data, system conditions, and more at the NYISO website. Reviewing this dashboard helps community members or project stakeholders understand how a BESS can shift price signals by buying when LMPs are low and discharging when they're high—driving home the economic and operational value of storage solutions.

- A 5 MW battery energy storage system in the town can also deliver significant tax benefits by generating new property tax revenue, supporting local budgets for schools and municipal services while diversifying the tax base without adding strain to community infrastructure.

Regulatory Compliance & Certifications

The BESS installation will meet or exceed the following standards and certifications as required by New York State and NYSERDA guidelines:

- UL 9540: Energy Storage System (ESS) certification demonstrating that the system, including batteries, controls, and associated equipment, meets applicable safety standards.
- UL 9540A: Fire propagation testing of battery cells/modules/racks in accordance with NYSERDA and Uniform Code requirements, ensuring no uncontrolled thermal propagation between units.
- NFPA 855: Installation will conform to the National Fire Protection Association Standard for the Installation of Stationary Energy Storage Systems.
- NY State Uniform Fire Prevention & Building Code (Uniform Code): All BESS installations are subject to review and approval under the Uniform Code, including fire department access, clearances, and emergency response considerations.
- UL 1973: Battery modules will meet this standard for batteries used in stationary applications regarding performance, safety, and reliability.

Additional certifications and manufacturer-specific testing documentation can be provided upon equipment selection and prior to construction.

Emergency Response Planning

An Emergency Action Plan (EAP) specific to this BESS project will be developed and submitted to the Municipality's Fire Department and other applicable authorities for review and approval. This plan will be prepared in consultation with a qualified Fire Safety & Risk Consultant and will include:

- Site layout and access routes for emergency responders.
- Fire containment and deterrence measures inherent to the system.
- Training and orientation opportunities for local fire and emergency personnel.
- Contact information for 24/7 support in the event of an incident.

Carson Power LLC
110 William St 24 Floor
New York, NY 10038
www.carson-power.com

Conclusion

This BESS project will comply with all applicable NYS codes, NYSERDA guidance, and nationally recognized fire and safety standards. The system will utilize certified, tested, and enclosed lithium-ion battery cabinets designed to minimize fire risk and facilitate effective emergency response.

We are committed to working collaboratively with the municipality and local emergency services to ensure the safe integration of this clean energy infrastructure into the community.

Please do not hesitate to contact us with any questions or requests for additional information.

Attachments:

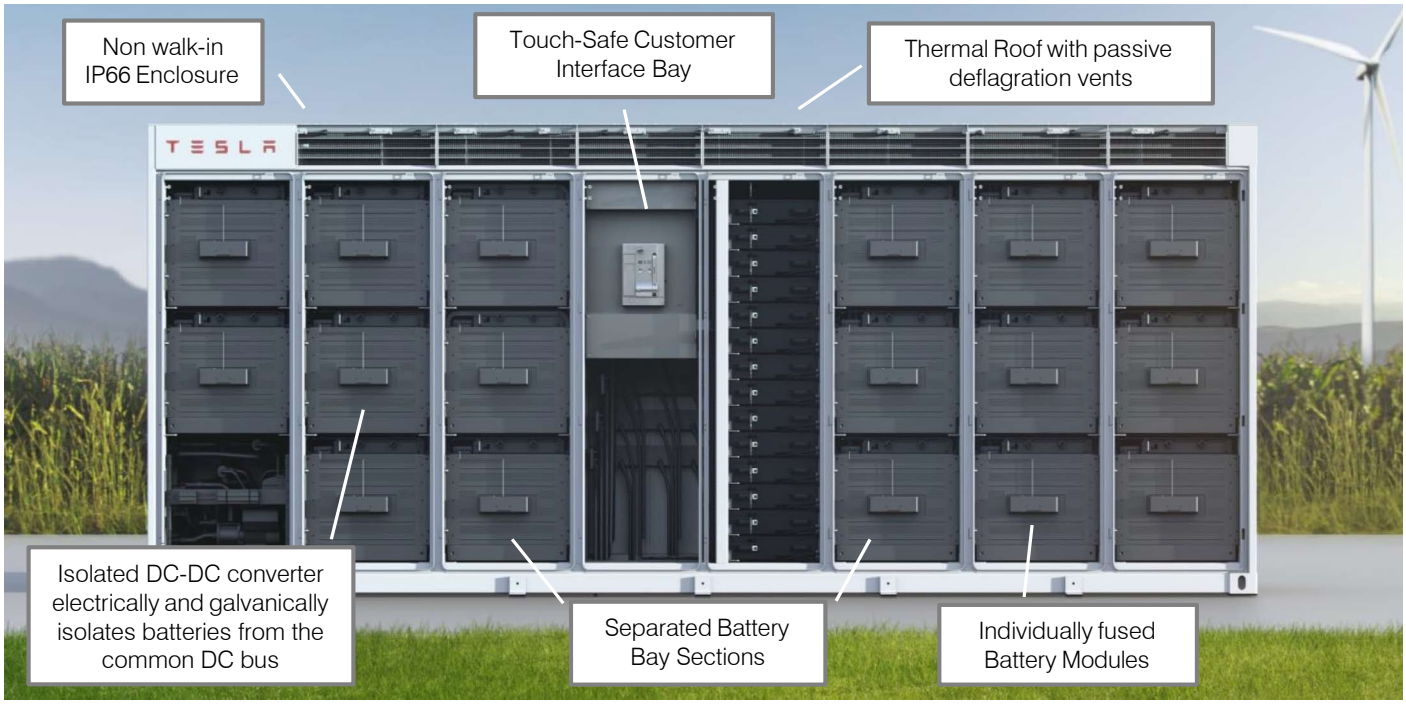
- Example Manufacturer Safety Data (Tesla)
- Images of similar systems recently completed in Greater Buffalo and Westchester

