Jerry Smith Energy Storage System

Emergency Response Plan

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Disclaimer: This drafted Emergency Response Plan (ERP) is provided for information and guidance purposes only and establishes a suggested format.

The ERP requires regular updates with sufficient detail to enable personnel to implement necessary emergency procedures without question or delay to ensure the continuity of operations.

1 Introduction

1.1 Scope and Purpose

This Emergency Response Plan (ERP) or Emergency Operations Plan (EOP) has been developed for the **Jerry Smith Battery Energy Storage System (BESS)** located at 339 Jerry Smith Rd., Lansing, NY 14882. The purpose of this document is to provide guidance and pertinent information regarding the roles, responsibilities, and chain of communication and command of the System Owner/Operator, Property Owner, Emergency Responders, and other required Subject Matter Experts (SMEs) for preparing for, and safely responding to, a fire, explosion, or other battery-related incident requiring a public safety response at the energy storage facility.

The Operations and Maintenance (O&M) Manager for the project is an employee of Nexamp. "On-site personnel" include all individuals on the facility property who are direct employees of the Owner/Operator or affiliated contractors. The Owner/Operator and contractors are similarly responsible for establishing and maintaining contractor-specific Emergency Management Plans and reporting procedures that will work in conjunction with the overall energy storage facility plan.

<u>Life safety shall be the highest priority during any event type associated with this energy storage facility.</u>

1.2 Timeframe

This ERP covers the timeframe beginning at the final approval of the Lansing Fire Department to the beginning of decommissioning and removal of the energy storage system.

1.3 Activation

This ERP shall be activated during any emergency response to energy storage facility-related incident on site.

1.4 Agency Jurisdiction

This plan has been strictly developed for the Lansing Fire Department and does not cover multi-agency response.

1.5 Operations and Maintenance (O&M)

Operations and maintenance procedures for the energy storage facility and associated equipment are outside the scope of this document. Procedures for inspection and testing of associated alarms, interlocks, and controls are provided in the O&M plan.

<u>Please refer to manufacturer Operations and Maintenance (O&M) manuals for all associated equipment and protocols related to the site prior to beginning any maintenance work on this facility.</u>

1.6 ERP Update Process

Dates for draft issuance, revisions and final issuance of this ERP are provided in Section 11 of the document.

A review of this emergency response plan shall be conducted and documented:

- at minimum on an annual basis; or

- if there is a change in design, construction, operation, or maintenance that affects emergency response planning.

Ensure all relevant stakeholders receive a complete copy of this Emergency Response Plan.

Plan retirement will coincide with decommissioning of the facility. All decommissioning procedures shall be performed by trained and knowledgeable persons in alignment with the Decommissioning Plan provided for this installation. Decommissioning shall be performed under the supervision of the System Owner/Operator and manufacturer.

2 Definitions and Acronyms

2.1 Definitions

Approved – Acceptable to the authority having jurisdiction

Battery – A single cell or a group of cells connected electrically in series, in parallel, or a combination of both.

Battery cell - The basic electrochemical unit, characterized by an anode and a cathode, used to receive, store, and deliver electrical energy.

Battery management system (BMS) - A system that monitors and controls performance of an energy storage system and can have the ability to disconnect the energy storage unit from the system in the event abnormal or hazardous conditions are detected.

Battery module – A subset of battery cells, connected in series, parallel, or a combination of both, with some amount of monitoring and passive disconnect capabilities

Battery rack – A subset of interconnected modules, typically in series, which typically includes switchgear, BMS, and active disconnect capabilities

Certifications – In this context, certifications address primarily Underwriters Laboratory standards, including UL (Underwriters Laboratories) 1642, UL 1973, UL 1741, and UL 9540. Also, UL 9540A testing will be included in this context.

Deflagration – Combustion event which propagates through explosive gases released by batteries during abnormal failure events at subsonic speeds. In this context, deflagration risk may be managed through a variety of mitigative measures, such as vent design, exhaust, or suppression systems.

Electrical Event - Internal short circuit due to internal cell defects, overvoltage charging or a defect on internal resistance.

Energy storage system - One or more devices, assembled, capable of storing energy to supply electrical energy at a future time. Battery energy storages system is called a BESS (Battery Energy Storage System).

Energy Storage Management System (ESMS) - A system that monitors, controls, and optimizes the performance of an energy storage system and can control the disconnection of the energy storage system in the event of abnormal conditions.

Fire Command Center - The principal attended or unattended room or area where the status of the detection, alarm communications, control systems, and other emergency systems is displayed and from which the system(s) can be manually controlled.

Incident Action Plan (IAP) – IAP formally documents incident goals/control objectives, operation period objectives, and the response strategy defined by incident command during response planning.

Inverter – A piece of electrical equipment which converts DC (Direct Current) energy of the batteries into AC (Alternating Current) energy of the grid and vice versa

Monitoring Company – alerted in the event of activation of Nexamp' s aspirating smoke detection (ASD) system.

Mechanical Failures - Physical damage to a cell which may have occurred during the manufacturing or installation process, as well as damage caused by vibration or expansion.

Off-gassing – Gases released by batteries during abnormal events prior to thermal runaway

Subject matter expert (SME) – One or more parties who have skills and knowledge related to the operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved. These parties will be responsible for communication during failures with facility personnel, system operators, and emergency personnel. The SME will be qualified in workplace and electrical safety in local jurisdiction of the system.

Thermal Event - A chemical process where self-heating in a battery exceeds the rate of cooling causing high internal temperatures, melting, off-gassing/venting, and in some cases, fire, or explosion. Thermal, mechanical, and electrical abuse can lead to thermal runaway; internal short circuit from manufacturing defects; or the development of metallic dendrites that form an internal short over time. Lithium-ion batteries undergoing thermal runaway can vent their internal contents in the form of gas. Without proper ventilation a combination of gases can build up in an enclosed space. The Lower Explosive Limit (LEL) for this mixture can vary. Oxygen starvation fire suppression in lithium-ion battery systems is not recommended. Smoke can be toxic and smoke from batteries is no exception. Use of a positive pressure breathing apparatus is recommended whenever responding to battery system fires.

Thermal runaway - The condition when an electrochemical cell increases its temperature through self-heating in an uncontrollable fashion and progresses when the cell's heat generation is at a higher rate than can dissipate leading to fire, explosion, and gassing.

2.2 Acronyms

Abbreviation / Acronym	Description
AR	**Arc-Rated**
BESS / ESS	**Battery Energy Storage System** – the complete facility including bidirectional inverter(s), step-up transformer(s), protection devices, HVAC system(s) and control systems.
BMS	**Battery Management System** – the electronic control system that manages the battery installation, maintaining operation within safe limits and monitoring and reporting status to the PPC (Power Plant Controller).

