



# COUNTY OF SAN DIEGO

## AGENDA ITEM

### BOARD OF SUPERVISORS

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**DATE:** December 10, 2024

**30**

**TO:** Board of Supervisors

### **SUBJECT**

**NEW REQUIREMENTS FOR BATTERY ENERGY STORAGE SYSTEM (BESS) PROJECTS IN UNINCORPORATED AREAS AND CEQA FINDINGS (DISTRICTS: ALL)**

### **OVERVIEW**

Last May, San Diego County Fire (County Fire) responded to the 17-day Gateway Fire at a battery energy storage systems (BESS) facility in East Otay Mesa. Following the incident, the Board of Supervisors (Board) approved \$250,000 in the Fiscal Year 2024-26 CAO Recommended Operational Plan Change Letter for County Fire to contract with a fire protection engineering firm to provide a BESS fire safety best practices report with policy recommendations for new and existing facilities in the unincorporated area (Attachment A). On July 17, 2024 (8), the Board directed the Chief Administrative Officer (CAO) to work with in-process BESS project applicants on development standards for siting BESS projects in the unincorporated area and develop options to incentivize safety. While that work continues, the Board directed exploring interim standards and other stopgap measures to ensure safety.

On September 11, 2024 (5), the Board received an update on upcoming short-term actions and longer-term efforts on development standards that would be presented to the Board in the future. At the meeting, the Board directed the CAO to have County Fire analyze appropriate residential buffer distances based on plume modeling and develop a plan for BESS facilities, report to the Board in 45 days with an interim update and return with a plan to the Board by December 11, 2024.

On November 12, 2024, the draft BESS Best Practices report was released for public comment and a community listening session was held on November 14, 2024. Since then, County Fire has developed Interim Fire Protection Guidelines for BESS Facilities (Attachment B) for addressing the fire and life safety of BESS projects within the San Diego County Fire Protection District (SDCFPD). The proposed plan includes the following fire code enhancements:

- Immediate enforcement of new fire mitigation, detection, and safety standards by San Diego County Fire until upcoming changes to the California Fire Code and adoption of an updated Consolidated Fire Code in 2025 by the Board of Supervisors

**SUBJECT: NEW REQUIREMENTS FOR BATTERY ENERGY STORAGE SYSTEM (BESS) PROJECTS IN UNINCORPORATED AREAS AND CEQA FINDINGS (DISTRICTS: ALL)**

- Requirements for explosion prevention, passive and active ventilation systems to reduce risk, gas detection and an actively monitored battery management system to alert first responders in case of elevated risk
- Submission of a Hazard Mitigation Analysis and Hazard Identification Analysis
- Emergency planning and training procedures to support first responders with quickly and safely addressing risks during an incident
- Laboratory-validated parts and components to reduce potential fires and explosions once a BESS facility becomes operational
- Continuous evaluation of emerging technologies and practices, including National Fire Protection Association (NFPA) updates

County Fire’s proposed implementation plan includes setbacks, structure separation distance and site requirements based on fire behavior, firefighting access and suppression, and applicable codes and standards. County Fire is recommending a minimum 100-foot setback to provide adequate distance for personnel, apparatus, and command to be safely positioned during a fire suppression operation and is consistent with personnel and resource placement during the Gateway Fire. The proposed setback is consistent with the existing requirement of 100 feet of defensible space.

As noted in the BESS Best Practices report, prior incidents involving BESS facilities have shown the potential for toxic gas emissions during failure events, and plume modeling (dispersion analysis) could be completed during the planning stage of a proposed BESS project to help determine evacuation distances and approach distances for first responders. County Fire is proposing that plume modeling be required for each individual project within the SDCFPD and the results may yield a recommendation for a setback greater than 100-feet. Attachment B includes specific inputs and assumptions that each project would incorporate into a County Fire-recognized software system for an acceptable dispersion analysis.

Today’s actions include the Board receiving and accepting the consultant’s report and authorizing the County Fire Chief to implement the Interim Fire Protection Guidelines for BESS Facilities as determinations within the fire code. Applicants will be required to hire a fire protection engineer to complete a technical study that accounts for each recommended best practice to mitigate future risk. In addition, today’s actions include directing the CAO to return within 150 days to update the Consolidated Fire Code for the San Diego County Fire Protection District only, to codify the Interim Fire Protection Guidelines for BESS Facilities into the Consolidated Fire Code. County Fire will continue working with independent fire protection districts to immediately take the same actions and include the recommended best practices into the next three-year update of the San Diego County Consolidated Fire Code for the SDCFPD and other fire protection districts.