ENHANCED SAFETY ARCHITECTURE

Tesla's commitment to safety and 15+ years of experience in battery module design and manufacturing for both vehicle and energy storage applications guides every Megapack design decision. Megapack is designed from the ground up with safety as the top priority, including features that make the product safe throughout the entire product lifecycle – during transit, installation, commissioning, operation, maintenance and decommissioning.

Safety at Every Level

Tesla's approach to safety involves comprehensive design and testing at each level of the megapack. Vertical integration across design, manufacturing, and testing ensures that safety features of the cell, battery module, inverter, thermal system, and overall system-level components are closely linked and not decoupled.



Cell Safety: Tesla uses the highest quality lithium-ion cells, but recognizes that in rare instances a cell can be flawed. For this reason, each cell in Tesla products is individually inspected and tested prior to module assembly. Flawed cells are discarded and used to drive further cell manufacturing improvements.

Battery Module Safety: Each Megapack battery module includes individually-fused cells and dedicated power electronics that electrically and galvanically isolate the batteries from the common DC bus, similar to the Pod architecture in Powerpack. Unlike racked battery systems, the battery modules arrive pre-installed without the need to connect live high voltage DC elements on site. Each battery module includes a built-in isolated DC- DC converter and an active fuse that provides an added layer of protection in case of hazardous conditions, allowing for multiple levels of isolation. All of these features are controlled by the modules dedicated Battery Management System (BMS), which ensures that the cells are operated within approved limits.

System-level Safety: Numerous dedicated safety measures ensure that Megapack provides the highest level of safety:

- A parallel battery module architecture (up to 17 per Megapack) provides optimized performance and redundant safety control, reducing the risk of cascading failures. Combined with the isolated DC-DC architecture in each module, this parallel design greatly reduces the risk of events such as electrical fault propagation, arc flash, or cascading thermal runaway. Battery modules are sealed to prevent touch access to the battery cells, power electronics, and terminals.
- Dedicated deflagration vents in the enclosure's roof are designed to mitigate the impact of thermal runaway on surrounding exposures and personnel. These pressure-sensitive vents direct all gases, smoke, and flame out of the top of the Megapack in the event of extremely hazardous conditions.
- The Customer Interface Bay is a touch-safe bay located at the center of the enclosure. It is designed to be the only interface required for installation operation and maintenance. Megapack's pre-assembled and pre-tested nature ensures that minimal installation and commissioning scope is required on site, minimizing risk of hazards to all personnel interfacing with the equipment.
- Megapack's weatherproof teel enclosure is rated to IP66 (NEMA 4) and provides robust protection against extreme environmental, chemical, and physical exposures. It cannot be entered by personnel, further limiting the possible interaction between maintenance personnel and internal components.

Enhanced Approach to Fire Safety

When it comes to hazards such as thermal runaway and external fires, the Megapack is safe by design, without the need for costly additional active protective measures such as built-in fire detection or suppression. All Tesla products undergo rigorous testing to standards such as UL 1973 and IEC 62619 that ensure the battery modules are resistant to single cell thermal runaway propagation. This virtually eliminates all likelihood of a thermal event originating from an internal product failure. To date, Tesla has deployed over 1.5 GWh of stationary energy storage products globally without a single recorded thermal runaway event – a strong testament to the intrinsic safety design of our battery products.

To create a significant fire in Tesla energy products, the enclosures need to be subject to an extreme external event, such as direct exposure to a large, prolonged fire or severe physical impact. In the event of a fire, rigorous full-scale fire testing has shown that Tesla energy products perform in a safe and controlled manner, consuming themselves slowly without explosive bursts or unexpected hazards, and without propagating to neighboring enclosure units. Megapack includes dedicated deflagrations vents built into the roof to mitigate damage to the equipment and surrounding personnel and exposures in case of hazardous thermal runaway or arc flash events. Hazards are vented upwards, ensuring response personnel and exposures on the ground are not directly exposed. In practice, the hazards of a Tesla battery fire at the site-level are easily managed by standard fire service response equipment, and if suppression is desired, Tesla's recommendation is to apply water to neighboring enclosures and exposures to further limit the risk of external propagation. The cells used in Tesla products do not contain solid metallic lithium and thus do not react with water. Tesla recommends fire detection at the site-level with the use of third party multispectral IR cameras that can capture early signs of thermal runaway, as well as other non-battery equipment fires on site.

Recently Built BESS Projects Across NY State

Figure 1: Key Capture 20MW BESS Project, Blasdell, NY

Figure 2: Calibrant Energy 4.9MW BESS Project, Westchester, NY