Technical Study

Project Tango Tesla Megapack 2 XL Fire Protection Study

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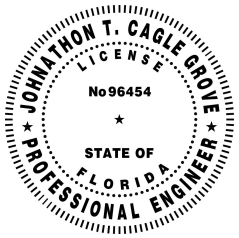

This item has been digitally signed and sealed by Johnathon Cagle-Grove, P.E. on the date indicated here.

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The following study was conducted to provide information on the Battery Energy Storage System (BESS) and arrangement for the proposed Data Center Site. The BESS storage provision provides on-site power generation in the event of utility power failure for the essential 'core network' loads only and is not sized to serve the full Data Center facility load.

The BESS arrangement is going to be located near the site entrance out in the yard with Fire Hydrants located around them per Florida Fire Prevention Code and NFPA 1, Chapter 18. The BESS arrangement is located +/- 45'-0" away from the other site buildings. The BESS configuration will be laid out to ensure adequate separation between individual units and clear zones around all 4 sides of the BESS unit perimeter, as per NFPA855 (Standard for the installation of Stationary Energy Storage Systems). The strategic spacing of the units offers a passive form of fire protection, slowing or stopping the spread of fire between units.

BESS technology, such as Tesla MegaPack 2XL or equivalent, are package units that are rigorously tested per UL and IEC standards. Megapacks are designed with Tesla's latest generation Lithium Iron Phosphate (LFP) chemistry and new cell design to mitigate thermal runaway and keep the power unit under control in the event of a fire. LFP batteries have a more stable chemical structure than other traditional types of lithium-ion batteries and are less prone to oxygen release, so in the event that the cell does experience a fire event, it will produce less heat and fewer flammable gasses, reducing the risk of explosive failure. Each Megapack unit is independent, designed to limit fire spread and designed to direct all gases, smoke, and flame out of the top of the unit, which reduces risk to response personnel. In the unlikely event of a fire, the Megapack arrangement can be managed by standard fire service equipment.

The required fire flow to the site is determined by the building areas and construction types. For the proposed site, the data center building construction type is IIB, and the largest proposed building has a square footage of 306,000 square feet. Based on the Florida Fire Prevention Code and NFPA 1, the required fire flow for the proposed buildings is 8,000 gallons per minute (GPM) for a period of four hours. As the buildings would be protected throughout by an approved automatic sprinkler system, a reduction in the

fire flow to 2,000 GPM for a period of two hours is allowed. It is recommended that the site be provided with dedicated fire protection water storage tanks with a total capacity of 240,000 gallons and dedicated fire pumps to meet the fire flow requirements. It is recommended that the tanks also feed to the site fire hydrants to provide readily available water supply near the BESS units.

The interior of the proposed data center buildings will be fully sprinklered in accordance with NFPA and FM global requirements. The fire protection systems will be covered by standard wet sprinkler and double interlock pre-action systems. Areas including the central utility building, mechanical rooms, and administrative area will be provided with wet sprinkler systems. The data halls, electrical rooms, and loading dock and storage areas will be provided with double interlock pre-action systems. A clean agent fire suppression system can be discussed with the owner for protection of sensitive equipment. This will be determined and documented with the building permit review set. The building programming has allowed for the future provision of UPS and supporting batteries in accordance with code limits. The final decision on the technology will be determined prior to Building Permit submission. In the event that UPS Batteries are designed and installed in accordance with Florida Fire Prevention Code and NFPA requirements.

The MegaPack units are constructed of noncombustible materials with IP66/NEMA 3R rating for the main enclosure. The enclosure can withstand 30 kPa of internal pressure and is equipped with integral overpressure vents designed to open to exhaust gases, combustion products, and flames into the thermal roof for exhaust in accordance with NFPA 855. Additionally, the system includes internal sparkers which proactively ignite flammable gases emitted in the case of a compromised battery cell to prevent a buildup of gases within the enclosure. Tesla recommends the use of a third-party infrared heat or flame detector at the site level to proactively identify units that are experiencing thermal runaway or a fire event.

