CALIFORNIA
BUSINESS AND ECONOMIC DEVELOPMENT

GO-Biz Renewable Energy Permitting Initiative

BATTERY ENERGY STORAGE SYSTEM DISCUSSION

March 26, 2025

AGENDA

9:30am - 9:45am	**GO-Biz Permitting Initiative Overview** • Rohimah Moly, Deputy Director, GO-Biz Energy & Climate • Lakshmi Alagappan, E3
9:45am -10:15am	**Overview of BESS Projects in California** • Molly Sterkel, Interim Director, Office of Electricity Supply, Planning and Cost, CPUC • Banu Acimis, Program and Project Supervisor, Safety and Enforcement Division, CPUC
10:15am –11:00am	**Overview of BESS-related State Activities** • Le-Quyen Nguyen, Deputy Secretary for Energy, CNRA • Banu Acimis, Program and Project Supervisor, Safety and Enforcement Division, CPUC • Chief Vickie Sakamoto, Assistant State Fire Marshal, CalFIRE-OSFM
11:00am -11:40am	**Panel Discussion | Local Jurisdictions Perspectives on BESS & Safety** • Justin Kirk, Deputy Director of Development Services, Orange County Public Works • Moe Zarabi, Senior Land Use & Environmental Planner, San Diego County Planning and Development Services • Suna Taymaz (Moderator), GHD
11:40m -12:20pm	**Panel Discussion | Industry Best Practices for BESS & Safety** • Michael Nicholas, Hiller Fire Protection • Michael Bowes, Energy Safety Response Group • Kristi Mirich (Moderator), GHD
12:20pm-12:30pm	**Next Steps & How To Stay Connected**

GO-Biz Permitting Initiative Overview

Early Outreach Findings

GO-Biz Energy Unit

- Created in 2021
- Accelerate the planning, financing, and execution of critical energy infrastructure projects
- Work with energy project developers and load-serving entities to identify barriers to construction and development of critical energy infrastructure projects
- Make recommendations to relevant state agencies on how to overcome those barriers

Tracking Energy Project Development

- **Executive Order |** Directed energy agencies to coordinate on deployment of clean energy projects to reach reliability and climate goals.

- **TED Task Force|** Joint interagency effort to provide project development support for new energy projects expected to come online in the near-term

Challenges to Renewable Energy Project Deployment

- Permitting
- Supply Chain
- Interconnection/Transmission

GO-Biz Renewable Energy Project Permitting Initiative

OBJECTIVE | Renewable Energy Project Permitting Playbook

- Provide best practices and produce documentation to increase transparency and alignment of local jurisdiction permitting processes to reduce barriers for deployment of energy projects

KEY RESULTS | Assessment Report and Toolkit

- Report on the barriers to deployment for large renewable energy generation projects
- Develop resources toolkit
  - smart practices
  - approaches for process improvements
  - strategies to enhances connectivity b/w responsible entities

GO-Biz Renewable Energy Project Permitting Initiative

TIMELINE | Now till Late 2025

- Dec 2024 – Apr 2025 | Conduct assessment and stakeholder outreach (local permitting authorities, developers, community groups, tribes, etc)
- Apr – Jul 2025 | Synthesize information and draft report and recommended tools
- Aug 2025| Release draft report and toolkit for feedback
- Oct - Nov 2025 | Final report

Approach to Developing Report & Toolkit

Now to Apr 2025

Discovery & Data Collection

- Surveys, interviews and workshops with local permitting agencies, developers, and community-based organizations
- Assess local jurisdictions permitting processes for large-scale renewable projects
- Report on findings

Apr to Jul 2025

Report and Toolkit Development

- Develop report and toolkit content (based on success criteria and recommendations)
- Develop toolkit that will include
  - ✓ best practices
  - ✓ resources to support permitting process
  - ✓ strategies that enhances connectivity b/w responsible entities

July to Nov 2025

Report and Toolkit Publication

- Seek feedback on a draft of toolkit
- Launch toolkit
- Publicize and share through selected events and forums

Your Opinion Matters

Participate in the survey today!

https://tinyurl.com/go-biz

Preliminary BESS Findings from Outreach

Survey and interviews with local permitting authorities, developers and other organizations

Local Permitting Authorities

Developers

Other Organizations

One of the top barriers to permitting batteries indicated by local planners and developers is community concerns about **health and safety, including fire.**[1, 2]

Local planners and developers have indicated that **technical information and guidance** on BESS safety, such **model ordinances**, would be helpful for permitting BESS

BESS projects were reported to be the **most time-consuming** clean energy projects to permit over large scale solar and onshore wind.[3]

Communication of BESS safety information to the general public, such as through fact sheets, has also been identified as a resource that could support BESS permitting

[1] **Q***15. Using a scale of 1 (no barriers) to 5 (significant barriers), which of the following are barriers to accelerating renewable energy project permitting (click on bubbles to select):*
[2]*Q15. Using a scale of 1 (no barriers) to 5 (significant barriers), which of the following are barriers to accelerating renewable energy project permitting?.*
[3] **Q***9. Which types of renewable energy projects are most time consuming to permit and why?*

Overview of BESS Projects in California

Molly Sterkel
CPUC

Banu Acimis
CPUC

Electricity Resource Planning & Battery Energy Storage

California Public Utilities Commission

Molly Sterkel, Energy Division
Interim Director, Planning, Costs and Rates

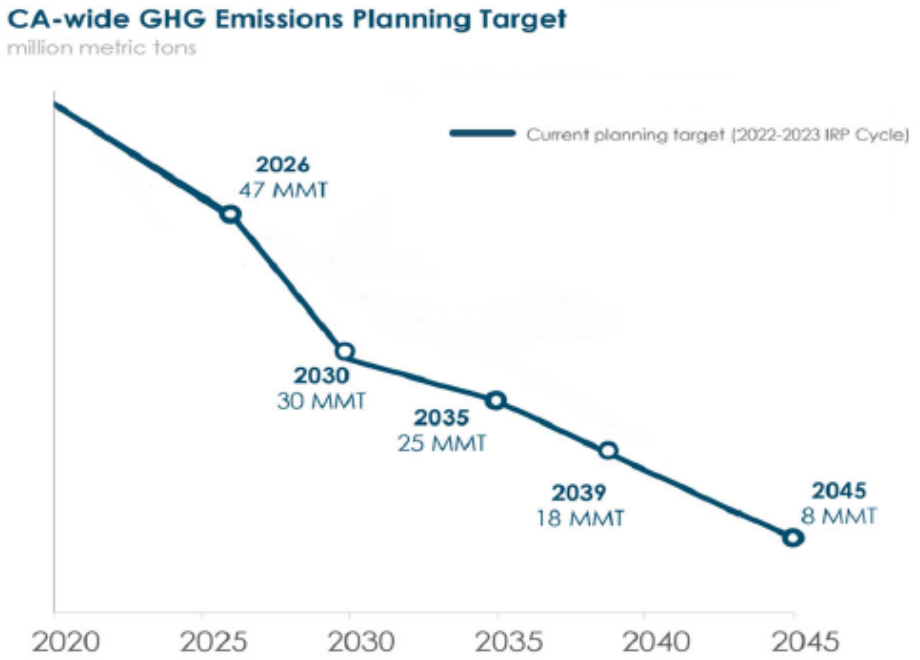
March 26, 2025

Westside Canal Project, 131 MW, SDG&E, Imperial Valley

California Public Utilities Commission

Electricity Resource Planning

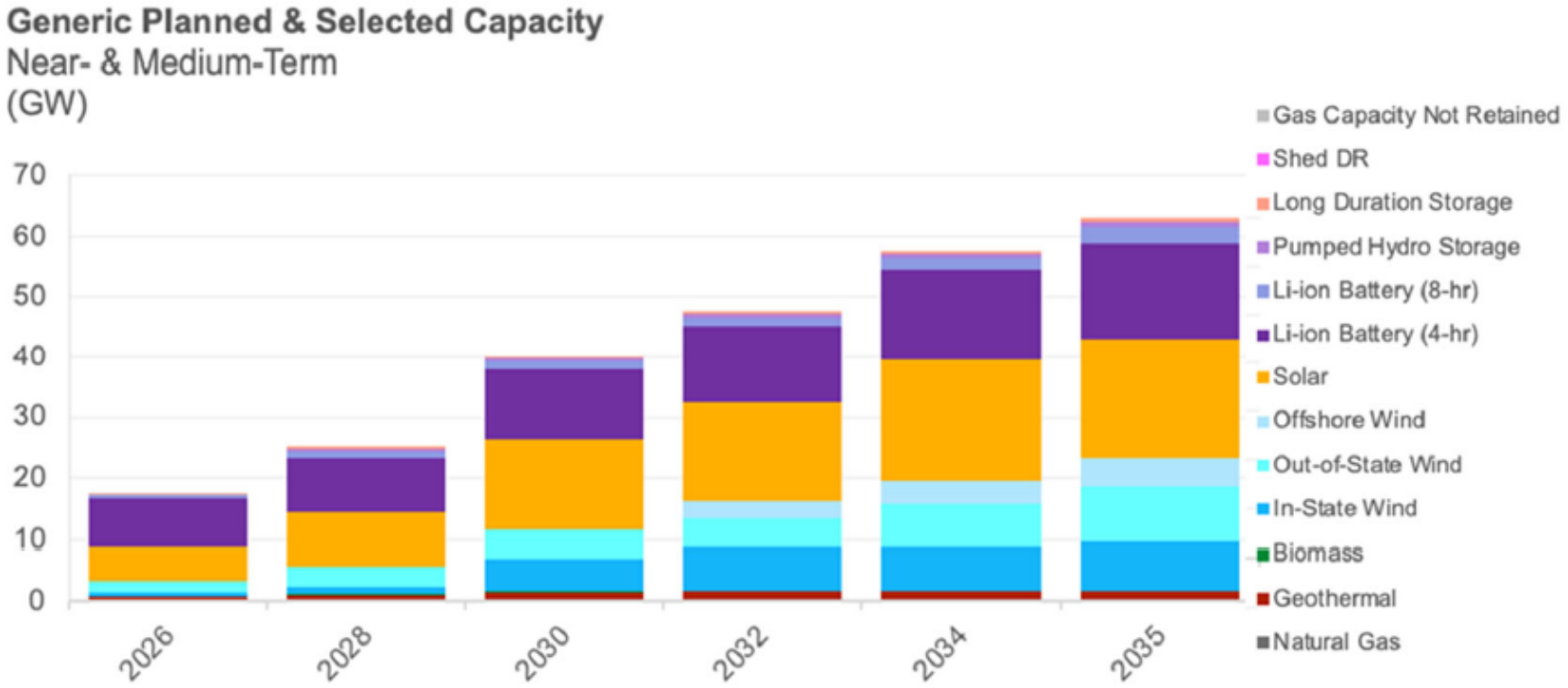
- **Integrated Resource Planning (IRP)** is a CPUC-led electricity resource planning process
  - Ensures reliability to meet future electric demand
  - Plans for Greenhouse Gas Emission Reduction
  - Strives for least cost for consumers
- IRP was mandated by Legislature in 2015
  - Consistent with SB 350 (2015) and SB 100 (2018)
  - Most recently adopted IRP "Preferred System Plan" plans for a portfolio that could reduce GHGs by 58% in 2035 compared to 2020 levels