**RECOMMENDATION(S)  
CHIEF ADMINISTRATIVE OFFICER**

1. Find that the proposed actions are not subject to the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15061(b)(3) because it can be seen with certainty that there is no possibility that the proposed project may have a significant effect on the environment.

**SUBJECT: NEW REQUIREMENTS FOR BATTERY ENERGY STORAGE SYSTEM (BESS) PROJECTS IN UNINCORPORATED AREAS AND CEQA FINDINGS (DISTRICTS: ALL)**

2. Receive the *San Diego County BESS Best Practices* report. (Attachment A).
3. Authorize the County Fire Chief to immediately implement the Interim Fire Protection Guidelines for BESS Facilities as identified in Attachment B.
4. Direct the Chief Administrative Officer to return to the Board within 150 days with modifications to the Consolidated Fire Code for the San Diego County Fire Protection District that incorporate the Interim Fire Protection Guidelines for BESS Facilities in Attachment B.

**EQUITY IMPACT STATEMENT**

Battery energy storage systems (BESS) facilities have a potential to impact communities both positively and negatively, including communities disproportionately impacted by environmental burdens. San Diego County Fire (County Fire) is responsible for administering fire prevention services in the San Diego County Fire Protection District (SDCFPD). The SDCFPD includes some of the most under-resourced and impacted communities with health disparities and median income below the regional average. Unsafe BESS facilities could further negative impacts for SDCFPD residents. Accepting the recommendations in the report can help balance benefits to the environment, job growth, and resident safety in the SDCFPD.

**SUSTAINABILITY IMPACT STATEMENT**

This action aligns with County of San Diego’s Sustainability Vision and Goals and supports a transition to a green, carbon-free economy, helps reduce greenhouse gas emissions, support green job creation and workforce development, and prepare for the impacts of a changing climate by leading an energy grid that is decarbonized.

**FISCAL IMPACT**

There is no fiscal impact associated with today’s recommended actions to receive the *San Diego County BESS Best Practices* report (Attachment A) or to implement the guidelines. The added guidelines will increase the BESS application review process by staff that will be supported by applicant fees. There will be no change in net General Fund costs and no additional staff years.

**BUSINESS IMPACT STATEMENT**

As part of San Diego County Fire’s listening session and public comment period, County Staff heard from the business community about their concerns of potential cost increases with implementing the best practices recommendations and the potential reduction in opportunities to permit new projects due to potential setbacks from neighboring properties. Previous County and local university research examined levels of job creation in the San Diego region associated with \$5.1 billion in average annual spending on energy supply investments between 2021 – 2030. Approximately \$630 million annually (12.3%) is spent on clean renewables. BESS projects are a part of clean renewables. Further requirements are unlikely to substantially impact spending on energy projects.

**ADVISORY BOARD STATEMENT**

**SUBJECT: NEW REQUIREMENTS FOR BATTERY ENERGY STORAGE SYSTEM (BESS) PROJECTS IN UNINCORPORATED AREAS AND CEQA FINDINGS (DISTRICTS: ALL)**

On November 4, 2024, the San Diego County Fire Protection District Fire Advisory Board voted to support the determinations of the consultant study and the immediate implementation of the new requirements by a vote of three to zero with one abstention.

**BACKGROUND**

In May 2024, the East Otay Mesa community experienced the region’s largest battery energy storage systems (BESS) fire, named the Gateway Fire which lasted 17 days. There were also smaller fires at a BESS facility in unincorporated Valley Center on September 18, 2023, and at a BESS San Diego Gas & Electric (SDG&E) facility in the City of Escondido on September 5, 2024. After the Gateway Fire, the Board of Supervisors (Board) approved \$250,000 in the Fiscal Year 2024-2026 Chief Administrative Officer’s (CAO) Recommended Operational Plan Change Letter for San Diego County Fire to contract with a fire protection engineering firm to conduct a cause and origin investigation with Root Cause Analysis and to study BESS projects to determine fire safety best practices and to develop policy recommendations for new and existing facilities in the region’s unincorporated area. The cause and origin portion of the study is ongoing, but the County of San Diego’s (County) Consultant Study regarding BESS projects has been completed.

The County’s Consultant Study provided background information, best practices and recommendations for the following:

- Existing codes, standards and battery technology
- Large-scale fire testing
- Separation distances and site requirements
- Hazard Mitigation Analysis and Dispersion Analysis (Plume modeling)
- Detection and alarm
- Fire suppression, exhaust ventilation and explosion protection
- Fire safety, evacuation, emergency planning and training
- Heating and cooling systems and water runoff collection

**Public Outreach and Stakeholder Engagement**

On November 12, 2024, the draft report was placed on the Engage San Diego County website for BESS projects and emails were sent to all interested persons, community planning and sponsor groups, and industry stakeholders notifying them of the draft report and a community listening session.