Tesla provides an Emergency Response Guide to be used by local fire response teams along with the Tesla Energy Technical Support line in the case of an emergency. Firefighting measure recommendations include appropriate personal protective equipment (PPE) including self-contained breathing apparatuses (SCBAs) and structural firefighting gear. Emergency response to a venting product includes shutdown of the system, if possible, evacuation of non-emergency personnel, and protecting adjacent exposures with hose lines. It is recommended to allow the affected unit to consume itself as designed, given that applying water will have minimal effect and will slow combustion.

It is recommended that an emergency response plan be developed in conjunction with the local fire department. This should include emergency shutdown procedures for the BESS units, site-specific hazards, emergency personnel access points, and isolation procedures. Thermal sensors within the MegaPack are monitored by the unit Battery Management System (BMS) and can provide early signs of an issue. The BMS for all MegaPack units can be monitored at the site level with a site controller. Tesla also supports remote monitoring, diagnostics, and is capable of advising on isolation procedures and suppression techniques in the event of an incident.

Conclusion:

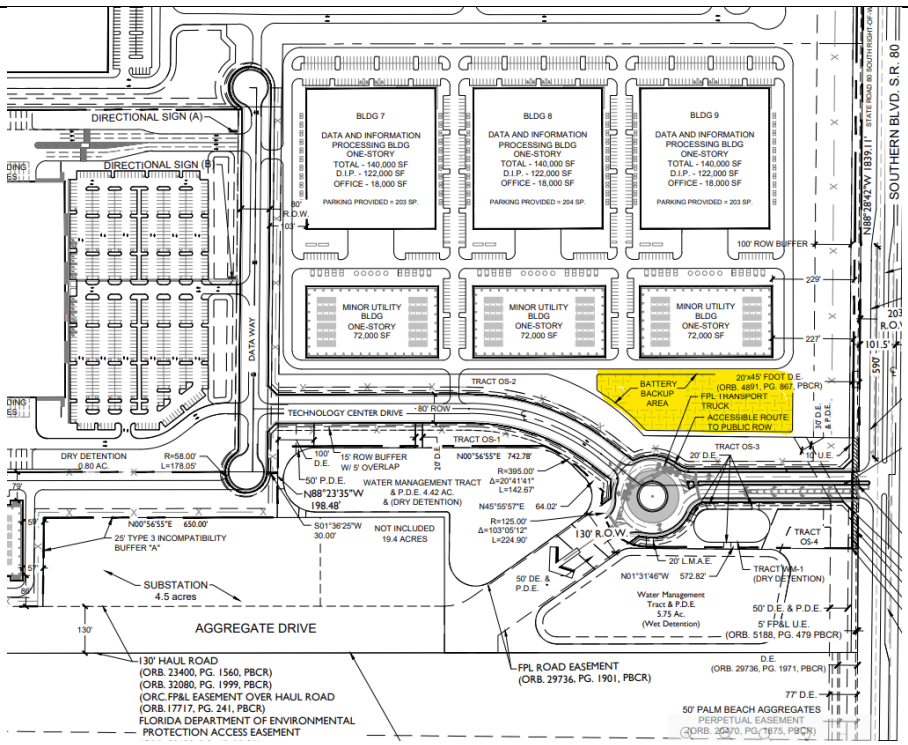
The use of the Telsa Megapacks for the essential site wide emergency backup power is a clean and effective system for this Data Center site. New Lithium Iron Phosphate battery technologies provide a safer alternative to traditional Lithium-Ion batteries by reducing the risk of thermal runaway. The design and configuration of the Megapack unit when installed per the manufacturer's recommendations reduces the risk of fire propagation to adjacent units, and the top-venting design reduces risk to first responders.

