

Moss Landing Fire Overview

Joanie Brooke | February 5, 2025



Moss Landing Battery Fire – what happened?

Moss Landing was a non-standard design:

- Phase I was built indoors, as one large 300MW battery
- Minimal fire barriers between cells/modules
- Battery chemistry: Lithium Nickel Manganese Cobalt Oxide (NMC), generally considered more prone to thermal runaway
- Phase I was constructed before NFPA 855 established standards for battery storage design and installation
- The non-standard design, and emergency response standards, allowed the fire to propagate through the entire building.



Image: Interior of Moss Landing BESS Phase I

Current Standards

Current fire standard: NFPA 855

- Released 4/1/2020, Updated 8/25/2023
- Standard dictates testing, fire walls, minimum spacing between units, site-specific hazard mitigations, & emergency response planning.
- Each container has dedicated HVAC unit, smoke, gas & fire alarms, fire suppression systems, & automatic shut-off controls.
- Factory testing ensures containers can suppress fires and prevent igniting adjacent units

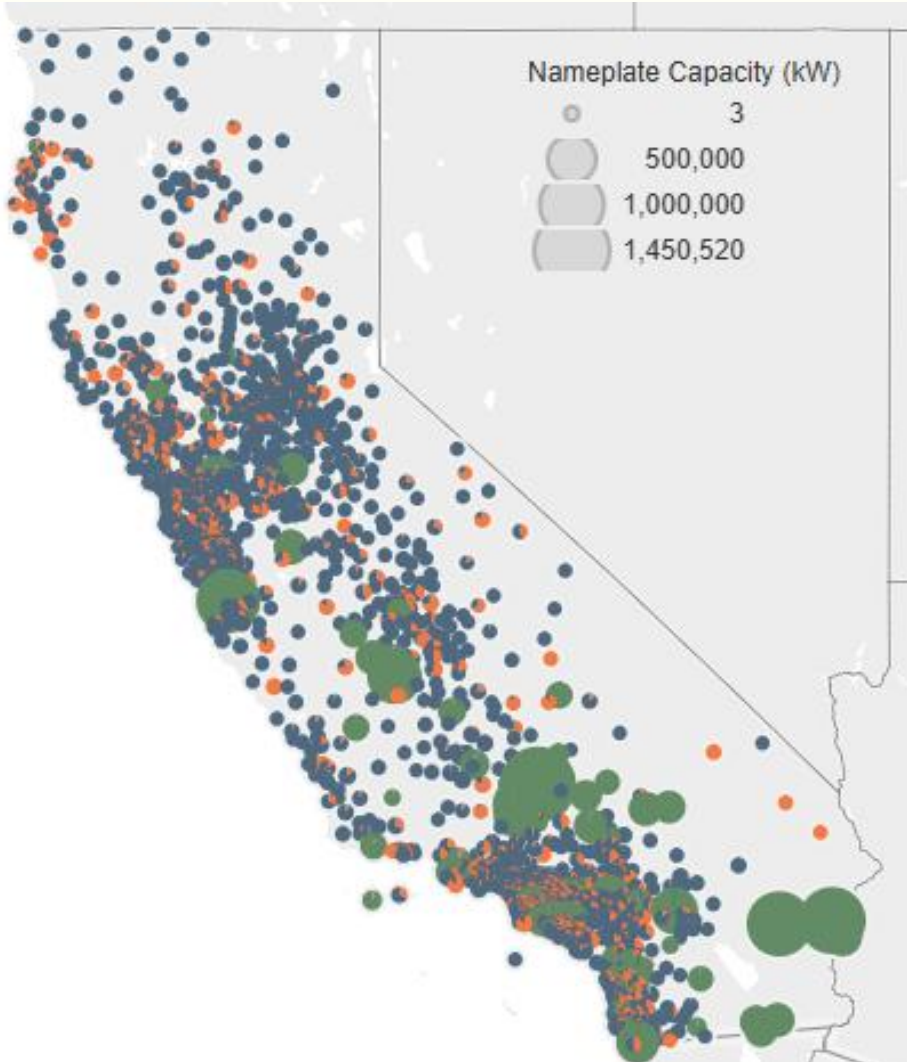
Battery Chemistry

- Lithium Iron Phosphate (LFP) is the most common chemistry today, generally considered to be stable.



Image Source: Daggett PV+Storage March 2024 Progress Report

Overview of California Energy Storage



Statewide Energy Storage Capacity: 13,391 MW

Customer Sector	Total Capacity (MW)	Installations	Average Capacity (kW)
Residential	1,354	193,070	7
Commercial	576	3,211	179
Utility	11,462	187	61,292
Total	13,391	196,468	68

- ⑩ California has over 13,000MW of Energy Storage online as of the end of 2024 and ~11,500MW is Utility scale
- ⑩ >94% of all utility scale battery capacity came online in 2021 or later after NFPA 855 standards were released

* Information taken from [CEC CA Energy Storage Survey](#)

Overview of Ava's Contracted Batteries

Ava's contracted portfolio:

- 19 Storage Sites under contract (+1GW Nameplate)
 - 7 in operation (352.5MW)
 - 12 under development (737 MW)
- All are outdoor stationary containers (~2MW each)
- All permitted after NFPA 855 was released
- 16 Lithium-ion Phosphate (LFB)
- 3 Lithium Nickel Manganese Cobalt Oxide (NMB)
 - Ava is discussing full safety reviews of NMB sites with the developers.



Image Source: Scarlet I PV+Storage Feb 2024 Progress Report

Project List

Project	Technology	Actual / Forecasted COD	Storage Capacity (MW)	Contract Duration (yr)	County	State
ONLINE PROJECTS						
Henrietta D	BESS	12/28/2021	10	15	Kings	California
Ocotillo	Solar + Storage	8/31/2023	50	10	San Diego	California
Daggett	Solar + Storage	9/5/2023	12.5	15	San Bernadino	California
Oberon	Solar + Storage	1/1/2024	125	15	Riverside	California
Scarlet I	Solar + Storage	5/3/2024	30	20	Fresno	California
Tumbleweed_4hr	BESS	7/16/2024	50	15	Kern	California
Scarlet II_BESS	BESS	12/11/2024	75	10	Fresno	California
PROJECTS IN DEVELOPEMENT						
Malaga – BESS	BESS	2/15/2025	96	15	Fresno	California
Hanford	BESS	3/6/2025	16	15	Kings	California
Kola	BESS	7/7/2025	125	20	San Joaquin	California
Alpaugh	BESS	4/1/2026	5	12	Tulare	California
Sun Pond	Solar + Storage	4/1/2026	42.5	20	Maricopa	Arizona
Tumbleweed_8hr	BESS	6/1/2026	50	12	Kern	California
Scarlet III – BESS	BESS	12/31/2026	70	10	Fresno	California
Aramis	BESS	1/1/2027	25	10	Alameda	California
Imperial Sun	Solar + Storage	3/31/2027	100	15	Imperial	California
Gabriel BESS	BESS	5/10/2027	100	20	Los Angeles	California
Zeta Solar	Solar + Storage	7/26/2027	37.5	20	Merced	California
Rosemary	Solar + Storage	6/1/2028	70	20	Fresno	California