Source: CPUC February 2024 Preferred System Plan Portfolio, https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/long-term-procurement-planning/2022-irp-cycle-events-and-materials

Expected New Resource Buildout

- CPUC's adopted Resource Portfolio expects 60 GW of new clean energy resources will be built by 2035.
- New resources will be mostly solar and wind.
- Storage installed capacity estimates are shown in **purple**:
  - 24.25 GW by 2030
  - 30.5 GW by 2035



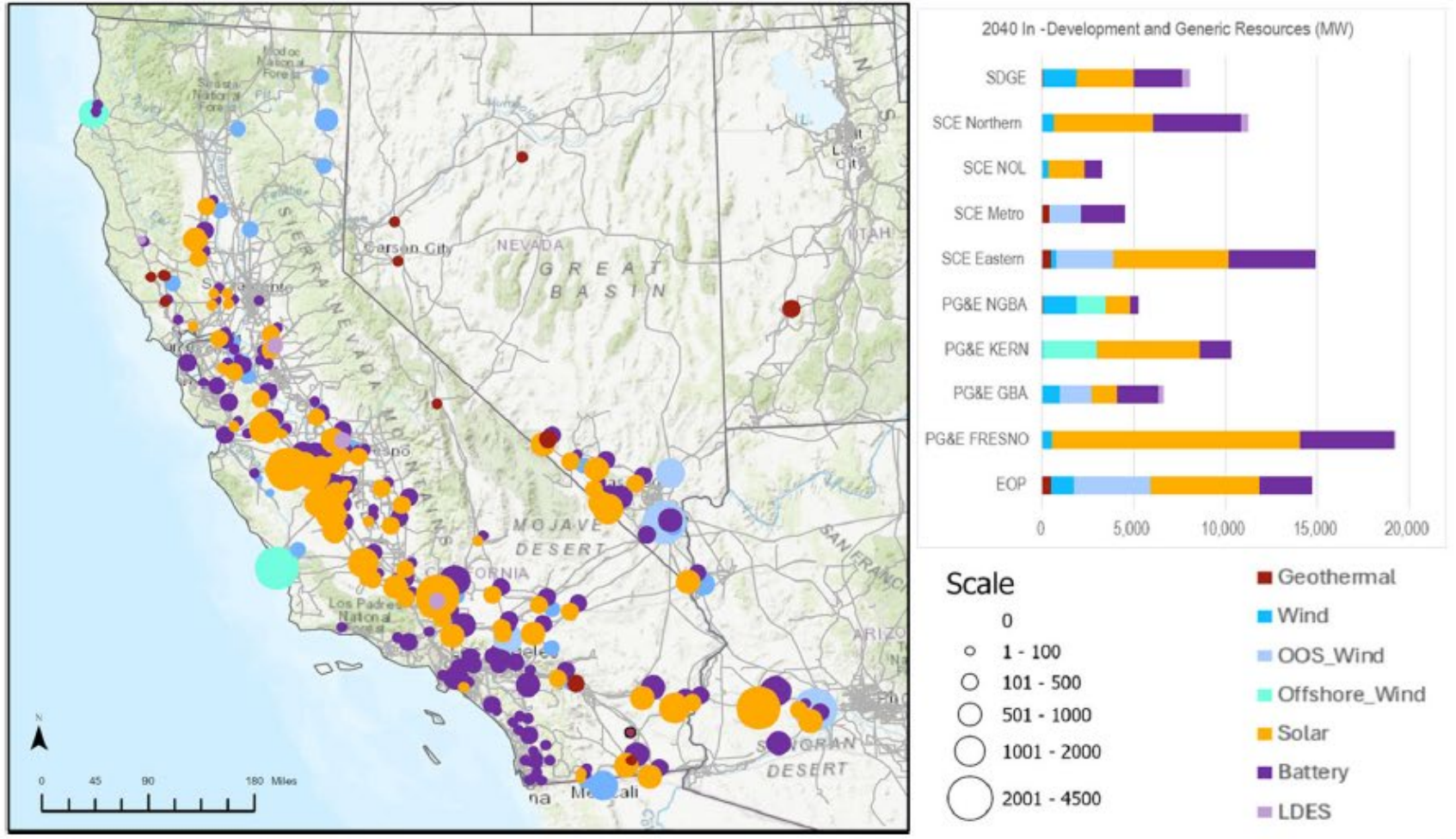
Note: All GW numbers in nameplate.

Source: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2024-2026-irp-cycle-events-and-materials/assumptions-for-the-2025-2026-tpp/25-26-tpp-pd-resolve-and-servm-analysis-slide-deck.pdf

Modeled Potential Locations for Future Clean Energy Resources for Transmission Planning

CPUC transmits IRP resource portfolios – resources and development areas – for the CAISO for use in its annual Transmission Planning Process (TPP) to identify future transmission need.

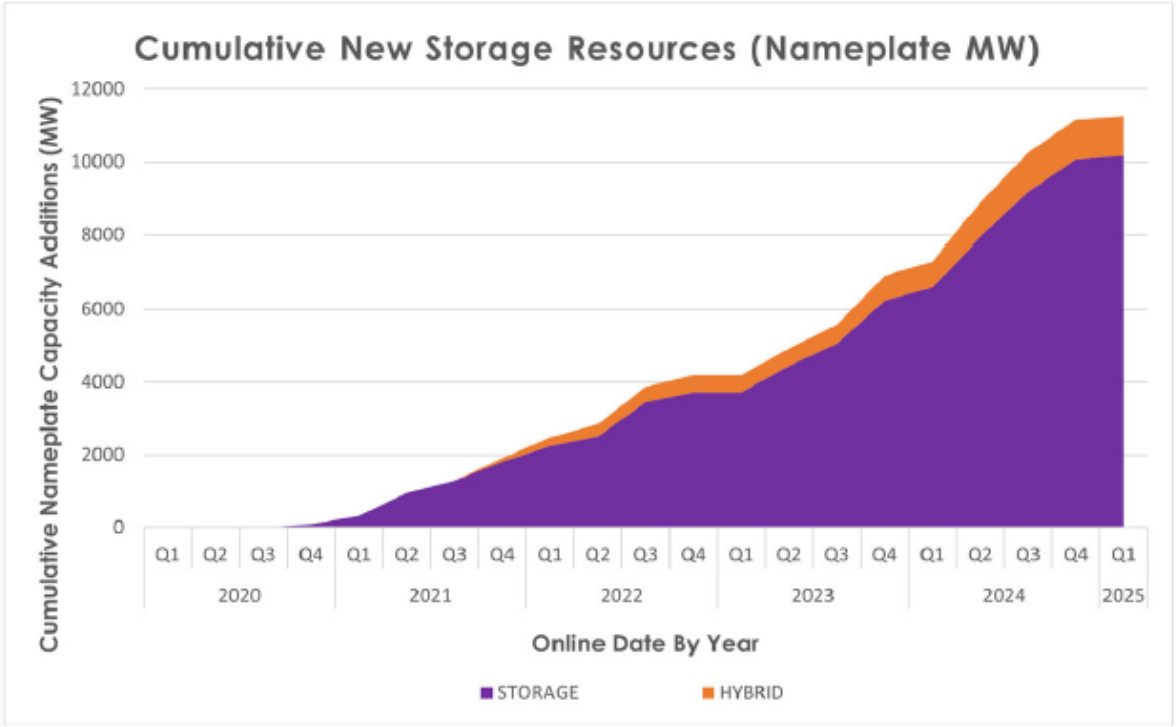
2025-26 TPP Base Case Portfolio (2040) Busbar Mapping Results

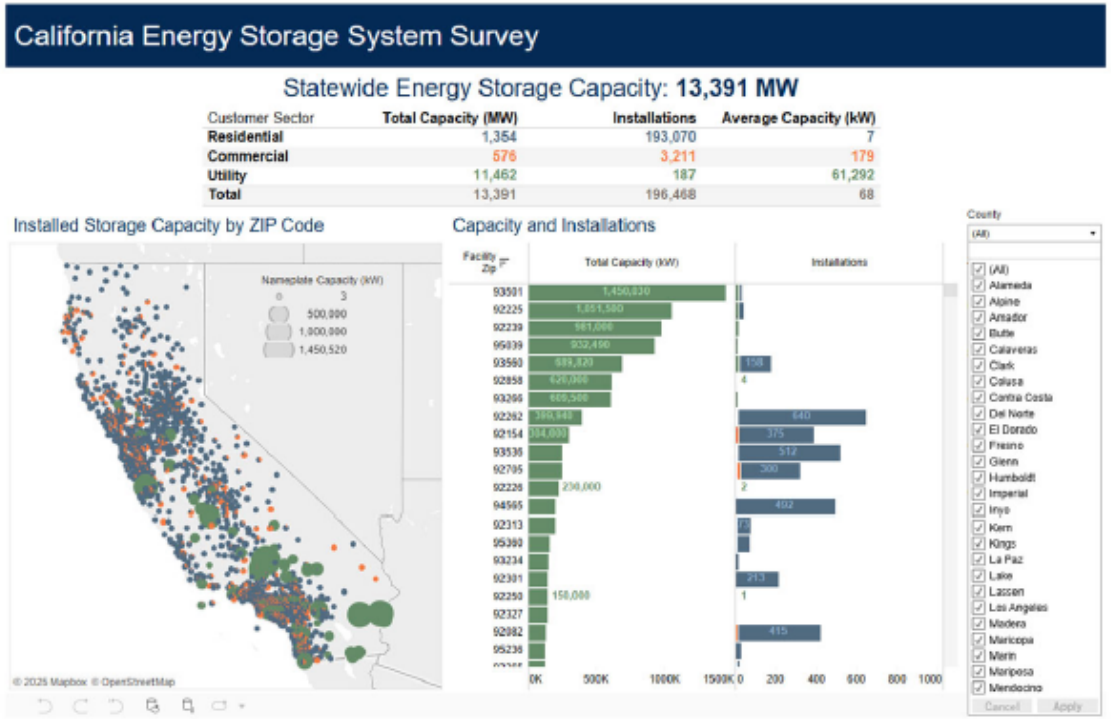


Source: 25-26 TPP Busbar Mapping Results

Existing California Storage Installations

CA installed over 11,000 MW (11 GW) of wholesale energy storage to serve the electric grid in the past 5 years, and another 2,000+ MW (2 GW) of commercial and residential storage.





Resource Data Tracking, **https:** www.cpuc.ca.gov/trackingenergy
Snapshot of new resources added to the CAISO grid Q12020 – Q12025, including specified CAISO imports. Hybrids include some storage, and some other (usually solar) technology. MW shown here only include the storage portion of hybrids.