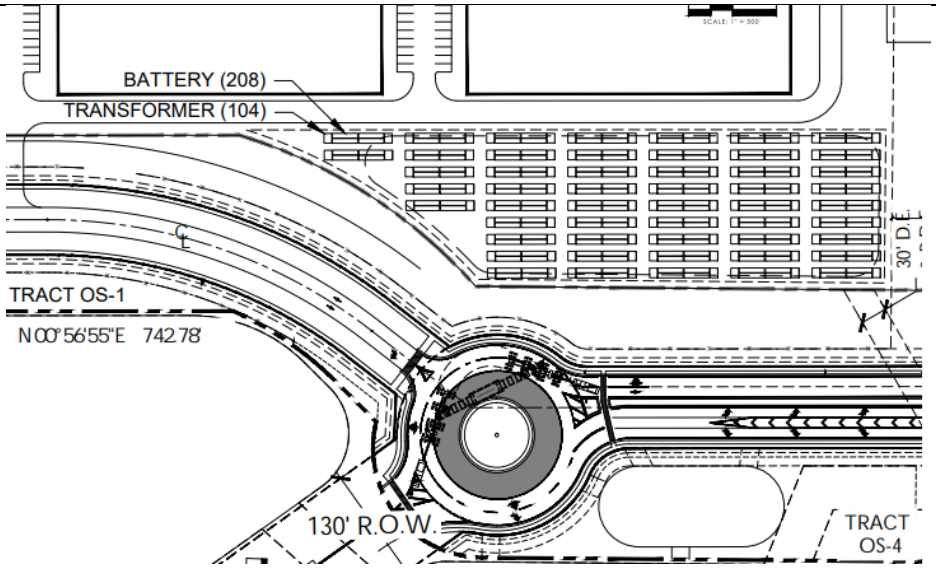
Reference Data Center projects.

1. **Confidential Data Center Project – Jacobs Project- South Carolina, USA**

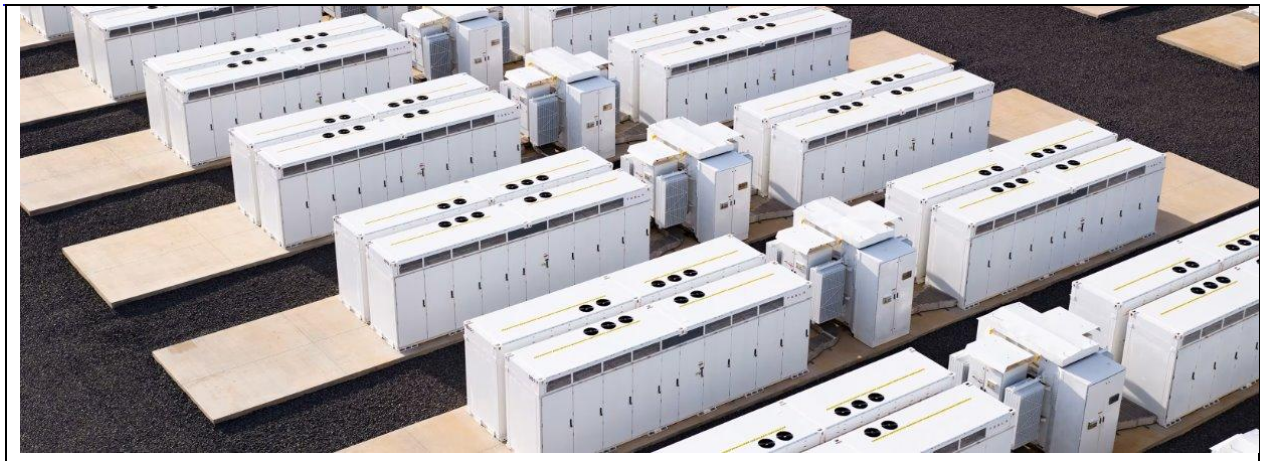
2. **xAI Colossus Supercomputer Data Center — Memphis, Tennessee, USA**
3. **Tesla GigaFactory Data Center – Austin, Texas, USA**
4. **RT-One 400MW AI Data Center Campus — Uberlândia, Brazil**

In the Data Center buildings, there will be a provision for centralized UPS systems with Lithium-Ion batteries. The batteries will be located within dedicated electrical plantrooms which will be designed in accordance with NFPA for compartmentation ratings (2-hour fire rating). Appropriate ventilation, fire suppression and detection system shall be provided.