Abbreviation / Acronym	Description
DAS	**Data Acquisition System (synonymous with SCADA)**
E-Stop/EPO	**Emergency Stop / Emergency Power Off**
ERP	**Emergency Response Plan**
EMS	**Energy Management System** – The system running the PPC and providing an HMI for the user interface
FACP	**Fire Alarm Control Panel**
FDC	**Fire Department Connection**
FSS	**Fire Suppression System**
HVAC	**Heating, Ventilation, Air Conditioning system**
IC	**Incident Commander**
ICS	**Incident Command System**
kW	**Kilowatt(s)**
kWh	**Kilowatt-hour(s)**
LFL/LEL	**Lower Flammability Limit / Lower Explosive Limit**
MW	**Megawatt(s)**

Abbreviation / Acronym	Description
MWh	**Megawatt-hour(s)**
O&M	**Operations and Maintenance**
SCBA	**Self-Contained Breathing Apparatus**
SDS	**Safety Data Sheets** – a document that contains information on the potential hazards (health, fire, reactivity and environmental) and how to work safely with the chemical product.
PCS	**Power Conversion System** – Includes bidirectional inverter and integrated control system
PPC	**Power Plant Controller** – The main BESS computer that provides user interaction for all available systems via the EMS HMI.
SCADA	**Supervisory Control and Data Acquisition** – Control system architecture that provides an interface for monitoring and issuing commands to the BESS via the RTUs (Remote Telemetry Unit).
SME	**Subject Matter Expert**
SOC	**State of Charge** – The percent level of charge of the batteries relative to their capacity.
SOH	**State of Health** – The percent merit of condition of the batteries relative to ideal conditions. Will decrease over time with use.
UICS	**Unified Incident Command System**
UFL / UEL	**Upper Flammability Limit / Upper Explosive Limit**

3 General Site Information

3.1 Owner/Operator Information

The owner of the BESS is Jerry Smith Storage, which is an LLC of Nexamp. The Operator of the BESS is Nexamp. Nexamp is a vertically integrated Independent Power Producer (IPP) based in Boston that has constructed, owns, and operates 200+ MWh of energy storage across Massachusetts and New York. Nexamp also operates over a 1GW of solar across the United States, and continues to develop and construct a multi-GW pipeline of energy storage and solar projects across the U.S.

More information about Nexamp can be found here: https://www.nexamp.com/

3.2 Site Overview

The Jerry Smith Energy Storage facility is located at 339 Jerry Smith Rd., Lansing, NY 14882. The Jerry Smith Energy Storage facility consists of Six (6) Megapack 2XL with a nameplate capacity of 979.2 kW / 3,916.8 kWh (4-hour duration). Four (4) Megapack 2XL are rated at 850 kW / 3,916.8 kWh and Two (2) Megapack 2XL are rated at 800 kW / 3,916.8 kWh for a total operating BESS capacity of 5,000 kW / 23,500.8 kWh.

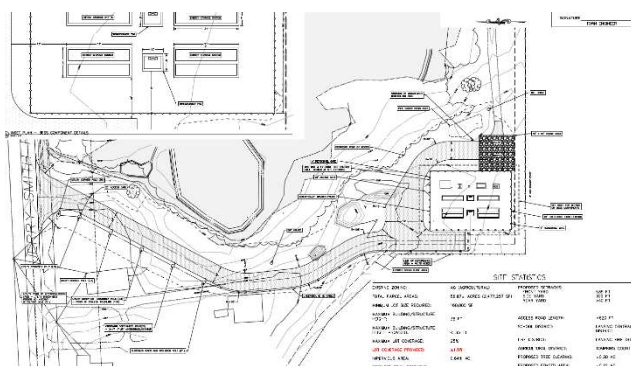

Figure 1 Site Layout

3.3 Site Design

The BESS is located toward the center portion of the property, slightly to the east, as shown in Figure 2. The BESS is southwest and connected to an access road that provides fire apparatus access.

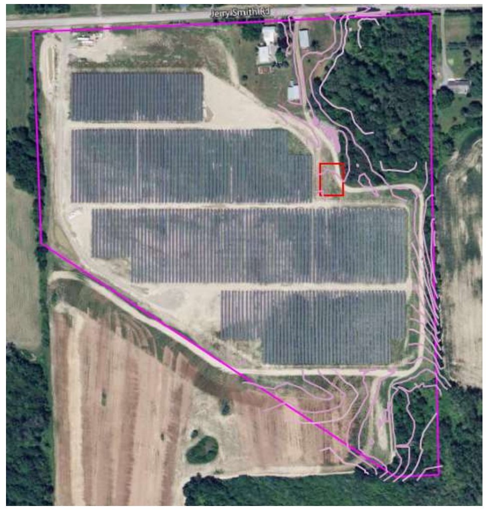

Figure 2 BESS Location - zoomed out

The BESS is connected to an access road that provides fire apparatus access as seen below in Figure 3.

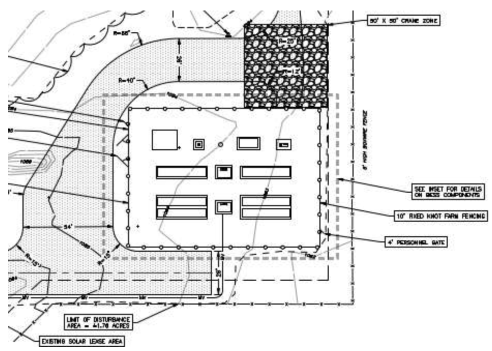

Figure 3 BESS Layout - zoomed in

In the event of an emergency, all site personnel, visitors, Nexamp, and emergency response personnel (including the fire department) should remain outside the 100ft radius seen below. In the event of an emergency, the neighboring property owners should be notified of the event and provided updates throughout the duration of the event.

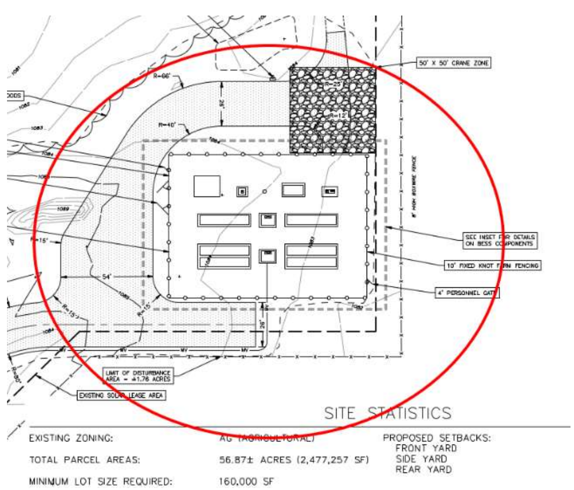

Figure 4 - 100 ft radius

Electrical equipment including metering enclosures, transformers, Data Acquisitions System cabinets are located within the BESS area, with at least a 10 ft setback between the BESS unit, the equipment, and the access road.

The BESS enclosure is installed on a concrete pad, elevated above the flood plain with the surrounding area noted as gravel. The gravel will extend to the access road and between the BESS area.

3.4 Fire Department Access and Staging Area

An entrance point is located on the northeast end of the property. Staging areas are recommended to be conducted on the access road just at the entrance gate of the site facility outside the 100ft radius. Staging areas should be based on the IC and their initial size-up. The staging area is not finalized and will be decided upon by the Fire Department in future discussions with Nexamp.

The Fire Department should not attempt to enter the site fence line unless there is a clear threat to life safety.

Figure 5 Fire Department Access and Staging Area – To be Updated

3.5 Site Security Perimeter

The site is enclosed with a locked gate as the primary entrance to the facility and is surrounded by a fence. The BESS units are each individually locked. As noted above, the Fire Department should not attempt to enter the BESS area unless there is a clear threat to life safety.

3.6 Site Access

The site is enclosed within protective steel fencing with a 10-ft gated entrance located at the northern side of the site. As noted above, the Fire Department should not attempt to enter the site fence unless there is a clear threat to life safety.

3.7 Equipment access

The Tesla Megapack enclosures are only accessible for maintenance purposes via cabinet-style enclosure doors and cannot be physically entered by personnel at any time.

The Fire Department should not attempt to open the enclosure doors at any time.