On November 14, 2024, County Fire and Planning & Development Services (PDS) held a community listening session. In total, 139 individuals participated in the session, which included over 30 verbal questions and 72 written questions for County staff with representation from community planning and sponsor groups, the International Brotherhood of Electrical Workers (IBEW), project consultants, and BESS developers. When public feedback closed on November 19, 2024, County Fire received 40 comments. A summary of all feedback included the following examples:

- Need for additional detail on plume modeling conditions and impacts to neighbors

**SUBJECT: NEW REQUIREMENTS FOR BATTERY ENERGY STORAGE SYSTEM (BESS) PROJECTS IN UNINCORPORATED AREAS AND CEQA FINDINGS (DISTRICTS: ALL)**

- Concern with BESS facilities in wildland areas
- Environmental impact of BESS fires to water, land and air
- Minimum requirements for worker licenses and certifications to build BESS facilities to increase long-term safety
- Minimum setbacks from property lines
- Impact to firefighting resources
- Regular inspections of BESS facilities once they become operational

**County Fire’s Recent Actions**

There are ten active BESS projects under review by County staff in the unincorporated area where the Board has jurisdiction for approving or denying projects. In July, County Fire and other fire protection districts began requiring projects to present a technical study that addressed potential risks and mitigation approaches. County Fire and PDS partnered to add the fire protection engineer as a category on the California Environmental Quality Act (CEQA) consultant list. By the end of the calendar year, all active BESS projects in the unincorporated area will be required to select a fire protection engineer to review their BESS projects from that list.

Currently, County Fire is in the procurement process for selecting an independent fire protection engineer to review the technical studies and provide feedback related to fire safety. The County’s third-party independent fire protection engineer would confirm best practices have been met and that effective mitigation strategies have been included in proposed BESS projects. That contract is anticipated to be ready by next calendar year to support County Fire and will be available to all fire protection districts in the region to establish consistent standards and approaches for applicants.

**Interim Fire Protection Guidelines for BESS Facilities**

County Fire has developed a plan for addressing the fire and life safety of BESS projects within the San Diego County Fire Protection District. The plan includes current codes and standards already utilized by the San Diego County Fire Protection District (SDCFPD) for proposed BESS facilities. In addition, new requirements and standards will be enforced on proposed BESS facilities, which include:

- Fire and explosion detection, alarming, control and suppression systems must meet UL 864, the standard for control units for fire alarm systems.
- Gas detection systems must meet national standards, be appropriately located, and continue operating under non-flaming thermal runaway conditions.
- Standards are set for enclosures materials and sprinkler protection.
- Battery Management Systems must meet manufacturer specifications and transmit signals to an approved location if hazardous conditions are detected.
- A Hazard Mitigation Analysis will be required for all proposed BESS projects to account and mitigate for failure modes that include a thermal runaway event, simultaneous failure of multiple safety systems, and failure of the temperature control system in a BESS facility.

**SUBJECT: NEW REQUIREMENTS FOR BATTERY ENERGY STORAGE SYSTEM (BESS) PROJECTS IN UNINCORPORATED AREAS AND CEQA FINDINGS (DISTRICTS: ALL)**

- All new technology in proposed BESS facilities will be required to have a third-party, lab-tested review prior to being included in new construction.

County Fire is proposing setbacks, structure separation distance and site requirements based on fire behavior and science, firefighting access and suppression, and applicable codes and standards. As noted in the Interim Fire Protection Guidelines for BESS Facilities, County Fire is recommending a 100-foot minimum setback from the property line to provide adequate distance for fire suppression and firefighter safety. Adequate distance was available and utilized during the Gateway Fire in May, allowing fire personnel and apparatus enough separation to safely provide suppression activities. Adequate distance was also available for fire suppression during the BESS fire in Escondido in September. A required perimeter access road or an existing exterior road would be included in the 100-foot setback. For proposed projects with adjacent hazardous wildland area, the County's defensible space ordinance would also be enforced.

### **Plume/Dispersion Modeling**

The BESS Best Practices report highlights the importance of setbacks and dispersion analysis, commonly referred to as Plume Modeling, as a critical requirement for all utility-scale BESS facilities. This process ensures the incorporation of specific inputs and adherence to established guidelines. To maintain consistency in evaluating potential sites for BESS facilities, County Fire recommends pre-defined worst-case meteorological conditions based on EPA standards. These conditions include an atmospheric stability class F (stable atmosphere), a wind speed of 1.5 meters per second (3.4 miles per hour), and a temperature of 77°F.