208x Tesla Megapack 2 (100MW / 811MWh over 8 hours)



Site Plan – BESS Location

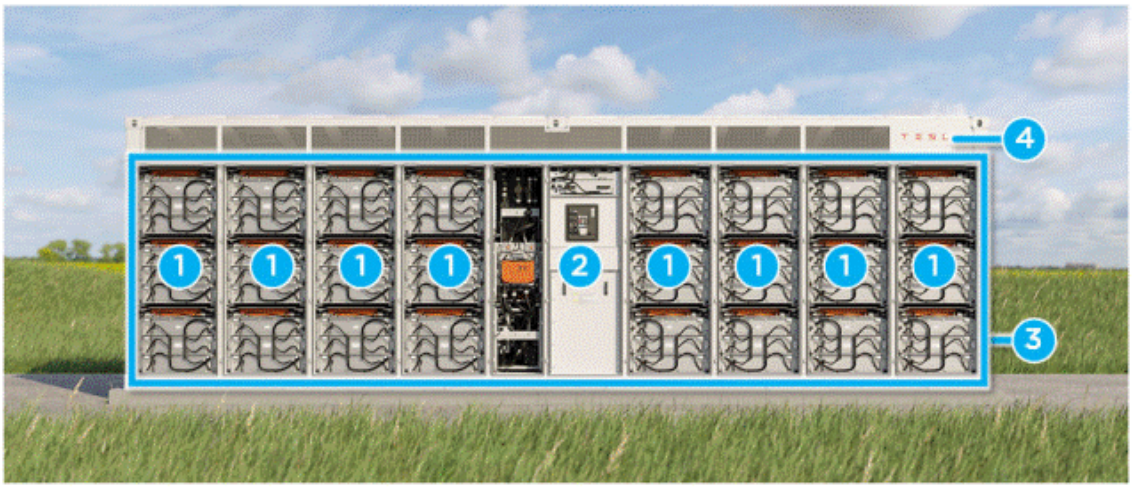
MEGAPACK 2 XL SAFETY OVERVIEW

ENHANCED SAFETY ARCHITECTURE

Tesla's commitment to safety informs every Megapack design decision and has guided 15+ years of experience in battery module design and manufacturing for both vehicle and energy storage applications. Megapack 2 XL (Megapack) is designed with features that make the product safe throughout the entire product lifecycle — during transit, installation, commissioning, operation, maintenance, and decommissioning.

Tesla's approach to safety involves comprehensive design and testing at every level of 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.

In addition, Tesla is continually improving Megapack safety features and capabilities based on data from operational experience.



1. Battery modules with active and passive fuses – externally serviceable
2. Touch-safe Customer Interface Bay
3. Non-walk-in IP66 enclosure and deflagration mitigation
4. Thermal roof with overpressure vents

INDUSTRY-LEADING COMPLIANCE AND THIRD-PARTY VALIDATION

Tesla is constantly pushing the boundaries and raising the bar on product safety. This commitment to safety not only ensures that Tesla's products are compliant to the industry's most stringent global standards, but also sets a benchmark for the industry to follow regarding energy storage safety. Megapack has met and exceeded many industry safety standards and has demonstrated through extensive third-party testing that it is one of the safest energy storage systems on the market.

MEGAPACK 2 XL SAFETY OVERVIEW

Megapack 2 XL is listed to the following standards by OSHA-recognized Nationally Recognized Testing Laboratories:

- UL 1642 (cell-level certification)
- UL 1973 and IEC 62619 (battery module-level certification)
- UL 9540, IEC 62933-5-2, IEC 62109-1 (system-level certification)
- UL 1741, CSA C22.2 #107.1 (power electronics)
- UL 1998 and IEC 60730 Annex H (functional safety of software)
- IEC 61000-6-2, and EN 55011 (EMC)
- UN 38.3 (transportation, self-certified)
- IEEE 693 (seismic safety)
- UL 9540A (large-scale fire testing): Tested at the cell, module, and unit level
- And many more, including compliance to major market grid codes

Megapack 2 XL, like Megapack, is designed to comply with major installation codes for energy storage systems, including NFPA 855, IFC 2018 and 2021, and NEC 2020.

Megapack 2 XL has been reviewed and validated by an Independent Engineer, both at the product level and for the results of large-scale fire testing.

ENHANCED APPROACH TO FIRE SAFETY

To date, Tesla has deployed more than 10 GWh of stationary energy storage products globally with a strong safety track record.