3.8 Water supply

Primary water source to be confirmed with Fire Department.

3.9 Lock Box Access

A lock box openable by a standard key (Fire Department approved) containing a physical copy of the EPRP, operational permits, O&M logs, product manuals, etc., is provided at the site entrance shown in Figure 3.

3.10 Nearby Exposures

The following nearby exposures are in the immediate area, as shown in Figure 1 above.

1. Residences to the North and Northwest
    a. Location: ~300 - 600 ft from BESS
    b. Construction: To be identified
2. Existing PV Array to the East, South, and West

a. Location: ~50 - 500 ft from BESS (portion to the West closest section of PV array)
b. Construction: Steel and PV modules

3.11 Site Maintenance

The facility's interior access roads shall be maintained to guarantee accessibility to the site by emergency personnel, especially during inclement weather. Nexamp shall ensure snow removal, landscaping, and other ongoing upkeep activities are in place prior to construction.

3.12 BESS Product Information

The BESS Technology/Product incorporated into the design of this project is the Tesla Megapack 2XL (MP2XL). The Megapack 2XL is a pre-engineered and integrated energy storage unit that utilizes Lithium-ion batteries to store and discharge power/energy. More specifically, the batteries use lithium Iron Phosphate (LFP) battery cell chemistry where battery cells are configured into battery modules, which are then integrated into battery racks that are housed in the enclosure/container as shown in Figure 6. The Megapack 2XL is offered is various configurations of varying power/energy capacities.

The MP2XL arrives at the site fully assembled needing just the alternate current (AC) connection and communications cable to be connected on site. The MP2XL is approximately 28.9 ft in length, 5.4ft deep, and 9.2ft in height. The MP2XL is intended for outdoor installations, ground-mounted to a foundation or base strong enough to support the weight of the equipment and anchor loads (including concrete pads, grade beams, etc.). The thermal roof (part of the thermal management system) is enclosed within an IP20 enclosure that sits above the battery module bays. The lithium-ion batteries are housed inside an IP66 steel enclosure (battery module bay) that provides protection against particles and water ingress.

1. Individually fused battery modules (active and passive) – externally serviceable
2. Touch-safe Customer Interface Bay
3. Externally serviceable inverter bay
4. Non-walk-in IP66 enclosure, with internal and external thermal insulation and deflagration mitigation
5. Thermal roof with overpressure vents

Figure 4 Tesla Megapack 2XL Overview

Megapack 2XL 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 the cell, module, and unit level

The Megapack 2XL is designed to comply with major installation codes for energy storage systems, including NFPA 855, IFC 2018 and 2021, and NEC 2020. The Megapack 2XL has been reviewed and validated by an Independent Engineer, both at the product level and for the results of large-scale fire testing.

3.12.1 BESS Product Features

3.12.1.1 Battery Management System (BMS)

See Section 4.

3.12.1.2 Customer Interface Bay

The Customer Interface Bay (CIB) is a user-accessible area designed for operation and service. The CIB includes the main AC breaker, a status panel and controller area network (CAN) interface for service personnel, customer input/output (I/O) terminals, and the keylock switch (a “Lock Out/Tag Out” switch), which shuts down the AC bus to permit MP2XL maintenance by service personnel.

3.12.1.3 Thermal Management System

The thermal management system (TMS) provides suitable operating temperature for the MP2XL. The thermal bay and thermal rood house the components of the TMS. The TMS contains a closed-loop liquid cooling system that circulates a 50/50 mixture of ethylene glycol and water throughout the battery modules and power electronics to maintain an optimum battery operating temperature. The TMS works autonomously and does not require user feedback or controls to turn the system on when needed or to adjust temperature settings. The thermal cabinet includes pumps that circulate the liquid coolant through the MP2XL, an in-line heater that can warm the coolant and a compressor that maintains control for the cabinet. The thermal roof, located above the battery bays within its own IP20 enclosure, provides a ventilation airspace for the MP2XL. It contains fans and radiators that cool the ethylene glycol-water resolution. Cool air enters the thermal roof through the grates on the front of the MP2XL. The cool air then passes over the radiators, absorbing heat, and then is exhausted out of the top of the thermal roof via fans.

3.12.1.4 Site Controller and Monitoring

Beyond the built-in safeguards of the BMS described in Section 5, the MP2XL is supported by a Tesla Local Operations Center (LOC). The MP2XL has 24/7 remote monitoring by Tesla’s LOC, but also Nexamp’ s Network Operating Center (NOC) located in Lawrence, MA. The 24/7 remote monitoring is accompanied by 24/7 diagnostics and troubleshooting capabilities, without needing a technician on site. All faults are transmitted to the LOC and NOC, alerting Tesla and the Operator abnormal conditions that may require corrective action, either through remote means or an in-person field service. This communication link is accomplished via the Tesla Site Controller (TSC). The TSC provides the single point of interface for the Utility, network operator, and/or the System Owner/Operator’s SCADA systems to control and monitor the entire energy storage facility.

3.12.1.5 Electrical Fault Protection Devices

The MP2XL has several passive and active safety control mechanisms installed within the battery module circuit and distribution circuit that would be available to interrupt a fault condition. At a high level, these electrical fault protection features include:

- Battery module overcurrent protection: The battery modules contain DC single-use fusible links mounted directly on the battery modules. These fuses are one-time only use safety devices that can interrupt the flow of an overcurrent in the battery module during an off-normal electrical event.
- Inverter DC protection: The inverter modules, which are installed at each of the battery modules, are equipped with a high-speed pyrotechnic fuse that can isolate the battery module passively or actively during an off-normal event.
- Inverter AC protection: In addition, each inverter module is equipped with its own AC contactor and AC fuses should an off-normal electrical event occur at the inverter module on the AC side of the circuit.
- Ground fault protection: Finally, the MP2XL is also provided with a DC ground fault detection system. It measures insulation resistance prior to operation and looks for excessive leakage current during operation. Additionally, the MP2XL also contains an AC circuit breaker, with ground-fault trip settings, which is installed within the CIB to provide distribution system protection

3.13 Fire Protection Systems

3.13.1.1 Explosion Control System

The MP2XL includes an explosion control system to mitigate the risk of an uncontrolled deflagration. The system includes pressure-sensitive vents (overpressure vents), and sparkers installed throughout the battery module bay. The sparkers are designed to ignite flammable gases exceedingly early in a thermal runaway event before they accumulate within the enclosure and become an explosion hazard. They are installed at a variety of locations and heights throughout the battery module bays to ensure the flammable gases released during thermal runaway quickly meet an ignition source. Note, this explosion control system is the same approach that Tesla has utilized in previous versions of the Megapack (Megapack 1 and Megapack 2) and is not a new concept. It has been extensively validated through installation level testing for these previous Megapack versions as well as the MP2XL and its performance has been demonstrated in the field during thermal events involving Megapacks.

The overpressure vents are installed in the roof of the sealed battery bay's IP66 enclosure, as shown in Figure 7. When activated, the overpressure vents open into the enclosed thermal roof, ensuring that the release of the overpressure vents does not create a projectile hazard. In addition, since they are installed in between the battery module bays and the thermal roof, the overpressure vents are not exposed to the environment, which means they are protected from the elements, such as falling tree limbs or snow, which could impact their functionality.