California Energy Storage System Survey, https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/california-energy-storage-system-survey

CPUC Procurement Orders

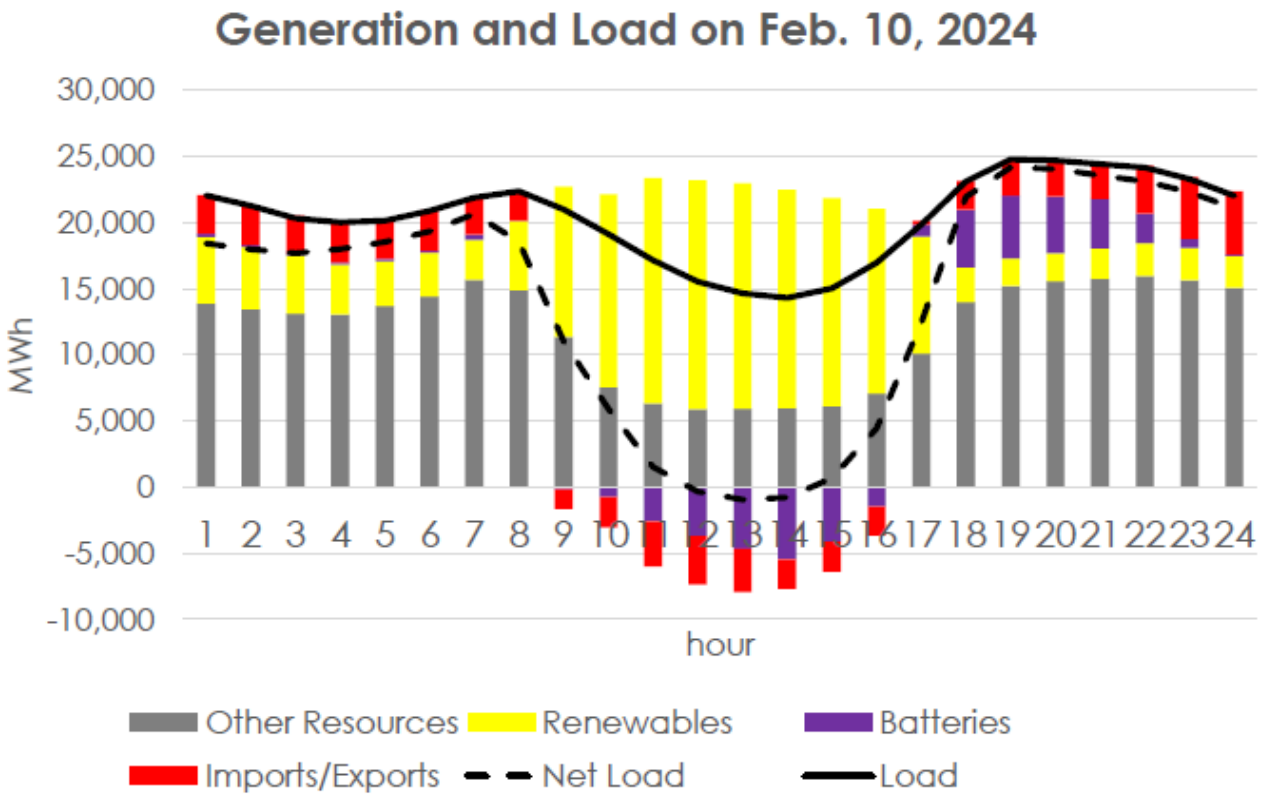
Procurement orders driven by reliability and GHG requirements are driving the need for new storage development. An additional 15,000 MW (15 GW) Nameplate is in contract.

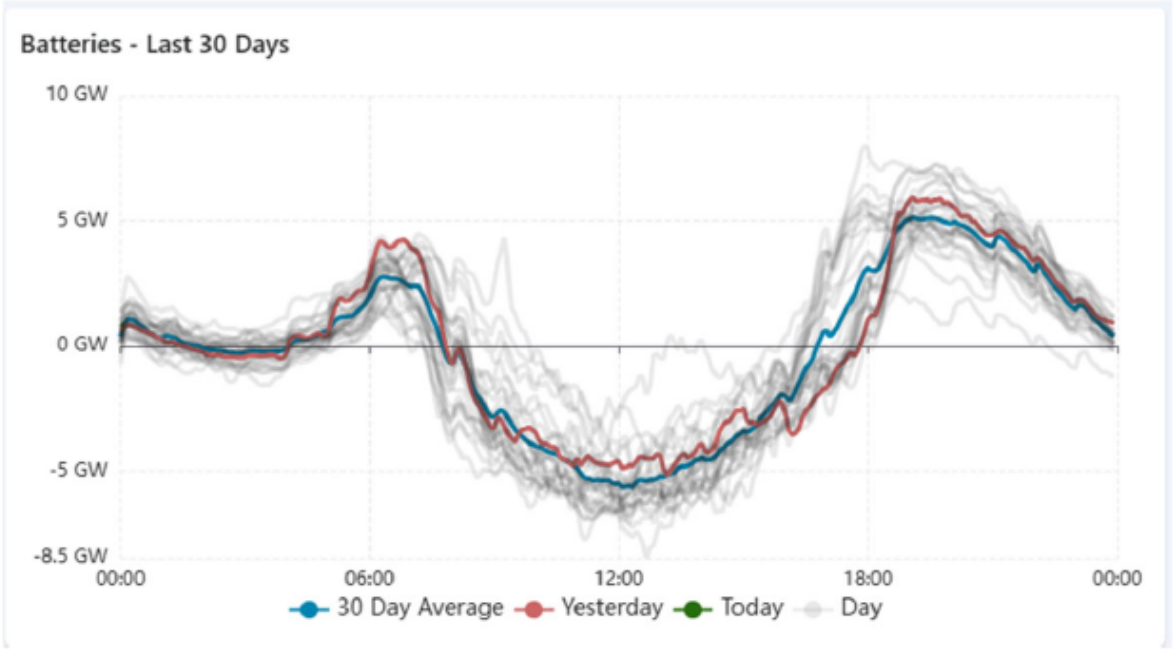
CPUC Orders	Total
D.19-11-016 Applies to 25 LSEs since 18/43 LSEs opted out.	**3,300 MW**
D.21-06-035 (MTR) Applies to all CPUC-jurisdictional LSEs. No opt-outs allowed.	**11,500 MW**
D.23-02-040 (Supplemental MTR) Applies to all CPUC-jurisdictional LSEs. No opt-outs allowed.	**4,000 MW**
Cumulative Procurement Ordered	**18,800 MW**

Note: All MWs are in CPUC NQC, not nameplate

REV Renewables, 200 MW, Diablo Energy Storage project, Pittsburg, CA

Storage Provides Grid Benefits Daily





Renewables represent solar, wind, geothermal, biomass, biogas and small hydro
Other Resources represent nuclear, natural gas and large hydro
Net load represents electric load net of wind and solar

Source data: Today's Outlook at www.caiso.com

Source: www.GridStatus.io, 3/25/2025

California's Storage Future

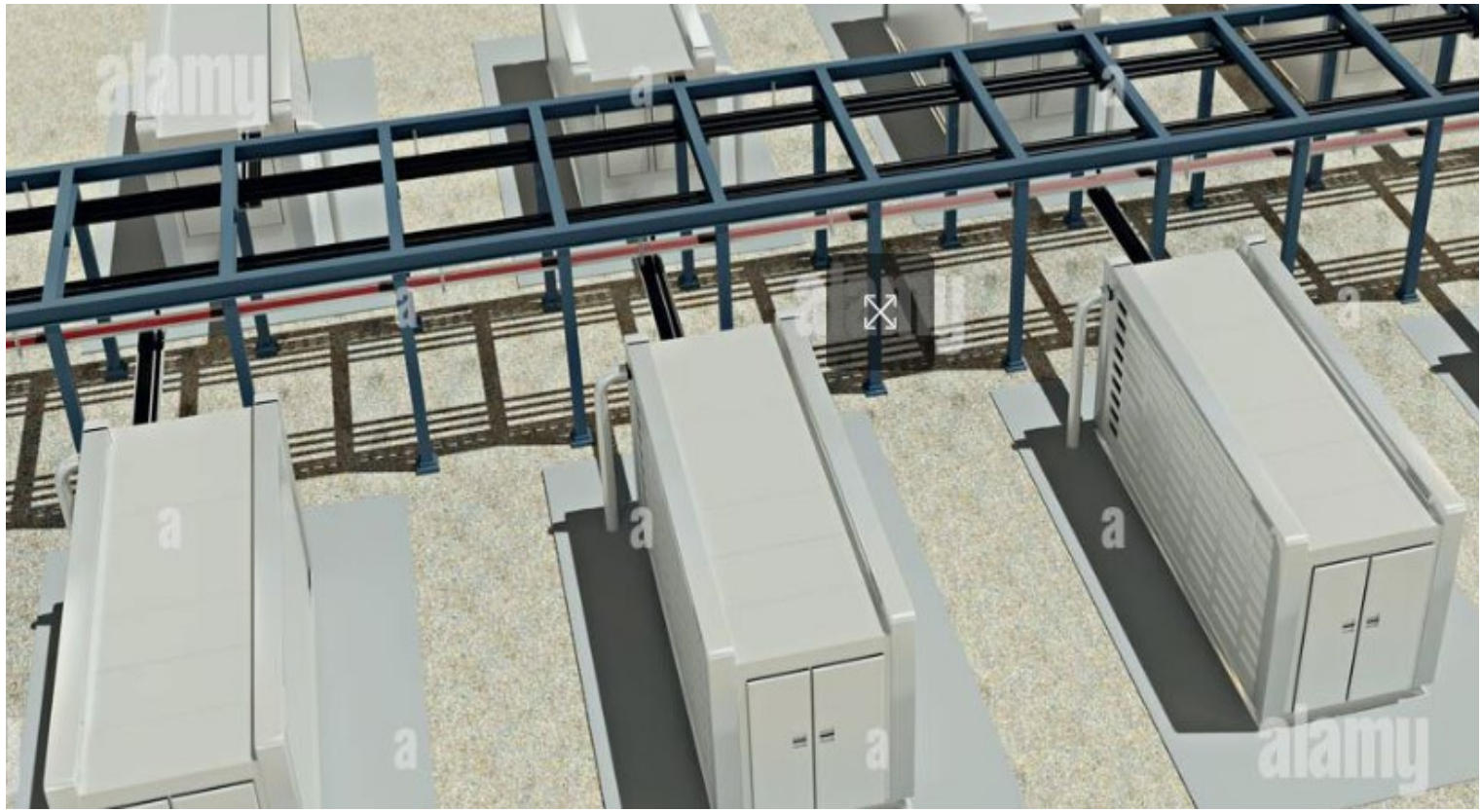
- CPUC IRP resource planning currently predicts that storage will be needed in large quantities to meet the State's Clean Energy goals at least cost.
- The past 5 years have seen a large growth in storage energy throughout the state, driven by the changing nature of the grid.
- In the future, CPUC conducts planning but individual load serving entities (Utilities, CCAs, energy service providers) contract with specific plants.
- California has about 11 GW installed, 15 GW in contract and as much as 52 GW in the planning horizon by 2045.

