

# Informational Report: Battery Energy Storage Systems and Moss Landing Fire



Community Services Department

March 11, 2025

# Agenda

- Moss Landing BESS
- State Oversight Regulations
- County Review Process
- Fire Department Requirements
- Caballero BESS (Nipomo)
- Recommendations

# Moss Landing BESS



- Constructed in 2020
- Batteries housed in building constructed in 1950s (former PG&E natural gas-fueled power plant)
- Older battery technology, prone to overheating

# State Oversight Regulations

- AB 205 (2022) Permits large BESS to be approved by California Energy Commission via Opt-In certification process
- AB 303 (2025) Restores local permitting authority, establishes 3,200-foot setback from sensitive receptors
- CPUC considering enhanced safety measures

# County Review Process

- BESS projects processed through:
- Conditional Use Permits
  - Public hearing
  - Subject to CEQA

# INSTALLATION DIFFERENCES



- Moss Landing BESS was an indoor system.
  - More vulnerable to having a larger scale fire
  - Lower temperature threshold added to ignition of surrounding battery packs
  
- Newer BESS facilities are installed outdoors and is the industry standard.
  - Individual containers will shut off power supply when temperature anomalies are detected
  - Individual containers are designed to confine thermal runaway incidents within the affected container
  - Containers and the outdoor installation are designed to prevent propagation of a resulting fire to other containers

# BATTERY CHEMISTRY AND TEMPERATURE THRESHOLD



Nickel-Manganese-Cobalt (NMC) chemistry batteries were installed at the Moss Landing BESS.

- NMC chemistry is more prone to thermal runaway
- NMC batteries have a lower temperature threshold to reach for a thermal runaway incident

Lithium-Iron-Phosphate (LFP) chemistry batteries are the dominant chemistry in newer BESS facilities.

- LFP chemistry is intrinsically more stable and less prone to thermal runaway
- LFP batteries have been tested and have a significantly higher temperature threshold to reach thermal runaway

# Technical Codes



## MOSS LANDING BESS

- **Pre-dated International codes, National codes and standards**

## GOLETA BESS

- **Designed with 2021 International Fire Code Requirements**
- **Met 2023 NFPA 855 Requirements**
- **Met 2021 Edition of UL 9540**
- **Fire Protection Plan On Site\***
- **Local Firefighters Trained\***



# Caballero BESS (Nipomo)



- Approved in 2023, operational this year
- 100 megawatts, batteries stored outdoors
- Conditions of approval require compliance with CA Fire Code, and NFPA and UL standards
- Santa Barbara OEM working with SLO counterpart to develop standard operating procedures in the event of a fire.

# Recommended Actions

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- A. Receive and File this report
- B. Provide direction to staff as appropriate.
- C. Find that the proposed action is an organizational or administrative activity that will not result in direct or indirect physical changes in the environment and is therefore not a project under CEQA Guidelines 14 CCR 15378(b)(5).

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# Questions?