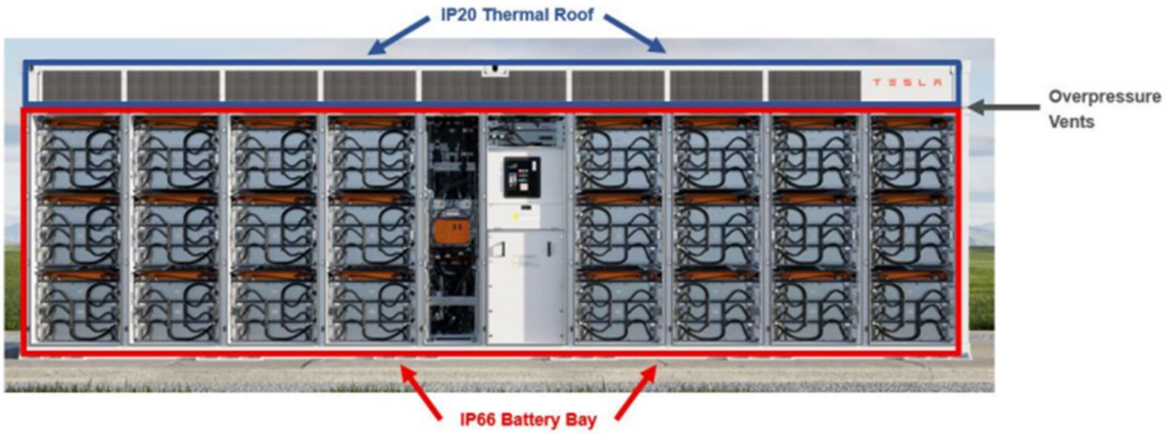

Figure 5 MP2XL Overpressure vent overview

Once opened, the overpressure vents permit gases, products of combustion, and flames to safely exhaust through the roof of the MP2XL during a thermal event. By designing this natural ventilation flow path, flammable gases are not permitted to accumulate within the MP2XL cabinet, reducing the risk of a deflagration or explosion that could compromise the cabinet's integrity, push open the front doors, or expel projectiles from the cabinet. In addition, the ventilation path creates a controlled fire condition, should one occur, out the top of the MP2XL cabinet. By maintaining the MP2XL cabinet's integrity, keeping all the doors shut during a fire event, reducing the risk of projectiles, and creating a controlled path for flames to exit the top of the MP2XL cabinet, the likelihood of a thermal event having an impact on life safety, site personnel or first responders, is reduced. In addition, by maintaining these features, the likelihood of a fire propagating to adjacent MP2XL cabinets, electrical equipment, or other exposures is also reduced.

The overpressure vents themselves are passive and are not actuated or controlled by another device. They are designed to release during an overpressure event, such as the rapid ignition of flammable gases by a sparker. The number and total area of overpressure vents were sized following the guidance of NFPA 68 with a safety factor of two times the enclosure's strength, including the front doors. Tesla developed the overpressure vents and sparker system because the direct application of NFPA 68 or NFPA 69 is not suitable for the MP2XL cabinet, which does not have large volumes of open-air space. This engineered approach is permitted by NFPA 855 §9.6.5.6.4 provided it is validated by installation-level fire and explosion testing and an engineering evaluation, which Tesla has performed.

3.14 Emergency Shutoffs

Emergency shutoff is provided at multiple levels, though the Fire Department should not engage with E-Stops, as BESS shutdown may adversely affect the electrical grid.

<u>**The Fire Department should not engage with E-Stops, as BESS shutdown may adversely affect the electrical grid. Any interaction with E-Stops should only be initiated in coordination with Nexamp, and other SMEs as is deemed necessary.**</u>

<u>Automatic E-Stop</u>

Automatic shutdown is provided at different levels for the Tesla Megapack battery modules, depending on the type of failure:

- For major faults within battery module(s) – such overtemperature, overcharge, or ground fault – the failed module(s) will be isolated by DC-DC converters, disconnects, and/or DC fuses, and an alarm will be generated. This may not result in complete shutdown of the system.

- If a large propagating thermal runaway occurs, the faulted Megapack is isolated by opening its AC contactors and over temperature loss faults will be sent to the service team.

Enclosure-Level E-Stop

Each Megapack unit is equipped with an AC circuit breaker located within the Megapack Customer Interface Bay door and is to be used only by authorized maintenance or operations personnel.

In the event of a battery-related failure, the Fire Department should not approach any battery enclosures or engage with any enclosure E-Stops.

3.15 Fire Detection

The MP2XL does not have an internal fire detection system or one that is integral to its design/construction.

3.15.1.1 UL 9540A Thermal Runaway Test Data

Figure 68, Figure 79, and Figure 8provide an overview of the Cell and Module Level results of the UL 9540A testing conducted on MP2XL. Unit and installation overviews are provided in the Hazard Mitigation Analysis (HMA) that has been submitted to the Lansing Fire Department.

Flammability Property	Value
Average cell surface temperature at gas venting	174°C
Average cell surface temperature at thermal runaway	239°C
Cell vent gas volume released	93.3 L
LFL, % volume in air at the ambient temperature	7.15%
LFL, % volume in air at the venting temperature	6.05%
Burning Velocity (S_u)	90.0 cm/s
Maximum pressure (P_{max})	98.46 psig

Figure 6 UL 9540A Cell Level Testing: Key Flammability Characteristics

Gas Name	Chemical Structure	% Measured	Component LFL
Carbon Monoxide	CO	10.881	10.9
Carbon Dioxide	CO2	27.107	N/A
Hydrogen	H2	50.148	4.0
Methane	CH4	6.428	4.4
Acetylene	C2H2	0.264	2.3
Ethylene	C2H4	3.283	2.4
Ethane	C2H6	1.100	2.4
Propene	C3H6	0.379	1.8
Propane	C3H8	0.125	1.7
-	C4 (Total)	0.190	N/A
-	C5 (Total)	0.027	N/A
-	C6 (Total)	0.005	N/A
Benzene	C6H6	0.002	1.2
Toluene	C7H8	0.002	1.0
Dimethyl Carbonate	C3H6O3	0.055	N/A
Ethyl Methyl Carbonate	C4H8O3	0.004	N/A
Total	-	100	-

Figure 7 UL 9540A Cell Level Testing: Cell Vent Gas Composition (Excluding Oxygen and Nitrogen)

Gas Name	Chemical Structure	Measurement Peak (ppm)
Carbon Monoxide	CO	205
Carbon Dioxide	CO2	6721
Methane	CH4	68.8
Acetylene	C2H2	17.1
Ethene	C2H4	Not Detected
Ethane	C2H6	Not Detected
Propane	C3H8	Not Detected
Butane	C3H4	Not Detected
Pentane	C3H6	Not Detected
Benzene	C6H6	9.0
Hexane	C7H14	Not Detected
Hydrofluoric Acid	HF	Not Detected
Hydrogen Chloride	HCL	Not Detected
Hydrogen Cyanide	HCN	Not Detected
Hydrogen	H2	446
Total Hydrocarbons	(Propane Equivalent)	247

Figure 8 UL 9540A Module Level Testing: Product of Combustion

3.16 Emergency Contacts

- Local Fire Department: **Lansing Fire Department**
  - Address: **80 Ridge Rd, Lansing, NY 14882**
  - Emergency: **9-1-1** (if dialing locally from BESS location)
- Local Hospital: **TBD with Fire Department**
  - Address:
  - Emergency: **9-1-1** (if dialing locally from BESS location)

- Nexamp Emergency Response Coordinator:
  - Sean Banaee, **757-971-7732**
- Nexamp Emergency Line - **(857) 239-0057**