Tracking Energy Development (TED) Task Force

- Joint interagency effort between the CEC, CPUC, CAISO and GO-Biz
- Provide project development support for new energy projects to come online in the near-term
- Identify challenges that may impact clean energy development and coordinate actions to address those barriers

For more information: see www.cpuc.ca.gov/trackingenergy

Banu Acimis
Program and Project Supervisor
Electric Safety and Reliability Branch
Safety and Enforcement Division
CA Public Utilities Commission



California Public Utilities Commission

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Electric Safety and Reliability Branch of Safety and Enforcement Division

Electric Safety and Reliability Branch (ESRB) is responsible for ensuring the safe and reliable operation of electric facilities, communication facilities, power plants, and energy storage system facilities by the IOUs, electric generating asset owners (GAO), and energy storage system owners (ESSO) through the enforcement of the CPUC's General Orders (GO) and Public Utilities (Pub. Util.) Codes.

ESRB conducts audits of electric, communication, and electric generation facilities (e.g., natural gas, solar, wind).

ESRB conducts investigation of safety- and reliability-related incidents and outages.

ESRB also investigates customer complaints and whistleblower cases.

As California's electric generation fleet has expanded, the scope of CPUC's Safety and Enforcement Division (SED), which enforces safety, operation, and maintenance standards at electric generation facilities, power plants and communications facilities, has also expanded to meet evolving regulatory oversight needs.

Resolution ESRB-13
General Order 167-C

General Order (GO) 167 was established to enforce maintenance and operation standards for GAOs and their electric generating facilities to ensure that they are safely operated, properly maintained, and also reliable in 2004.

It protects public health and safety, supports grid stability, and ensures compliance with state regulations.

However, energy storage systems (ESS) were not included under GO 167-B.

ESRB modified its GO 167-B to enforce the requirements of Senate Bill (SB) 1383 and SB 38.

RESOLUTION ESRB-13 – Adopted General Order (GO) 167-C, Enforcement of Maintenance and Operation Standards for Electric Generating Facilities and Energy Storage Systems on March 13, 2025.

Resolution ESRB-13 formally brings ESSs under the CPUC's jurisdiction and gives the CPUC regulatory authority over ESS facility maintenance, operation, and safety, ensuring they meet the codes, standards, and regulations.

Battery Energy Storage Systems in CA

- The Clean Energy and Pollution Reduction Act (Senate Bill 350) established clean energy, clean air, and greenhouse gas (GHG) reduction goals with renewable electricity procurement goal of reaching 50 percent by 2030.
- This objective increased the use of Renewables Portfolio Standard (RPS) eligible resources, including solar, wind, geothermal, and others.
- SB 100 sets a goal for CA to established a landmark policy requiring 100% electric generation from renewable energy and zero-carbon resources by 2045.
- Energy storage systems are critical to meet California's clean energy goals due to deployment of renewable electric generating facilities.
- California aims to have 52,000 MW of energy storage capacity by 2045 to support its goal of 100% clean electricity (SB 100), a key component of its climate and clean energy objectives.
- As reliance on storage grows, so do challenges in maintenance, safety, and reliability.
- ESS energy storage capacity has grown from 500 MW in 2019 to 13,300 MW by 2024.

Energy Storage System Data

In January 2025, SED issued a data request to IOUs, Generating Asset Owners, and Energy Storage System Owners to collect information on jurisdictional BESS facilities and their operational characteristics.

The survey covered BESS facilities that have 50 MWs or higher capacity.

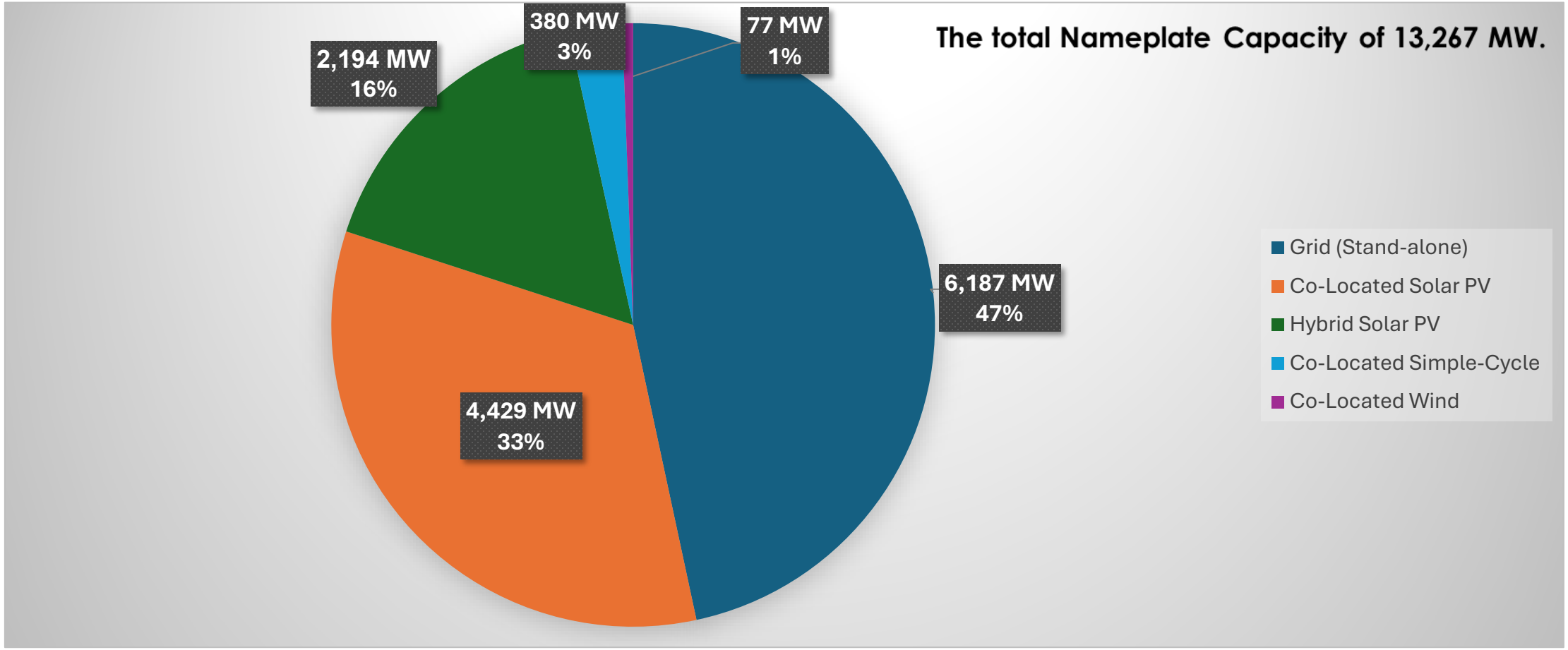
SED's goal is to obtain more information about these facilities and understand technical details such as nameplate capacity, battery types, physical locations, regional distribution, generator and resource types etc.

SED's data request also compiled information regarding their compliance with the applicable codes, standards, and regulations.

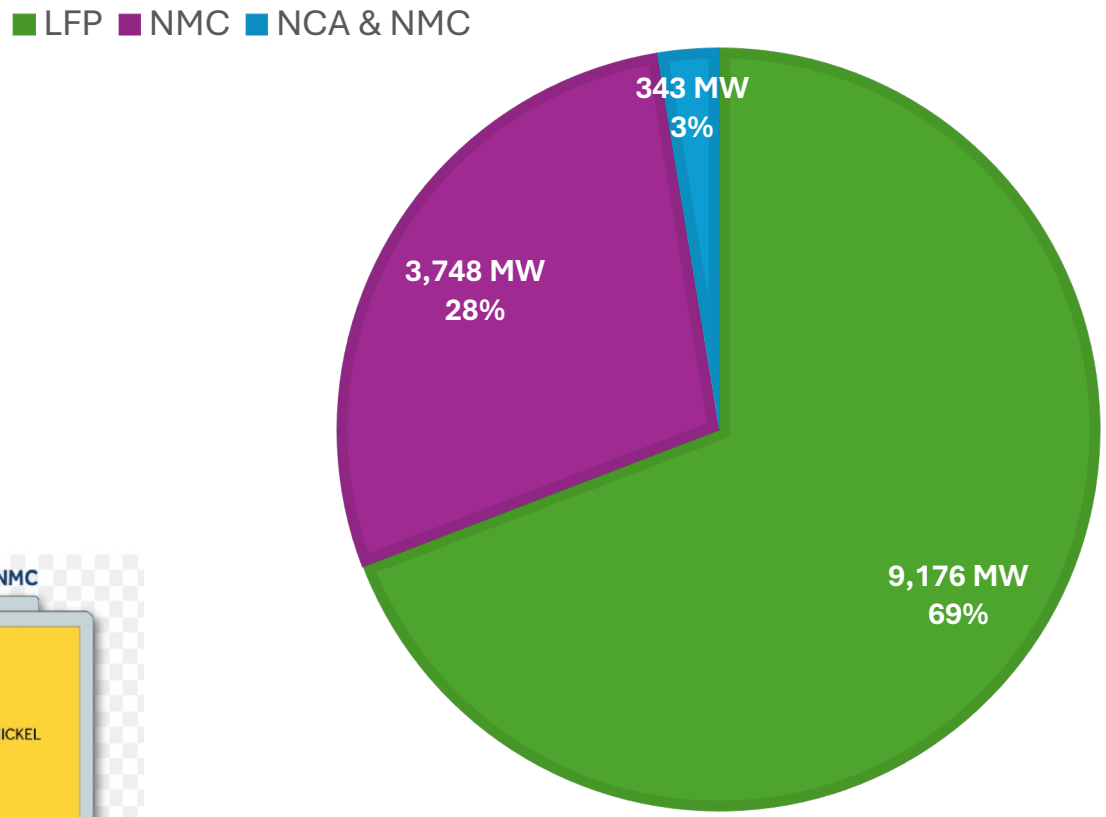
We've recently received responses to 43 questions and conducted our analysis of the compiled information.

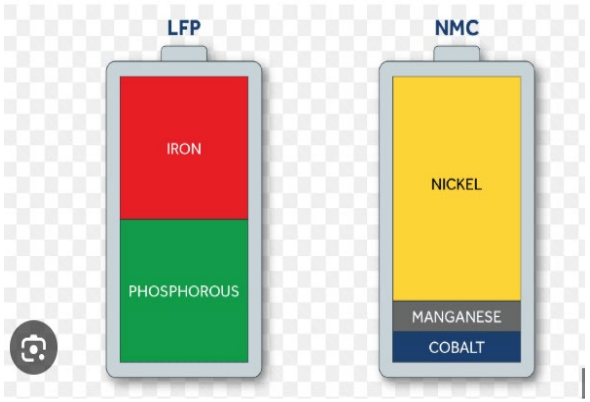
We covered a total of 115 BESS which are 50 MWs and larger.