The findings from required plume studies will outline additional mitigation for setbacks from sensitive receptors, such as residential areas, care facilities (hospitals, nursing homes, etc.), and educational institutions. These setbacks aim to mitigate potential adverse effects on vulnerable populations. Industry-accepted tools for modeling toxic off-gassing during BESS failure events are outlined in Attachment B of the report. These tools represent reputable procedures that have been recognized by County Fire for this purpose. As new software systems are validated, County Fire will evaluate updating the list of recognized tools to maximize public safety.

### **BESS Projects Outside County Permitting Authority**

Not all BESS projects are required to receive approval from the Board of Supervisors. SDG&E and other applicants with proposed BESS projects exceeding 50 megawatts can submit their projects through the California Energy Commission (CEC) for approval. The CEC approval process requires a CEQA review and a technical study regarding fire risks. However, the local fire authority having jurisdiction for a 911 response is not notified of the proposed BESS project and is not afforded an opportunity to provide feedback on fire safety. County Fire staff was informed that the California Public Utility Commission (CPUC) and CEC will begin requiring reoccurring inspections to BESS facilities, which would further align the regulatory activities of these facilities regionwide.

### **PDS Zoning Ordinance Update**

**SUBJECT: NEW REQUIREMENTS FOR BATTERY ENERGY STORAGE SYSTEM (BESS) PROJECTS IN UNINCORPORATED AREAS AND CEQA FINDINGS (DISTRICTS: ALL)**

The determinations in the County’s Consultant Study will serve as interim standards for BESS facilities while the Consolidated Fire Code is fully updated in 2026, and a comprehensive Zoning Ordinance amendment is adopted to establish clear guidelines on where BESS facilities may be located and the zoning standards they must meet. PDS will lead an outreach effort to gather feedback and insight from community members, industry professionals, environmental advocates, labor unions, and developers, ensuring all perspectives inform the development of these zoning standards. The amendment to the Zoning Ordinance is anticipated to be presented to the Board in 2026.

**Implementation**

If the Board accepts the recommended actions in Attachment B, County Fire will immediately require these conditions for BESS projects. The applicant’s fire protection engineer will submit a technical study to County Fire and a County contracted fire protection engineer will serve as a third-party reviewer to determine if the study meets the proposed requirements in Attachment B.

In addition, today’s actions include directing the CAO to return within 150 days to update the Consolidated Fire Code, only for the SDCFPD, to codify the Interim Fire Protection Guidelines for BESS Facilities in Attachment B into the Consolidated Fire Code. Public comment can still be provided until the CAO returns within 150 days. The proposed Interim Fire Protection Guidelines for BESS facilities, if authorized by the Board, would only apply to projects within the SDCFPD. Even though the Board has land use jurisdiction in the entire unincorporated area, independent fire protection districts are responsible for the fire code in their areas and would need to take similar actions to implement these enhancements in their communities. Lastly, County Fire will work with the other fire protection districts to include the consultant’s best practices when the revised Consolidated Fire Code is presented to the Board of Supervisors in 2026 as part of the regular three-year update.

**ENVIRONMENTAL STATEMENT**

It is recommended that the Board of Supervisors find that the proposed actions are exempt from the California Environmental Quality Act (CEQA) under Section 15061(b)(3) of the State CEQA Guidelines because it can be seen with certainty that there is no possibility that the proposed actions may have a significant effect on the environment.

**LINKAGE TO THE COUNTY OF SAN DIEGO STRATEGIC PLAN**

The actions presented today support the Community: Safety initiative of the County of San Diego’s 2024-2029 Strategic Plan by providing the Board of Supervisors a summary of health and safety research, best practices and standards related to privately initiated BESS projects. Actions taken to ensure the safety of these types of projects are important to the County’s sustainability efforts as well as to the health and safety of unincorporated residents.

Respectfully submitted,

**SUBJECT:** NEW REQUIREMENTS FOR BATTERY ENERGY STORAGE SYSTEM  
(BESS) PROJECTS IN UNINCORPORATED AREAS AND CEQA  
FINDINGS (DISTRICTS: ALL)



*Andrew Strong for*

EBONY N. SHELTON  
Chief Administrative Officer

**ATTACHMENT(S)**

**Note:** Due to the size of the attachments, the documents are available online through the Clerk of the Board's website at [www.sandiegocounty.gov/content/sdc/cob/bosa.html](http://www.sandiegocounty.gov/content/sdc/cob/bosa.html).

ATTACHMENT A—San Diego County BESS Best Practices Report

ATTACHMENT B—Interim Fire Protection Guidelines for BESS Facilities

ATTACHMENT C—Current Active Battery Energy Storage Projects in Unincorporated San Diego County