3.17 Fire Responder Contact Information

- Local Fire Department: **Lansing Fire Department**
  - Address: **80 Ridge Rd, Lansing, NY 14882**
  - Emergency: **9-1-1** (if dialing locally from BESS location)
  - Non-Emergency: **(607) 273-8000**
- Local Hospital: **To be updated**
  - Address: **To be updated**
  - Emergency: **9-1-1** (if dialing locally from BESS location)
  - Emergency Room: **To be updated**
  - Non-Emergency: **To be updated**

3.18 Other Contact Information

Nexamp Site Contacts		
Name	**Role**	**Phone Number**
Nexamp	Emergency Call Center	857-239-0057
Jerry Smith Storage	BESS Owner	617-431-1440
Sean Banaee	Emergency Response Coordinator	752-971-7732
Mohamed Kassamali	BESS SME	516-355-1466

Nexamp/BESS Vendor Subject Matter Expert		
Name	**Role**	**Phone Number**
Nexamp	BESS Operator	857-239-0057 Back up: 617-431-1440
Tesla	BESS Manufacturer	650-681-6060
Chemtrec	HAZMAT Remediation	800-424-9300

3.19 Roles and Responsibilities

The following table provides a high-level summary of key stakeholders' responsibilities regarding emergency preparedness and response.

The BESS Owner and Operator will assist in the implementation of this plan by knowing and communicating evacuation routes to work during emergency evacuation and reporting the status of the incident and evacuation to the Lansing Fire Department.

All facility personnel have a responsibility to immediately report any emergencies to the SME and/or BESS Operator or local emergency responders when appropriate. No delay to report emergency events that require the local emergency responders.

The SME and designated alternative will be always contactable by telephone; be readily available to first responders in the event of an emergency. The SME shall be well versed in battery failure modes and hazards. If SME is not available, a toll-free phone number for first responders to call at any time shall be provided. Additionally, first responders shall be given operational data on the system, including the current state of health, system alarm notifications and advice on how to proceed during an emergency event shall be provided.

BESS Owner	
Identity	**Jerry Smith Storage (Nexamp)**
Responsibilities	Shall coordinate with the Emergency Response Coordinator and/or its contractors with access to the site, as necessary, for them to perform their duties and obligations.

Emergency Response Coordinator	
Identity	**Sean Banaee (Nexamp)**
Responsibilities	Shall provide a site-specific Emergency Response Plan for each site that was developed during the engineering, construction, and commissioning phases of the projects. The Emergency Response Plan should be submitted to the local fire department, the BESS Operators, and the BESS Maintenance Contractors prior to going live. The Emergency Response Coordinator will also be responsible for introductory training of the ERP, the BESS project site, and introduction amongst all emergency response stakeholders listed in this table.

BESS SME	
Identity	**Mohamed Kassamali and Nickole Gagne (Nexamp)**

Responsibilities	The BESS SME role consists of at least two people, one of which is the battery technology expert, and the other being a qualified electrical expert. The two parties are responsible for communicating with each other, the BESS operator, and the Local Fire Department. The description of these two parties and their respective responsibilities are listed below. <u>Qualified Electrical Expert (Nexamp)</u> One person employed by the BESS Owner has the skills and knowledge related to the operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved. This party will be qualified in the workplace and electrical safety in local jurisdiction of the system. This party will be responsible for the following during an emergency or failure: - Prepare for and conduct exchange of information with battery technology experts (BESS SME), Emergency Response Coordinator, Local Fire Department, and BESS operators - Communicate proper methods for isolation and shutdown the system based on available information on the emergency event - Determine electrical hazards and failures and communicate them to the Local Fire Department <u>Battery Technology Expert (Nexamp)</u> One person employed by the BESS Owner has knowledge of the normal and abnormal operation of the BESS and associated equipment. This person will have a deep understanding of the BESS failure modes, automatic and passive safety systems associated with the BESS, and correct emergency response procedures and action plans. This party will be responsible for the following during an emergency of failure: - Communicating with the Qualified Electrical Expert (BESS SME), Emergency Response Coordinator, Local Fire Department, and BESS Operator. - Communicating the required setbacks and evacuation points that the Local Fire Department should maintain to the Local Fire Department - Collecting information from the BESS Operator regarding the BESS status and its alarms - Direct communication will be made from BESS SME to the BESS manufacturer following an emergency event.

BESS Operator	
Identity	**Nexamp**
Responsibilities	The following responsibilities fall under the BESS Operator’s scope during an emergency event: - Actively monitor and control the BESS during its normal and abnormal operations to the best of their ability. All monitoring and controlling will be performed in line with the BESS Manufacturer’s recommendations. - Directly communicate with the Local Fire Department, Emergency Response Coordinator, and BESS SME at the onset of the emergency event and for the remainder of the emergency event. Dispatching qualified personnel to the site

Local Fire Department / Emergency Response Personnel	
Identity	**Lansing Fire Department**
Responsibilities	Will receive and review a copy of the Emergency Response Plan (ERP) for each site and approve of the ERP prior to the BESS Owner sharing the document with all stakeholders and conducting training. Upon alarm, will coordinate with the Emergency Response Coordinator, and BESS SME to receive an update on the emergency and ensure the BESS site is safe to approach prior to engaging. Will be required to maintain training for new members of the FD and maintaining a copy of the ERP accessible to all members of the FD.

Incident Commander (IC)	
Identity	**Lansing Fire Department**
Responsibilities	The person responsible for overall management of the incident and determines which Command or General Staff positions to staff in order to maintain a manageable span of control and ensure appropriate attention to the necessary incident management functions.

Site Owner	
Identity	**Doris Straw**
Responsibilities	The owner of the premises upon which the battery system is installed.

4 Battery Management System (BMS)

MP2XL has an integrated battery management system (BMS) that tracks the performance, voltage, current, and state of charge of the cells (among many other datapoints). The BMS is a layered system, where each battery module has its own BMS and the MP2XL itself has a bus controller supervising the output of all the battery modules at the AC bus level. The BMS is engineered to react to fault conditions in an autonomous manner, with safeguards built into firmware. These fault conditions include, but are not limited to, over-temperature, loss of communication, over-voltage, and isolation. For instance, to prevent a cell over-temperature the TMS is enabled by the BMS to cool the cells/module. This action by the BMS (which is just one example of many ways the BMS can respond to a fault condition) can either prevent thermal runaway from occurring in the cell or prohibit the propagation of thermal runaway to adjacent cells. Depending on the severity of the fault condition, the BMS can automatically isolate the affected battery module temporarily (less severe fault) or it can permanently disconnect the module.

The BMS is the brain behind the energy storage system. Like how the Chief Officer will locate a residential or commercial facility FACP to allow them to begin their basic size-up, the BMS alongside the Site Controller will provide similar insight into the type of alarm, location and how much of the energy storage system may be involved. As such, BMS data should be leveraged to make informed decisions. The BESS SME will provide an interpretation of the BMS data and conveying the data to the Chief Officer.