Power Capacity of BESS Installations by Generator Type

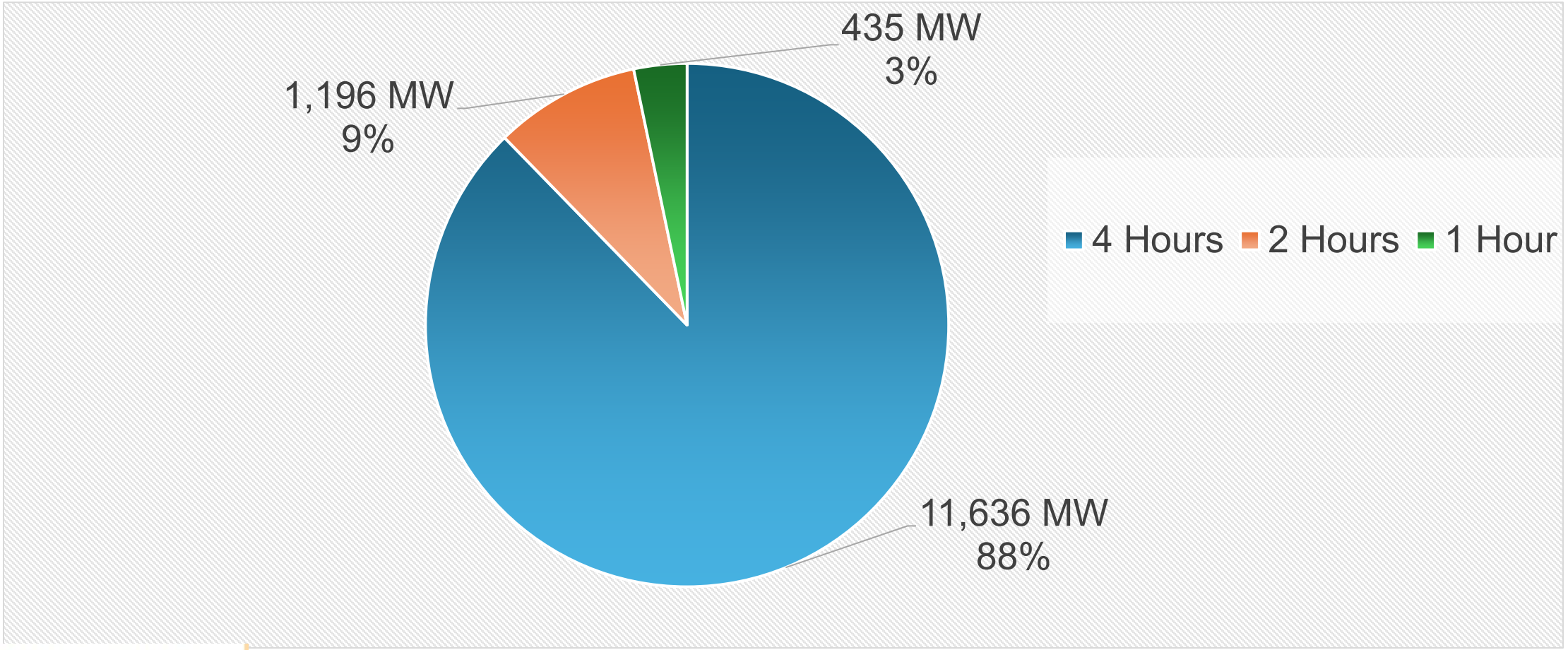


Power Capacity of BESS Installations by Battery Type



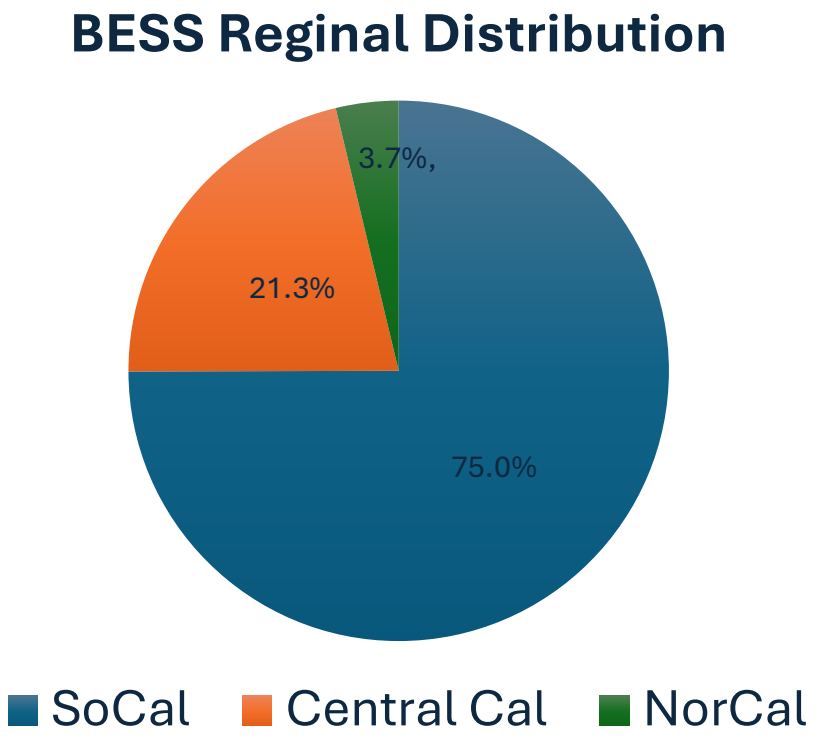


Power Capacity of BESS Installation by Battery Duration



California Public Utilities Commission

Location of BESS Facilities in CA



BESS COMPLIANCE ANALYSIS

1. **UL 9540 Compliance for Design and Installation:** 73% of BESS confirmed compliance with UL 9540.

2. UL 9540A for Thermal Runaway Fire Testing: 96% of BESS facilities confirmed that their systems were tested according to UL 9540A.

3. **California Building Code:** 90% of the facilities follow the CBC.

4. National Fire Protection Association (NFPA) 855: 87.5% of ESSOs responded affirmatively, indicating that their facilities are compliant. Three ESSOs reported non-complaint, and seven responded that their facilities were operational prior to NFPA 855 being first issued in 2020.

5. NFPA 70/National Electric Code: 86 % of BESS facilities confirmed that that their facilities comply with various versions of NFPA 70 standards.

BESS COMPLIANCE ANALYSIS

6. NFPA 68 for Explosion Protection by Deflagration Venting: 57 % of ESS facilities indicated compliance with NFPA 68.

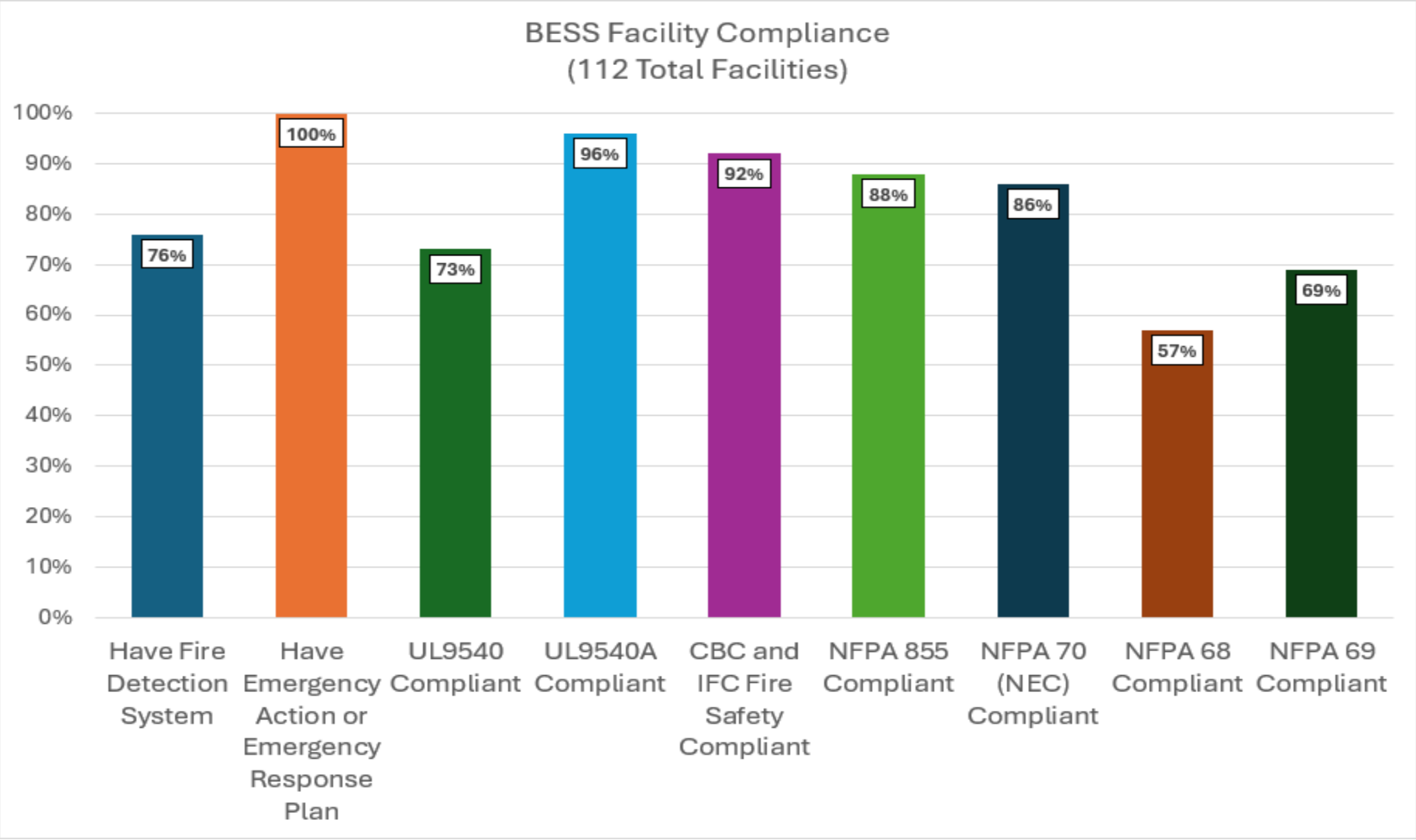
7. NFPA 69 for Explosion Prevention Systems: 69% of those facilities indicated compliance with NFPA 69.

8. Fire Detection Systems: 76% of the facilities claim to have some form of fire detection systems such as heat detectors and smoke detectors but 56 % do not have fire suppression systems .

9. Large Scale Fire Testing: 58% of the facilities confirmed that they had performed LFT. Of the remaining which had not performed LFT, many indicated that they became commercial before the current standards which refer to LFT came into effect.

10. Emergency Response and Emergency Action Plans: 100% of the ESS facilities confirmed that they have emergency response and action plans and 97 % submitted their plans.

OVERALL BESS COMPLIANCE



Questions?

Use the Q&A Function in Teams to write your question

Overview of State Activities related to BESS

Le-Quyen Nguyen
DEPUTY SECRETARY FOR ENERGY, CNRA

Banu Acimis
CPUC

Chief Vickie Sakamoto
OFFICE OF THE STATE FIRE MARSHALL, OFSM

Battery Storage Collaborative

What: Convening of state agencies to examine battery storage technologies and safety considerations.

Who: CNRA, GO-Biz, CARB, CPUC, CEC, CalFIRE OSFM, CalOES

Purpose:

- Review the battery storage landscape for opportunities to improve battery safety, technology development and best practices for outreach and education, permitting and installation of battery projects, inspection and monitoring practices, and first responder training and safety.
- Increase coordination between state agencies.