Through vertical integration, Tesla has designed Megapack with fire safety built directly into the product at every level. This makes the product safer and reduces overall project costs by eliminating the need for fire suppression systems.

At the cell level, Tesla's latest generation of Megapacks leverages the lithium iron phosphate (LFP) chemistry and a new industry-leading cell design. Testing has demonstrated a strong ability to resist thermal runaway, and has shown controlled venting in worst-case events, without explosive bursts or fire.

All Tesla products also undergo rigorous testing at the module level. While standards such as UL 1973 and IEC 62619 ensure propagation resistance to single-cell thermal runaway, testing has shown that Megapack battery modules are resistant to multiple co-located cells sent into runaway at the same time. This greatly mitigates the risk of a thermal event.

At the system level, Megapack is designed with a combination of dedicated runaway gas igniters and overpressure vents built into the roof that passively mitigate the risk of deflagration hazards in case of unlikely accumulation of flammable gases due to arc flash events or thermal runaways.

In the unlikely event of a fire, rigorous full-scale fire testing has shown that Megapack performs in a safe and controlled manner, consuming itself slowly and without explosive bursts, projectiles, or unexpected hazards. The vents are designed to direct all gases, smoke, and flame out of the top of the Megapack, minimizing risk to nearby response personnel and exposures.

In the event of a fire at a Megapack site, the fire service will be able to manage the event with standard fire service response equipment. Tesla's *Lithium-Ion Battery Emergency Response Guide* provides more details on that subject. The cells used in Tesla products do not contain solid metallic lithium and thus do not react with water. When required by local code, Tesla recommends fire detection at the site level with the use of third-party thermal imaging cameras that can detect fires on site.

5 Firefighting Measures

5.1 Firefighter PPE

Firefighters should wear self-contained breathing apparatuses (SCBAs) and structural firefighting gear. Industry testing has shown that standard structural firefighting gear provides adequate protection.

5.2 Responding to a Venting Product

WARNING: Do not approach the unit and attempt to open any doors.

Smoke or suspicious odor emanating from a Tesla Energy product can be an indication of an abnormal and hazardous condition. Battery thermal runaway fires (also known as thermal events) are preceded by a period of smoke. If fire, smoke, or suspicious odor is observed emanating from the product at any time, assume a thermal event is occurring and perform the following:

1. If possible, shut down the system (see *Shutting Down in an Emergency on page 18*).
2. Evacuate the area of all non-emergency personnel.

   WARNING: When responding to a fire event, do not approach the unit and attempt to open any doors. The doors are designed to remain shut.
3. If not already done, contact Tesla Energy Technical Support for assistance (*Identification of Company and Contact Information on page 4*).
4. While maintaining a safe distance from the unit:
   - Complete area size-up and identify water supply.
   - If needed, pre-position hose lines to protect adjacent exposures.
   - Monitor for evidence of continued smoke venting or fire.
5. If a fire develops:
   - Allow the affected unit to consume itself as it is designed to do. Applying water to the burning unit will have minimal effect and will only slow its eventual combustion.
   - At the discretion of first responders, apply water to the exposures. Tesla recommends using a fog pattern, if possible, to maximize cooling of the exposure.

     NOTE: Water has been deemed appropriate for use on Tesla Energy products, thus will not create a hazard while protecting exposures.
6. Allow the unit to cool down while maintaining contact with Tesla for guidance (this process may take 12-48 hours or longer) and continuing to maintain a safe distance.
7. Contact Tesla Energy Technical Support for next steps (*Identification of Company and Contact Information on page 4*).

Maintenance: Tesla requires customers to purchase a maintenance service agreement. Each Megapack receives a minor annual service, and a major service every ten years.

Frequency	Maintenance Services
Annual	• Torque checks within the system, calibration checks, visual inspection (rodents, etc.) • Harness inspection or replacement in kind if damaged (protective sleeve failure, rodents, etc.) • Enclosure integrity checks – touch-up paint and gasket inspection or replacement in kind if damaged • Cabinet cleaning • Cabinet ventilation system inspection – radiator area cleaning • Coolant level check • Battery and meter communications check
Once Every 10 Years	• Megapack coolant refill • Megapack fan replacement • Megapack pump replacement • Megapack door gasket replacement