4.1 Alarm Matrix

<u>List of Alarm Conditions Requiring Lansing Fire Department Response</u>

An alarm matrix that explains the alarm, alarm description, and the resulting action from the BMS is provided in Table 1. However, there may be additional indicators or information communicated directly from Tesla to Nexamp that may be shared with the Lansing Fire Department

Table 1 Alarms Matrix

Alarm Name/Code	**Alarm description**	**Alarm Response**
Maximum Battery Temperature	Maximum battery cell temperatures across all battery modules within a Megapack	If this alarm occurs, Tesla will immediately contact Nexamp and provide the system diagnosis. Simultaneously, Nexamp’ s NOC will be seeing alarms which will trigger an immediate call to the Lansing Fire Department. Nexamp will request that the Lansing Fire Department is dispatched, and Nexamp will dispatch their EH&S and Asset Management personnel. Upon further diagnosis, additional action may be administered. If this

		alarm results in a battery fire, the Emergency Response Plan (ERP) will be in effect.
Megapack Inverter Fault	All inverters in the Megapack are faulted	If this alarm occurs, Tesla will immediately contact Nexamp and provide the system diagnosis. Simultaneously, Nexamp' s NOC will be seeing alarms which will trigger an immediate call to the Lansing Fire Department. Nexamp will notify Lansing Fire Department of the alarm and provide a diagnosis (if available). Nexamp will communicate that they will update the fire department on the conditions of the BESS. Tesla and Nexamp will shut down the BESS to troubleshoot the issue. Personnel will be dispatched if the issue cannot be resolved remotely.
Extreme Temperature Warning	Battery cells have reached a temperature above the cell temperature warning threshold	If this alarm occurs, Tesla will immediately contact Nexamp and provide the system diagnosis. Simultaneously, Nexamp' s NOC will be seeing alarms which will trigger an immediate call to the Lansing Fire Department. Nexamp will notify Lansing Fire Department of the alarm and provide a diagnosis (if available). Nexamp will communicate that they will update the fire department on the conditions of the BESS. Tesla and Nexamp will shut down the BESS to troubleshoot the issue. Personnel will be dispatched if the issue cannot be resolved remotely.

Extreme Temperature Fault	Battery cells have reached a temperature above the cell temperature fault threshold	If this alarm occurs, Tesla will immediately contact Nexamp and provide the system diagnosis. Simultaneously, Nexamp' s NOC will be seeing alarms which will trigger an immediate call to the Lansing Fire Department. Nexamp will ask that Lansing Fire Department is dispatched, and Nexamp will dispatch their EH&S and Asset Management personnel. Upon further diagnosis, added action may be administered. If this alarm results in a battery fire, the Emergency Response Plan (ERP) will be in effect.
Power Electronics Over Temperature	Megapack Power Electronics are experiencing an overtemperature	If this alarm occurs, Tesla will immediately contact Nexamp and provide the system diagnosis. Simultaneously, Nexamp' s NOC will be seeing alarms which will trigger an immediate call to the Lansing Fire Department. Nexamp will notify Lansing Fire Department of the alarm and provide a diagnosis (if available). Nexamp will communicate that they will update the fire department on the conditions of the BESS. Tesla and Nexamp will shut down the BESS to troubleshoot the issue. Personnel will be dispatched if the issue cannot be resolved remotely.

A safe start up procedure following an alarm event is covered in the O&M manual and Tesla emergency response guide included in Nexamp's supporting documentation package.

5 Hazards

5.1 Thermal runaway

Thermal runaway is a chemical process where self-heating in a battery exceeds the rate of cooling causing high internal temperatures, melting, off-gassing /venting. And in some cases, fire or explosion. Thermal, mechanical, and electrical abuse can lead to thermal runaway, internal short circuit from manufacturing defects, or the development of metallic dendrites that from internal short over time.

Flammable and potentially explosive gases (generally white in color) typically evolve when an energy storage system goes into thermal runaway and may be released in large quantities from battery cells or modules. Fire and explosive incidents may result, and precautions as described in the sections below should be observed.

5.2 Fire and Re-ignition

Lithium-ion battery fires can burn at extremely elevated temperatures (upwards of 1000°C) and are generally not easily extinguished. Fire growth may be slow, fast, or ultra-fast (e.g., during deflagration event). In nature and may last for several hours before the battery modules are completely consumed. Furthermore, even when a lithium-ion battery fire appears to be fully extinguished, re-ignition risk may still be present hours or even days after there are no visible signs of fire.

Application of water to affected battery modules may potentially prolong the incident, and decisions to apply water should be made in coordination with the System Owner / Operator, and other required SMEs.

NOTICE	
	Indicators which may provide insight into what is happening or about to happen during an incident may include: • Smoke or flames • Change in smoke color • Change in velocity or volume of smoke production • Sounds -popping and/or hissing • Smell – sweet smell

WARNING: Risk of Re-ignition	
	Do **NOT** assume the fire is out as the fire event unfolds. A lithium-ion battery fire which has seemingly been extinguished may flare up again if all cells within the enclosure have not been completely consumed. The risk of battery re-ignition can remain present for hours or even days after the smoke/flame is initially detected.

5.3 Explosion

Lithium-ion batteries release flammable off-gases during thermal runaway which, if allowed to accumulate within the enclosure, may create an explosive atmosphere, posing serous risk to first responders and nearby exposures. These gases may accumulate within the energy storage system enclosure as levels above the Lower Explosive Limit (LEL). At sufficiently high accumulations, gases can also exceed their Upper Explosive Limit (UEL), at which point ventilation may bring the environment back into flammable limits, this creating a new explosion risk.

It may be difficult to ascertain conditions within the enclosure if smoke and gas are not visible outside of the enclosure. Furthermore, a single battery cell may release enough flammable off-gas to generate an explosive atmosphere within the enclosure. Therefore, any failure or alarm condition should always result in the assumption of potential explosion risk. Any fire personnel operating on scene should utilize both 4/5 gas meters as well as thermal imaging camera to help determine if any gas components are venting from the site.

WARNING: Risk of Explosion / Deflagration	
	An explosion / deflagration / over-pressure event is a critical hazard, and any emergency on-site should always be addressed with full awareness of potential factors which may lead to such an event. **Any failure or alarm conditions should result in the assumption of an explosion risk.**

5.4 Electrical Shock

Even if a battery may look to be destroyed by fire and/or other means, there is a potential that the battery still holds stranded energy and remains energized. De-energization of the system or any removal of the battery or battery component shall only be performed by a trained and competent individual with proper PPE.

Normal overhaul of the energy storage system enclosure shall not be attempted by the fire department in any circumstances, as there are considerations for handling damaged batteries requiring equipment and expertise that must be called to site. Once the scene is secured, these actions may be undertaken by trained experts under close supervision.

WARNING: Risk of Stranded Energy	
	Always treat the batteries as Energetic Hazardous Materials, as stranded energy is likely to still be present. Traditional Fire Department overhaul should not be conducted due to the potential for stranded energy.

5.5 Arc Flash

All energy storage systems and related electrical equipment shall always be treated as energized (Energetic Hazardous Material).

Qualified PPE and training are required when working or accessing equipment within an Arc Flash Boundary. In general, when in direct proximity to the battery enclosure, wear non-melting or untreated natural fiber long-sleeve shirt, long pants, safety glasses, hearing protection, and proper gloves. AR plant clothing is also acceptable. Maintain arc flash boundary until completion of any task.

5.6 Toxic Smoke and Gas Emission

Lithium-ion batteries may release copious quantities of flammable and toxic gas when undergoing failure and pos an inhalation hazard. Chemicals consumed during a thermal runaway event will produce smoke.

The energy storage system site perimeter should not be entered during a fire or off-gassing event unless there is an imminent threat to life safety, at which time only professionally trained and equipped public safety personnel may enter. This entry shall be with full fighter protective gear to include self-contained breathing apparatus (SCBA), 4/5 gas meters and a thermal imaging camera.

A fog pattern from a handline or monitor nozzle may be an effective way to control the off-gassing event on the exterior of the battery enclosure from migrating to unwanted areas. However, if water is used in extinguishing flame, these gases can become acids which may cause skin irritation if in direct contact with the acid.