CALIFORNIA NATURAL RESOURCES AGENCY

Battery Storage Collaborative

Coordinating Actions to Date

- CPUC General Order 167-C
- Data Inventory of Facilities
- Facilities Inspection Plan
- Energy Reliability Analysis
- GO-Biz Permitting Resources
- Upcoming OSFM Battery Symposium

Edwards Sanborn Project in Kern County

Future Actions

- Identify and explore risk-reduction measures.
- Development of webpage.

CALIFORNIA NATURAL RESOURCES AGENCY

General Order 167-C

Renewable Energy Permitting Initiative & Battery Energy Storage System Webinar

March 26, 2025

Banu Acimis

Program and Project Supervisor

Electric Safety and Reliability Branch

Safety and Enforcement Division

California Public Utilities Commission

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GENERAL ORDER (GO) 167-C

The purpose of GO 167-C is to implement and enforce standards for the maintenance and operation of electric generating facilities, power plants, and energy storage systems (ESSs) so as to maintain and protect the public health and safety of California residents and businesses by ensuring that electric Generating Assets (GAs) and ESSs are effectively and appropriately maintained and efficiently operated, and to ensure electrical service reliability and adequacy.

It provides a continuing method to implement and enforce Maintenance Standards (MS), and Operation Standards (OS), and any other standard adopted pursuant to Public Utilities (Pub. Util.) Code § 761.3, SB 1383, and SB 38.

The Commission approved the most recent updates to GO 167-C to bring Battery Energy Storage Systems (BESS) under CPUC jurisdiction.

GO 167-C

ENFORCEMENT OF MAINTENANCE AND OPERATION STANDARDS FOR ELECTRIC GENERATING FACILITIES AND ENERGY STORAGE SYSTEMS

RESOLUTION ESRB-13, issued on March 13, 2025, adopted GO 167-C:

(1) implements the Senate Bill (SB) 1383 (Hueso, 2022) mandate to establish standards for the maintenance and operation of Energy Storage Systems;

SB 1383 (Hueso, 2022) mandated the implementation and enforcement of standards for the maintenance and operation of Energy Storage Systems (ESS).

- SB 1383 directs the CPUC to implement and enforce maintenance and operation standards for energy storage facilities owned by an electrical corporation or located in the state.

- Also requires the California Independent System Operator (CAISO) to “maintain records of storage facility outages and to provide those records to the commission on a daily basis.”

GO 167-C

RESOLUTION ESRB-13, issued on March 13, 2025, adopted GO 167-C,

SB 38 (Laird, 2023) requires the development of Emergency Response and Emergency Action Plans for the Energy Storage Systems.

(2) applies SB 38 (Laird, 2023) requirements for Emergency Response and Emergency Action Plans to Energy Storage System Owners;

(3) requires Generating Asset Owners (GAO) and ESSOs to coordinate with local authorities in developing their emergency plans;

- SB 38 requires each BESS owner to prepare an emergency response and emergency action plan that covers the premises of the battery energy storage facility and submit the plan to the county and city where the facility is located.
- Requires the owner or operator of the facility to develop a plan and coordinate with the local emergency management agencies, unified program agencies and local first response agencies.

GO 167-C

(4) establishes Logbook Standards for Energy Storage Systems and Renewable Generating Assets, and revise Logbook Standards for each Generating Asset;

(5) adds provisions to enhance safety and effectiveness of Generating Assets and Energy Storage Systems operation and maintenance;

(6) updates Safety-related Incident Reporting Criteria;

(7) updates procedures, references, and definitions; and

(8) updates applicable industry codes, standards, and organizations.

9.4 Safety Related Incidents

Within 24 hours of its occurrence, a GAO or ESSO shall report to the Commission's emergency reporting website any safety-related incident involving a GA or ESS. If internet access is unavailable, the GAO or ESSO may report using the backup telephone system. Such reporting shall include any incident that has resulted in death to a person; an injury or illness to a person requiring overnight hospitalization; a report to Cal/OSHA, OSHA, or other regulatory agency; or damage to the property of the GAO or ESSO or another person of more than $200,000; or involves a GA or ESS malfunction or failure resulting in fires, explosions, hazardous emissions, or safety related reports to other agencies. The GAO or ESSO shall also report any other incident involving a GA or ESS that has resulted in significant negative media coverage (resulting in a news story or editorial from one media outlet with a circulation or audience of 50,000 or more persons) when the GAO or ESSO has actual knowledge of the media coverage. If not initially provided, a written report also will be submitted within five business days of the incident. The report will include copies of any reports concerning the incident that have been submitted to other governmental agencies.

List of Industry Codes, Standards, and Organizations

GO 167-C references codes, standards, and regulations for BESS facilities

American National Standards Institute

Air Resources Board

American Society of Testing and Materials

CA Code of Regulations

IEEE, Underwriters Laboratories

National Electric Code

North American Reliability Cooperation

National Fire Protection Association

Uniform Building Code

CA Electric Code

CA Building Code

CA Fire Code

National Electric Safety Code

International Building Code

International Fire Code

Sandia National Laboratories

International Organization for Standardization

SED'S ENFORCEMENT AUTHORITY

- As a part of SED, ESRB can take enforcement action against an IOU, Generating Asset Owner, Energy Storage System Owner if it determines that the entity is not in compliance with General Orders, Public Utilities Codes, state statutes and/or other regulations.

- Enforcement actions can include issuing notice of violation (NOV), staff citation ($8 million or less), initiating an Order Instituting Investigation (OII) or an Administrative Enforcement Order (AEO) or an Administrative Consent Order (ACO).

CAL FIRE – Office of the State Fire Marshal Battery Energy Storage Systems

What you need to know:

- OSFM develops and adopts minimum State regulations
- Includes Title 19 and Title 24 (Building, Fire, Electrical, Mechanical, Plumbing, Energy, Residential, etc.)
- Requirements for BESS are found in the California Fire Code, Chapters 3, 4 and 12
- Local city and county building and fire departments are the authority having jurisdiction
- City and County building and fire departments enforce the BESS regulations
- Fire departments may adopt local ordinances that are more restrictive than minimum state regulations

Battery Energy Storage Systems

- Approximately 28 amendments were adopted for 2025 CFC
- Adopted 2023 Edition of NFPA 855 Standard Stationary Energy Storage System
- New types of battery definitions to align with NFPA 855
- Amendments are effective January 1, 2026

Battery Energy Storage Systems

- Developing CAL FIRE – OSFM Lithium-Ion Battery Workgroup Charter
  - Workgroup Membership

  Goals of the workgroup:
  - Best practices, reduce risk, fire safety, education and training
  - Provide report to State Board of Fire Services

BESS Symposium

- Battery Energy Storage Symposium
  - Summer 2025
- Hosted by CAL FIRE/OSFM
  - California Natural Resources Agency Building
  - In person or Zoom option

BESS Symposium

- Speakers and Panel Discussions
  - Fire Code Requirements
  - Permitting
  - Emergency Response
  - Firefighting Tactics

- BESS Webpage for additional resources

Battery Energy Storage Systems Webpage

BESS Webpage for additional resources

Questions?

Use the Q&A Function in Teams to write your question

BREAK

We will return at 11:07

Panel 1: Local Perspectives on BESS & Safety

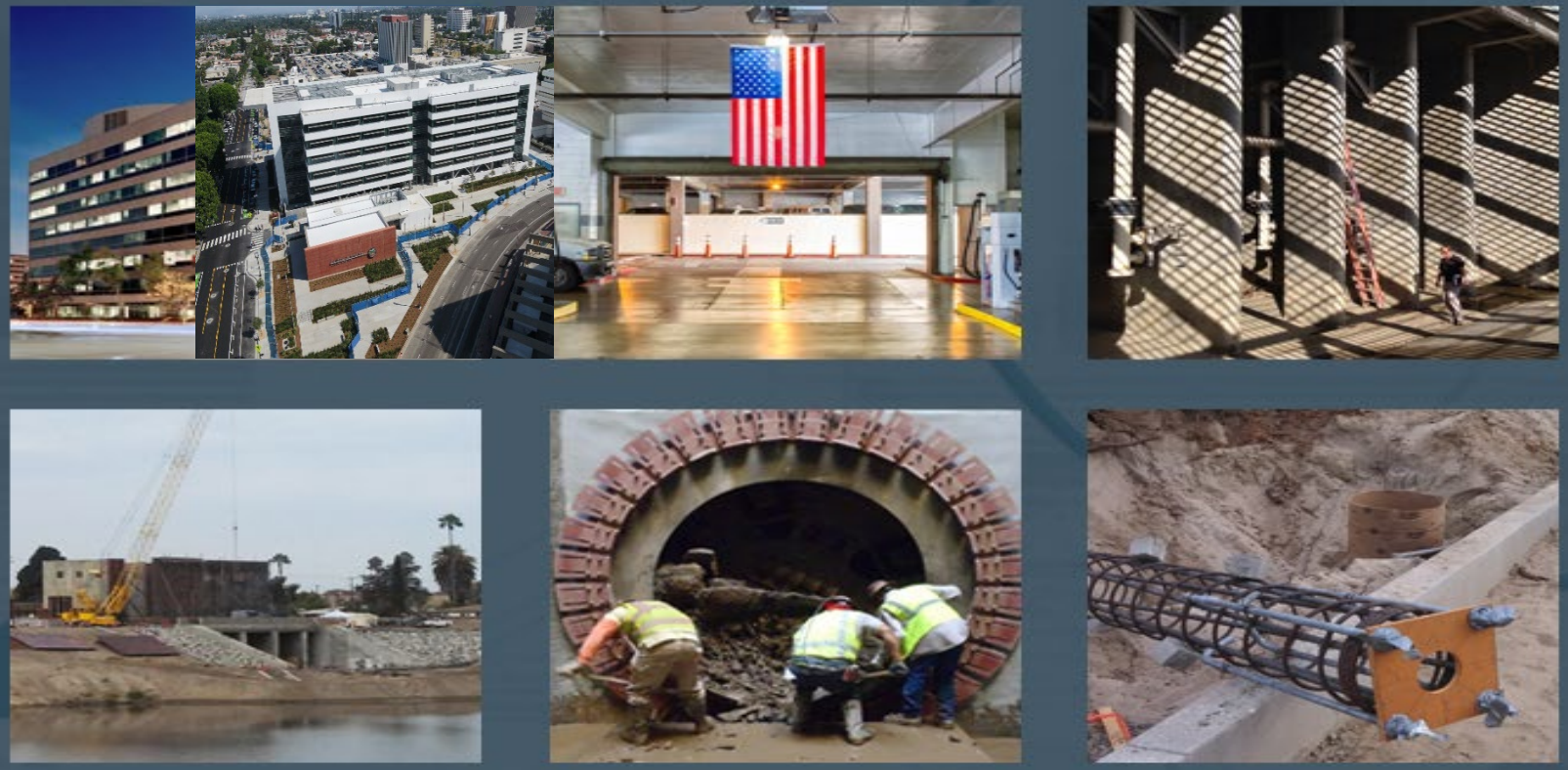
Justin Kirk
ORANGE COUNTY

Moe Zarabi
SAN DIEGO COUNTY

Suna Taymaz
MODERATOR, GHD

OC Public Works
Integrity, Accountability, Service, Trust

Battery Energy Storage System (BESS) Facilities Ordinance



March 26, 2025

Previous County Actions

- **October 8, 2024** – Board approved Supplemental Item #S14D directing staff to research and consider drafting an ordinance to adopt development guidelines and standards for Battery Energy Storage System (BESS)
- **December 11, 2024 –** Planning Commission authorized initiation of General Plan Amendment GPA 24-03 and Zoning Code Amendment CA 24-03
- **January 28, 2025 –** Board approved Supplemental Item #S32A, which adopted an interim Urgency Ordinance placing a 45-day moratorium on establishment of large-scale BESS facilities in all unincorporated areas of the County of Orange
- **March 11, 2025 –** Board approved Supplemental Item #S33E extending the interim Urgency Ordinance and moratorium by 10 months and 15 days to allow additional time for staff to consider, study, and assess the various approaches to the regulation of BESS facilities

Key Feedback

- Regulatory consistency with other jurisdictions for more predictable permitting process;
- BESS facilities will more likely be sited where there is easy interconnection to the energy grid (e.g., existing substation) to minimize the need to build additional infrastructure;
- Consider limiting or prohibiting BESS facilities in areas susceptible to wildfires or designated as very high fire hazard severity;
- Consider prohibiting BESS facilities designed to be wholly enclosed in a building and encourage facilities to be mostly outdoors;
- Consider requiring a Hazard Mitigation Analysis and other Fire Code strategies.

Regulatory Framework Considerations

- Location/Siting
- Facility Capacity
- Required Approval
- Aesthetics
- Lighting, Noise, and Signage
- Parking
- OCFA Review
- Decommissioning Plan
- Economic and Public Benefits

County of San Diego

Renewable Energy & Grid Resiliency Best Practices

BESS GO-Biz Presentation

03/26/2025

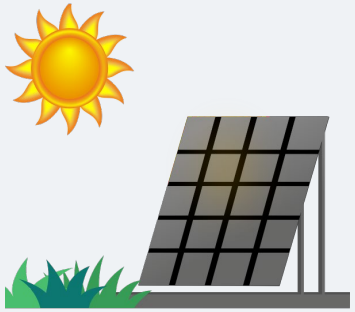
Agenda

1. Innovations & Streamlining Efforts
2. State Laws & Solar Rights Act
3. BESS Streamlining Efforts
4. Lessons Learned & Looking Ahead

Innovations & Streamlining Overview

County of San Diego Efforts to Support RE & BESS:

- Permit Fee-Waivers (2001)
- Streamline Online Permitting (2013)
- “Instant Permits” (2014)
- Codifying Permitting Ordinances (2015)
- EVCS Instant Permits & reduced fees (2017)
- Streamline Online Permitting BESS (2019)
- Board adopted EV Roadmap (2019)
- Board adopted CAP (2024)
- Board BESS Fire Best Practices Study (2024)
- Staff BESS Zoning Updates (2025-2026)



Innovations & Streamlining Overview

Key achievements:

- Naco, CSAC, and Solsmart Gold
- Participation in OPR solar & storage Guidebook
- Participation in SolarAPP development
- OPR Go-Biz “Green”

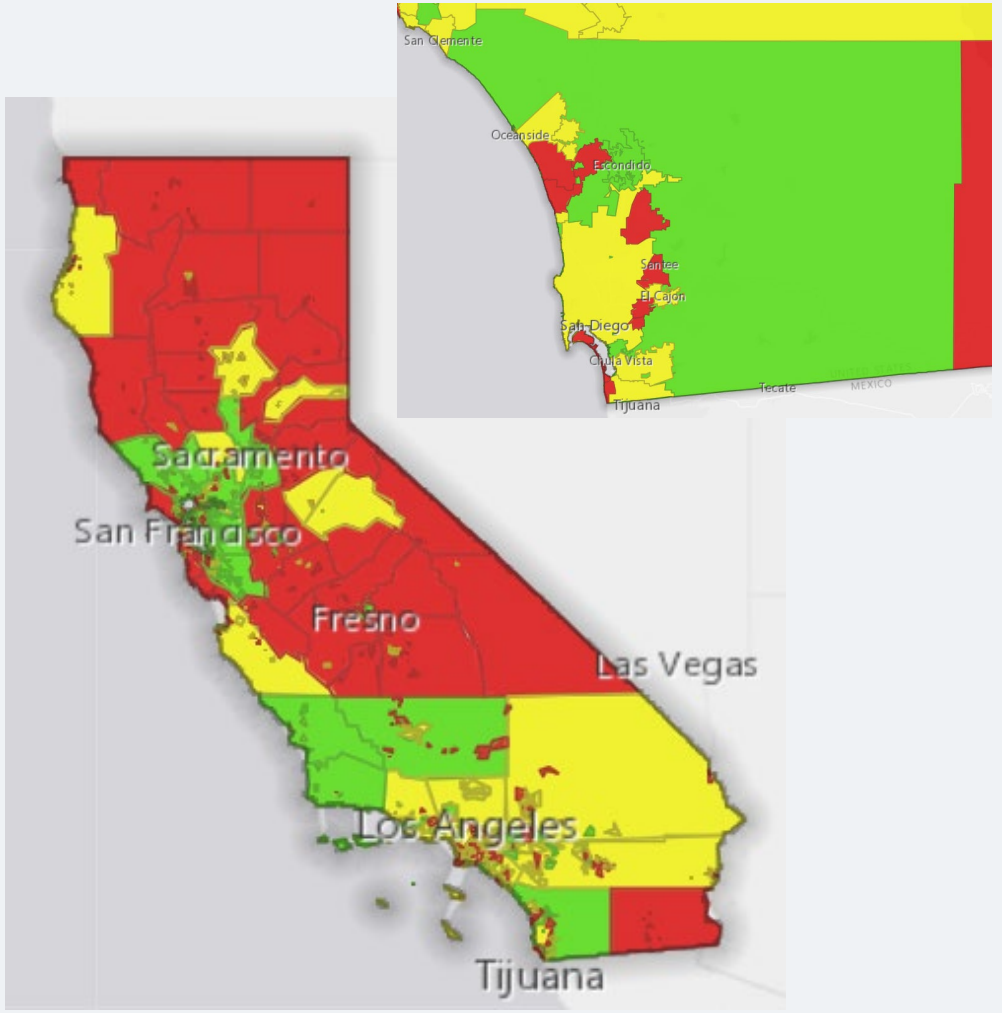
State Laws & Solar Rights Act

State Laws Requirements:

- BESS State Protection
- Streamline Permitting
- Streamline Checklist
- Online permitting

OPR's GO-Biz EVCS "Green" Similarity:

- Streamlining Ordinance
- Permitting checklists covering L2 and DCFC
- Administrative approval of EVCS
- Approval limited to health and safety review
- Electric signatures accepted
- EVCS not subject to association approval
- One complete deficiency notice
- Bonus: Expedited timeline for approval



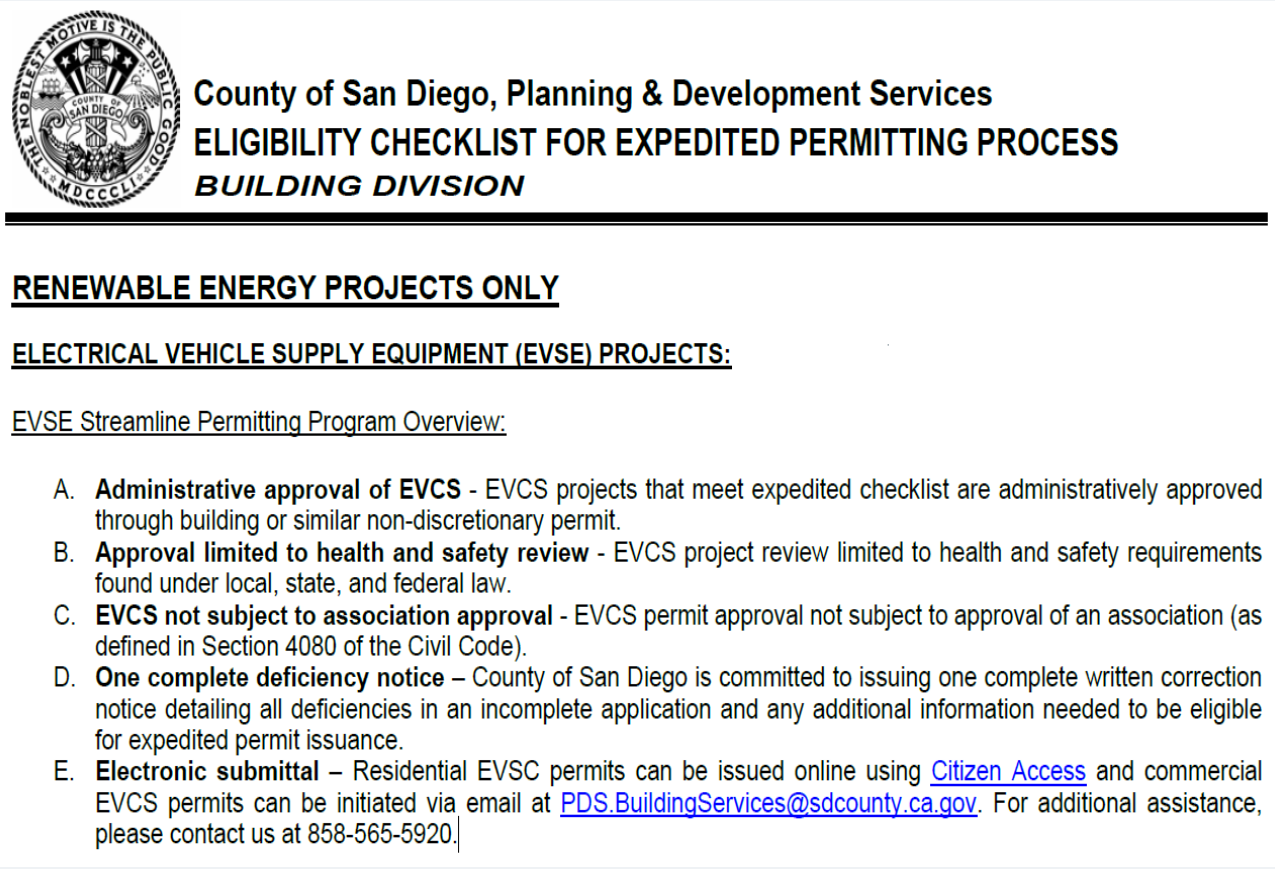
BESS Streamlining Efforts

The approach to codify state requirements:

- Cumulative Codified Ordinances
- Single “Streamline Checklist”
- Online permitting

Adjustments to Checklist:

- Administrative approval
- Health and safety Review
- No association approval
- One complete notice
- Electronic submittal



County of San Diego, Planning & Development Services
ELIGIBILITY CHECKLIST FOR EXPEDITED PERMITTING PROCESS
BUILDING DIVISION

RENEWABLE ENERGY PROJECTS ONLY

ELECTRICAL VEHICLE SUPPLY EQUIPMENT (EVSE) PROJECTS:

EVSE Streamline Permitting Program Overview:

A. **Administrative approval of EVCS** - EVCS projects that meet expedited checklist are administratively approved through building or similar non-discretionary permit.
B. **Approval limited to health and safety review** - EVCS project review limited to health and safety requirements found under local, state, and federal law.
C. **EVCS not subject to association approval** - EVCS permit approval not subject to approval of an association (as defined in Section 4080 of the Civil Code).
D. **One complete deficiency notice** – County of San Diego is committed to issuing one complete written correction notice detailing all deficiencies in an incomplete application and any additional information needed to be eligible for expedited permit issuance.
E. **Electronic submittal** – Residential EVSC permits can be issued online using Citizen Access and commercial EVCS permits can be initiated via email at PDS.BuildingServices@sdcounty.ca.gov. For additional assistance, please contact us at 858-565-5920.