WARNING: Toxic Gases	
	Copious quantities of toxic smoke and gas may be emitted from the ESS during battery off-gassing or fire situations. **Proper PPE including SCBA should be worn by first responders.**

5.7 Additional Hazards and Considerations

For additional hazards associated with leaked coolant, leaked refrigerant, leaked electrolyte, or emergency considerations during storage, operation, transportation, or first aid measures, and disposal procedures, please see the *Tesla Industrial Lithium-ion Battery Emergency Response Guide* and *Tesla Application note: Considerations for Hazardous Material Business Plans.*

6 Notification Matrix

To be updated upon discussion with Lansing Fire Department

7 Emergency Response Considerations

7.1 Emergency Contacts

A list of emergency contacts associated with this installation is provided in Section 3.16.

7.2 Equipment and Personnel Protective Equipment (PPE)

Full firefighter protective gear shall be worn in any response to a fire and/or explosion event or if there is any sign a fire may be present or likely to be present at any time during the event. The Officer in Charge should have a 4/5 gas meter available, along with a thermal imaging camera (TIC).

If there is no risk of fire or explosion present, arc-related (AR) protective clothing to protect against arc flash and electrical shock shall be worn. Jewelry such as necklaces, rings, bracelets, etc. shall be removed to avoid contact with any electrical hazard

Proper PPE shall include use of Self-Contained Breathing Apparatus (SCBA).

7.3 APIE (Analyze, Plan, Implement, and Evaluate) Framework

APIE is a framework commonly used for emergency incident preparation and development of proper response protocol(s). The four elements of the framework are Analyze, Plan, Implement, and Evaluate. An example of APIE framework with simplified sample details pertaining to an emergency incident is as follows:

- **Analyze**: Provide signs and monitoring signals that indicate incident escalation (e.g., fire or explosion) may take place which first responders should be aware of.
- **Plan:** Delineate the danger zone to mitigate first responders and bystanders (pedestrians, vehicular traffic, residents, etc.)
- **Implement:** Enforce evacuations, street closures, reduced pedestrian, and first responder exposure, and other impact areas that have a life safety concern, as applicable.

- **Evaluate:** Provide continuous monitoring and feedback of the incident and adjust accordingly to ensure ongoing safety of any bystander or responder in the impact area.

7.4 Scene Size-up – Command and Control

- Initiation of emergency response shall be activated as per the current protocol. If there is any threat or potential threat to life safety, 911 shall immediately be called to the aid of public safety responders. An initial scene assessment shall be conducted from all sides (360-degree scene size up) if possible, and a concise assessment shall be given to incoming responders. Hazards and facility safety concerns such as high voltage areas or electrical concerns shall be announced to all responders.

The scene assessment shall include the following in plain language (no codes, abbreviations, acronyms, etc.):

- Location of the incident (Where)
- What has happened
- What is currently happening
- Whether there are any injuries or unaccounted for individuals
- What needs or other resources should be requested or brought to site

An Incident Command System (ICS) shall be established immediately and shall include the designation of roles. The primary command post location shall be located at the Fire Department Staging Area. If public safety is summoned to the incident, the ICS shall be a Unified Incident Command System (ICS).

One-site staff (if applicable) shall immediately go to the designated muster point(s), which will be the command post location unless designated differently by the Incident Commander. Incident Command shall designate the individual in charge of accountability. Accountability shall be reported as soon as possible. If available and able, another individual shall control any traffic and guide first responders to the scene.

At the same time as these activities are occurring, the Emergency Response Coordinator or other designated SME shall immediately contact the 24/7 Networks Operations Center to establish available data from the BMS and communicate this to the Incident Commander or other appropriate individuals.

WARNING: Risk of Explosion / Deflagration	
	An explosion / deflagration / over-pressure event is a critical hazard, and any emergency on-site should always be addressed with full awareness of potential factors which may lead to such an event. **Any failure or alarm conditions should result in the assumption of an explosion risk.**

WARNING: Toxic Gases	
	Copious quantities of toxic smoke and gas may be emitted from the ESS during battery off-gassing or fire situations. **Proper PPE including SCBA should be worn by first responders.**

7.5 Determine Fire Protection Approach

The decision to utilize water spray or to provide thermal cooling via hose lines should be made in coordination with System Owner / Operator, and any other required SMEs.

Caution should be exercised if water is applied directly to the exterior of an affected Energy Storage System enclosure, as this will not stop a thermal runaway event and may potentially delay combustion. Defensive firefighting tactics are generally recommended, with water being applied to nearby exposures for cooling, as necessary. Any hose line operations should be limited to hose and master stream application from outside of the BESS sound barrier structure, at least 100ft away from the BESS, and as far back as hose and stream range allow.

A fog pattern from a handline or monitor nozzle may potentially be utilized to control smoke and gas released from the affected enclosure and prevent them from moving to unwanted areas.

In all instances, power shut down and isolation involving any high voltage feeder lines must be confirmed before any defensive measures are taken involving application of water to the site.

WARNING: Risk of Re-ignition	
	Do **<u>NOT</u>** assume the fire is out as the fire event unfolds. A lithium-ion battery fire which has seemingly been extinguished may flare up again if all cells within the enclosure have not been completely consumed. The risk of battery re-ignition can remain present for hours or even days after the smoke/flame is initially detected.

7.6 Incident Monitoring and Evaluation

Continuous monitoring and feedback on the incident should be provided as the situation evolves. Consultation with the System Owner/ Operator, and any other required SMEs should be held to guide incident response and determine appropriate next steps.

If available, real-time BMS data from the 24/7 Networks Operations Center should be utilized (e.g., temperature, voltage, or other critical measurements) to monitor the spread of failure and assess the health the ESS to help guide response procedures as the event unfolds.

8 Response Tactics

8.1 Explosion Incident

In case of fire or thermal runaway events, explosive or deflagration event may occur potentially subjecting personnel to overpressure and projectile hazards. An initial exclusion area should be established, based on the discretion of the Incident Commander, to guard against any blast overpressure. Staging or operations should not be in direct alignment with the energy storage enclosure and should be established at angles relative to the sides of the enclosures if possible. If available, shielding via the built environment should be utilized to protect against high temperatures, overpressure events, or projectile hazards.

<u>A minimum of one hundred (100 ft)</u> **<u>shall be maintained between individuals and the incident cabinet (see 100ft radius shown in Figure 3).</u>**

Notify neighboring property owners of the BESS area of the emergency event and to remain away from the property If the System Operator has informed that the automatic E-Stop has not been triggered, attend to Manual E-Stop. The Manual E-Stop will disconnect the energy storage system electrically.

Gas monitoring shall always be continuously conducted, and gas meters shall be affixed to all responders to warn of potential atmospheric risks. If possible, gas readings from inside the cabinet shall be attempted to be gathered from an exterior point prior to any entry.

WARNING: Risk of Explosion / Deflagration	
	An explosion / deflagration / over-pressure event is a critical hazard, and any emergency on-site should always be addressed with full awareness of potential factors which may lead to such an event. **Any failure or alarm conditions should result in the assumption of an explosion risk.**

8.2 Fire Incident

In the event sensors within the BESS containers detect a fire or thermal runaway, the BESS container undergoes an emergency stop of operations, including isolation of batteries via contactor located at the battery rack level. The unit or system should be shut down manually if possible and Tesla Energy Technical Support should be contacted for assistance. The Manual E-Stop will disconnect the energy storage system electrically.

A minimum of one hundred (100 ft) **shall be maintained between individuals and the incident BESS container**s.

Notify neighboring property owners of the BESS area of the emergency event and to remain away from the property.

If there is no immediate threat to life safety

1. Allow the BESS to burn in a controllable manner until all fuel sources inside are depleted
2. A defensive approach should be considered utilizing water to cool and protect adjacent exposures and mitigate the spread of fire to areas outside the sound barrier.
3. Remember that even after the BESS is isolated from the electric grid and there may still be considerable stored energy in the batteries that poses a potential electric shock hazard to anyone in the nearby vicinity.

Additionally, chemicals released during a fire or explosion event will be in a gaseous form and primarily pose an inhalation hazard. A fog pattern from a handline or monitor nozzle may provide an effective means of controlling an off-gassing event on the exterior of the BESS enclosure from cascading to unwanted areas such as public muster points, emergency responders, building intakes, etc.

In addition, hose streams may be also applied to adjacent exposures for cooling purposes. BMS data available via the 24/7 Networks Operation Center should be closely monitored for the adjacent system(s) for any indicators of heat impact or water damage and relayed to the appropriate individual within the Incident Command System.

Following the partial or complete consumption of the system by fire, batteries may continue to emit flammable gases and toxic gases for a period. Continuous monitoring of gas levels in and around the incident location is recommended. Full firefighter PPE and SCBA shall be utilized until gas levels are confirmed to be at a safe level. A Firewatch shall be provided to ensure that the continued safety of the site after the emergency appears stable.

WARNING: Risk of Re-ignition

Do **NOT** assume the fire is out as the fire event unfolds. A lithium-ion battery fire which has seemingly been extinguished may flare up again if all cells within the enclosure have not been completely consumed. The risk of battery re-ignition can remain present for hours or even days after the smoke/flame is initially detected.

8.3 Thermal Runaway or Off-Gassing Incident

A thermal runaway event may result in copious quantities of smoke and gas being released, which may or may not be visible outside of the ESS enclosure itself, therefore, it is critical that any failure or alarm condition result in the assumption of an explosion or fire risk.

In the event of a thermal runaway or suspected off-gassing event, the following actions are recommended:

1. Evacuate the area to a safe location a sufficient distance from the ESS enclosure involved.
2. If the alarm has not already signaled the Fire Department, immediately call 911
3. Call the System Owner / Operator as highlighted in Section 6.
4. Establish a safety perimeter around all sides of the energy storage system and remain outside the sound barrier/BESS area. Do not allow personnel other than firefighters in proper PPE to enter the safety perimeter and stay upwind of any smoke or off-gassing.
5. As the incident evolves, a fire or explosion event may occur, and procedures outlined in Section 8.1 and 8.2 above should be followed based on the situation as it progresses.

WARNING: Risk of Explosion / Deflagration

An explosion / deflagration / over-pressure event is a critical hazard, and any emergency on-site should always be addressed with full awareness of potential factors which may lead to such an event.

Any failure or alarm conditions should result in the assumption of an explosion risk.

WARNING: Risk of Re-ignition

Do **NOT** assume the fire is out as the fire event unfolds. A lithium-ion battery fire which has seemingly been extinguished may flare up again if all cells within the enclosure have not been completely consumed. The risk of battery re-ignition can remain present for hours or even days after the smoke/flame is initially detected.

WARNING: Toxic Gases

Copious quantities of toxic smoke and gas may be emitted from the ESS during battery off-gassing or fire situations.

Proper PPE including SCBA should be worn by first responders.

NOTICE

Indicators which may provide insight into what is happening or about to happen during an incident may include:

- Smoke or flames
- Change in smoke color
- Change in velocity or volume of smoke production

	• Sounds -popping and/or hissing • Smell – sweet smell

8.4 Alarm Incident

<u>In the event of an alarm activation, the following actions are recommended:</u>

1. Evacuate the area to a safe location a sufficient distance from the ESS enclosure involved.
2. If the alarm has not already signaled the Fire Department, immediately call 911
3. Call the System Owner / Operator as highlighted in Section 6.
4. Establish a safety perimeter around all sides of the energy storage system and remain outside the BESS area. Do not allow personnel other than firefighters in proper PPE to enter the safety perimeter and stay upwind of any smoke or off-gassing.

8.5 External Fire / Thermal Exposure Incident

For any type of external heat source or fire impingement (i.e., not resulting from the BESS), the Incident Commander should be advised to review the BESS diagnostics with respect to SOH information from the BMS data (i.e., temperature data) available from the 24/7 NOC to evaluate the severity of the incident and assess the state of emergency. All precautions previously noted for fire and explosion incidents should be observed (Section 8.1 and 8.2)

Note: The BESS area has design features that mitigate an external fire such as the setbacks, use of gravel, vegetation management, and safety systems.

8.6 External Impact Incident

If a BESS enclosure is severely impacted causing a crushing or puncturing of the outer shell of the BESS or battery enclosure, treat this as an emergency – notify 911 and other required parties noted in Section 6.

Note: The Tesla Megapack 2XL is IK09 rated for impact protection.

9 Post Incident Operations

<u>Handoff Procedures</u>

Upon determination by Lansing Fire Department Incident Commander, when the energy storage system is deemed safe, the System Operator shall ensure that the site is safeguarded until the damaged system is removed, repaired, or replaced based on the approved Decommissioning Plan filed with the building permit.

<u>Activation of Decommissioning Plan</u>

Decommissioning of the system shall take place in accordance with the Decommissioning Plan filed with the building permit. Deactivation, de-energizing, dismantling and removal of the system shall be conducted by trained and knowledgeable persons in accordance with manufacturer's specifications.

10 Training and Exercises

The ERP serves as the platform for the training program and includes the following:

- System Overview

- Equipment
- BMS
- Detection and Suppression
- Emergency System Shutdown
- Hazards
- Suppression agents and exposure control
- Response tactics
- Post-fire operations

Initial training for all stakeholders included in this ERP shall be undertaken before the construction of the BESS facility. Refreshments training of the ERP will be offered **at least one time annually** However, Nexamp will provide additional training at the request of any stakeholders included in the ERP, particularly the Lansing Fire Department.

In accordance with best practices such as NFPA 855, drills should be conducted regularly to exercise knowledge of the ERP and prepare stakeholders for a potential emergency. Over a three-year cycle, drills will grow in complexity and will be evaluated to ensure the ERP can be executed as written. Drills may be desktop, functional, or full-scale and will follow the FEMA/HSEEP doctrine (Link provided below).

- **Plan Cycle 1**
  - Cycle 1 drills will be basic in nature and consider the reasonable conditions that may cause the Fire Service to respond to the Facility.
- **Plan Cycle 2**
  - Cycle 2 will begin to evaluate more complex equipment failures where facility personnel will collaborate with members of the first response community to mitigate and contain the event.
- **Plan Cycle 3**
  - Cycle 3 will represent the most complex scenario that can impact major system components, neighbors, and the environment.

https://www.fema.gov/emergency-managers/national-preparedness/exercises/hseep

11 Revision Tracking

Rev	Author(s)	Effective Date	Description of Revision(s)
0	Mohamed Kassamali, Eli Shandelman	05/26/2026	First Draft of Emergency Response Plan –Technology, Site, and Contact information included
1	Mohamed Kassamali, Eli Shandelman	07/10/2026	Second Draft of Emergency Response Plan – updated site plan included
2			
3			
4			
5			