Lessons Learned & Looking Ahead

Lessons Learned:

- Building Code behind advancing technologies
- Staff and inspection comfort with new technologies
- Applicants comfort with online permitting
- Partnership with manufactures and industry
- New product vender presentation and Q/A with staff
- Single streamlined checklist for all renewable projects
- Pre-approved list of products

Looking Ahead – Continuous Improvements:

- Partnership with other AHJs to align approach
- Leverage renewable energy and technology “champion” staff
- CAP & EV Roadmap (long-term goals)
- Green Building Incentive & Trial Fee-Waiver Programs
- Update Zoning for BESS Fire Best Practices

Contacts

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Moderated Q&A: Local Best Practices for BESS & Safety

Justin Kirk
ORANGE COUNTY

Moe Zarabi
SAN DIEGO COUNTY

Suna Taymaz
MODERATOR, GHD

Panel 2 : Industry Best Practices for BESS & Safety

Michael Nicholas
HILLER FIRE PROTECTION

Michael Bowes
ENERGY SAFETY RESPONSE GROUP

Kristi Mirich
MODERATOR, GHD

Battery Energy Storage: Getting To Yes

March 26, 2025

Presented by:
Michael Nicholas

MEET THE SPEAKER

- Michael Nicholas
- Retired Capt./Asst. Fire Marshal Kern County F.D.
- BESS Fire Safety & Permitting Consultant

WHEN SHOULD DEVELOPERS ENGAGE LOCAL STAKEHOLDERS AND WHAT NEEDS TO BE PREPARED FOR THIS MEETING

WHAT TO EXPECT:

- Progressive County Planning Departments and Fire Authorities are working more closely during Land Use Approval submission reviews to ensure the following items are addressed before granting land approval:
  - Site plan submitted showing adequate set back of Incident Command Post from nearest battery enclosure.
  - Access roads are upwind, are of adequate width and surfaced for emergency response in inclement weather.
  - Fire water tank and fire alarm annunciation panel are collocated near the entrance and upwind of BESS yard.

CONSIDERATIONS FOR OPERATORS SELECTING CORRECT TECHNOLOGY:

1. UL 9540 Listing
2. Successful UL 9540A and large-scale fire tests
3. Based on burn test results, can the combustible gas concentration reduction system evacuate enough off gas to keep the concentration below the 25% LEL

WHAT DOES A BESS SUBMISSION TO FIRE AUTHORITIES NEED TO INCLUDE?

INCLUDE IN YOUR BESS SUBMISSION TO FIRE AUTHORITIES:

- Hazard Mitigation Analysis (HMA) incorporating FRA with site specific considerations
- Fire Risk Analysis (FRA) of selected technology
- Failure Modes and Effects Analysis (FMEA)
- NFPA 69 compliant system design and performance of this system during large scale fire test.
- Burn test results: UL9540A and Large-Scale Fire Test Reports
- Technology listings

INCLUDE IN YOUR BESS SUBMISSION TO FIRE AUTHORITIES:

- Emergency Response Plans during construction, commissioning, operations and decommissioning.
- Incident reporting procedures.
- Triggers to notify Fire Authorities when fire life safety systems are offline or being worked on.
- Testing and Maintenance Plans for fire life safety systems including auxiliary backup power systems. Include the method for submitting testing and maintenance results to fire authorities.

UTILITY SCALE BESS YARD SITE LAYOUT

INCLUDE IN YOUR BESS SUBMISSION TO FIRE AUTHORITIES:

- Site layout =
  - Incident Command Post location and access considerations
  - Fire water tank size and location
  - Auxiliary backup power design and location (power is for louvers, exhaust fans and HVAC environmental control systems)
  - Refueling considerations for auxiliary backup power system
  - Proper enclosure spacing based on large scale burn test results

Ongoing Testing & Maintenance Schedules For Annual Operational Permit Approval

HOW TO STAY IN GOOD STANDING WITH LOCAL STAKEHOLDERS

- The long-term relationship for these projects is between the BESS operators and the local Fire Department.

- Fire Authorities will likely require documentation of maintenance reports as part of the operational permit approval.

WHAT WE ARE TRYING TO CREATE

THANK YOU

We are always available for your questions.

www.HillerFire.com

A PASSION FOR SAFETY. PLAIN AND SIMPLE.

Michael Bowes
Energy Safety Response Group

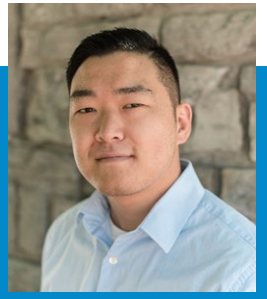
At Energy Safety Response Group (ESRG), we have over 250 years of combined experience in firefighting, hazmat operations, destructive battery and safety testing, hazard and risk assessment, and fire investigation.

ESRG is a global leader in BESS safety, with extensive reach in California and across the country. ESRG proudly serves on the NYS Inter-Agency Fire Safety Working Group, leveraging our experience to ensure the safe installation of BESS in New York State and NYC.

- SAFETY & PERMITTING CONSULTING
- LARGE-SCALE FIRE TESTING
- EMERGENCY RESPONSE

ESRG
ENERGY SAFETY RESPONSE GROUP

NYS INTER-AGENCY FIRE SAFETY WORKING GROUP



Michael Bowes
Energy Safety Response Group

On July 28, 2023, Governor Kathy Hochul announced the creation of an Inter-Agency Fire Safety Working Group (FSWG) to ensure the safety and security of energy storage systems across the state, following a series of incidents at BESS facilities across NYS.

FSWG Activities:

- Site re-inspections of all BESS in NYS
- Code language update based on findings
- Emergency response analyses of incidents
- Peer review program upcoming

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ENERGY SAFETY
RESPONSE GROUP

NYS INTER-AGENCY FIRE SAFETY WORKING GROUP

FSWG Work To Date & What's Next

Michael Bowes
Energy Safety Response Group

- ✓ 1) Release preliminary Air, Soil, and Water Data Findings Report. No reported injuries, no detected harmful levels of contaminants linked to the fires. Issued December 2023
- ✓ 2) Issuance of final Fire Code Recommendations for NYS Uniform Code. Resulted in 15 recommendations for large, grid-scale systems. Draft code language to reflect the recommendations now incorporated into the Notice of Rule in Development. Issued July 2024
- ✓ 3) Field Inspections and Quality Assurance. Inspected 57 in-service projects with SME collaboration resulting in an enhanced NYSERDA inspection process.
- 4) Field inspection summary report outlining findings and improvements Q2 2025
- 5) State-wide Webinar for local communities – Q2 2025
- 6) Accessing and examining Root Cause Analysis
  - a) Warwick:*Q3 2025*
  - *b) Chaumont and East Hampton: don't have RCA*
- *7)* Compiling all preliminary Working Group findings, data, and other relevant materials and send to National Labs to review. *(in progress)*

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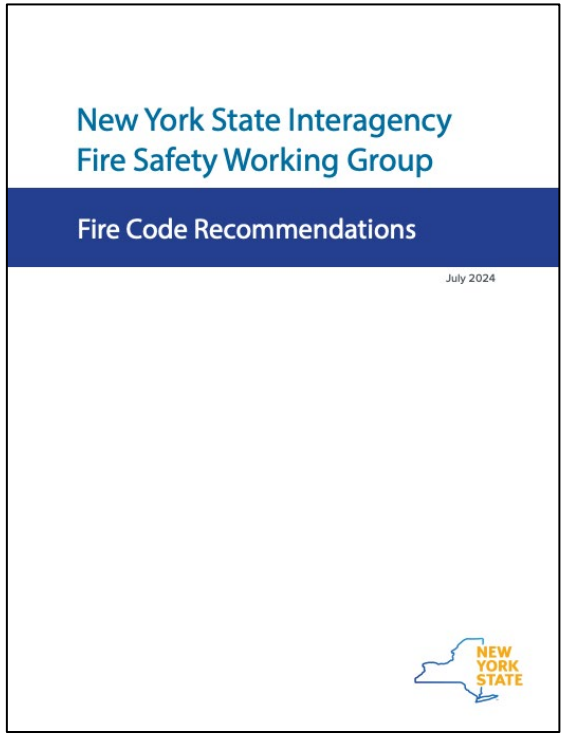
NYS INTER-AGENCY FIRE SAFETY WORKING GROUP

Proposed 2025 Code Language Updates

Michael Bowes
Energy Safety Response Group

Recommendations for Code Update:

1. Require Peer Review for all Projects
2. Expand Explosion Control Requirement
3. Require Hazard Mitigation Personnel
4. Enhanced Signage Requirements
5. Expanded System Monitoring Requirements
6. Video Monitoring Requirement
7. Apply Fire Code to Utility-owned Projects
8. Require Emergency Response Plans and Fire Department Training
9. Require Central Station Monitoring
10. Require Periodic Special Inspections
11. Remove Perceived Code Exemption for BESS Cabinets



ESRG
ENERGY SAFETY RESPONSE GROUP

NYS INTER-AGENCY FIRE SAFETY WORKING GROUP

Lessons Learned So Far

Michael Bowes
Energy Safety Response Group

- Environmental analysis (air, soil, water) during and after fires **did not show cause for concern**
- Reviewed current codes and concluded they are sufficiently mature to avoid adopting an emergency rule, however, **local enforcement is currently behind – peer review will help close this gap**
- Field inspections revealed common but correctable code violations and provided insight into gaps in knowledge
- Fire code recommendations address issues discovered during in-field inspection process
- **Root Cause Analysis** review

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RESPONSE GROUP

Moderated Q&A: Industry Best Practices for BESS & Safety

Michael Nicholas
HILLER FIRE PROTECTION

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Kristi Mirich
MODERATOR, GHD

Next Steps & How to Stay Connected

Next Steps & How to Stay Connected

Now to Apr 2025

Discovery & Data Collection

- Surveys, interviews and workshops with local permitting agencies, developers, and community-based organizations
- Assess local jurisdictions permitting processes for large-scale renewable projects
- Report on findings

Apr to Jul 2025

Toolkit Development

- Develop toolkit content (based on success criteria and recommendations)
- Develop toolkit that will include
  - ✓ smart practices
  - ✓ approaches for process improvements
  - ✓ strategies that enhances connectivity b/w responsible entities

Aug to Sept/Oct 2025

Toolkit Publication

- Launch toolkit
- Announce through selected events and forums
- Conduct lessons learned workshops to gather ideas for future improvements

Your Opinion Matters

Participate in the survey today!

https://tinyurl.com/go-biz

energyunit@gobiz.ca.gov