

Date of Hearing: April 28, 2025

ASSEMBLY COMMITTEE ON EMERGENCY MANAGEMENT

Rhodesia Ransom, Chair

AB 588 (Patel) – As Amended April 21, 2025

SUBJECT: State Fire Marshal: lithium battery working group: membership: funding

SUMMARY: Requires the Office of the State Fire Marshal to convene a lithium battery working group to identify those safety issues associated with lithium batteries and associated charging infrastructure installed or used near or within residential or commercial occupancies that have not already been addressed in the 2025 Edition of the California Building Standards Code to recommend potential solutions that will enhance building safety for the State Fire Marshal and other impacted agencies to consider. Specifically, **this bill:**

- 1) Requires the Office of the State Fire Marshal to convene a lithium battery working group to identify those safety issues associated with lithium batteries and associated charging infrastructure installed or used near or within residential or commercial occupancies that have not already been addressed in the 2025 Edition of the California Building Standards Code to recommend potential solutions that will enhance building safety for the State Fire Marshal and other impacted agencies to consider.
- 2) Provides the recommendations of the lithium battery working group may include any of the following:
 - (a) Informational bulletins.
 - (b) Guidance documents outlining best practices.
 - (c) Educational and training materials.
 - (d) Voluntary and mandatory building standards.
- 3) Requires the working group convened by the State Fire Marshal to include, at a minimum, the following:
 - (a) One representative from the Fire Districts Association of California.
 - (b) One representative from the California Fire Chiefs Association.
 - (c) Two representatives from the California Professional Firefighters.
 - (d) The California Building Standards Commission.
 - (e) One professor with academic expertise in lithium battery chemistry, as specified.
 - (f) Local building departments.
 - (g) Fire safety consultants.
 - (h) Parking facility owners as specified.
 - (i) Commercial property owners.
 - (j) Apartment owners.
 - (k) One licensed electrical contractor.
 - (l) One electrician with Energy Storage and Microgrid Training and Certification.
- 4) Requires the working group to establish a clear timeline to guide the initial research, findings, and recommendations, and deliver the initial research, findings, and recommendations on or before January 1, 2027.

- 5) Appropriates an undetermined amount of funds from the Building Standards Administration Special Revolving Fund to support the working group, as specified.

EXISTING LAW:

- 1) Establishes the California Building Standards Commission (CBSC) within the Government Operations Agency, the California Building Standards Law, and sets forth its powers and duties, including approval and adoption of building standards and codification of those standards into the California Building Standards Code. (Health and Safety Code Section 18901)
- 2) Establishes the State Fire Marshal (SFM), within the Department of Forestry and Fire Protection (Cal FIRE), to foster, promote and develop ways and means of protecting life and property against fire and panic. (Health and Safety Code Sections 13100-13100.1)
- 3) Requires the State Fire Marshal, before the next triennial edition of the California Building Standards Code adopted after January 1, 2025, to propose to the CBSC updates to the fire standards relating to requirements for lithium-based battery systems. (Health and Safety Code Section 13110.3)
- 4) Establishes Cal/OSHA within the Department of Industrial Relations (DIR) to, among other things, propose, administer, and enforce occupational safety and health standards. (Labor Code Section 6300)
- 5) Establishes the Occupational Safety and Health Standards Board (standards board) within the DIR and grants the standards board exclusive authority to adopt occupational and health standards within the state. (Labor Code Section 140)

FISCAL EFFECT: Unknown. This bill has not been analyzed by a fiscal committee.

COMMENTS:

Purpose of the bill: According to the author, “The lack of guidance, best practices, and educational materials for residential and commercial properties that utilize lithium-ion battery storage is accelerating the risk of dangers associated with these batteries, a risk that will increase as the state marches towards its green energy goals. The fragmented system that California currently has is not sustainable towards safely meeting its goals. This bill takes a step that is necessary if we want to proactively prevent lithium-ion battery fires in our homes and businesses while encouraging a green future.”

Equity impact: According to the author’s staff, “Under-resourced local fire departments and rural communities benefit from AB 588, as it takes a preventative approach that would help to mitigate fires affecting already strained communities and departments.”

Firefighting remains one of the Nation’s most hazardous professions: According the Administrator of the United States Fire Administration, ‘Fire is a public health and safety problem of great proportions, and firefighting remains one of the Nation’s most hazardous professions. On average there are more than 1.2 million structure fires, nearly 3,000 deaths, thousands of injuries, and scores of individuals displaced annually from fires. Although disasters such as fires can affect everyone, fires can also exacerbate pre-existing challenges in underserved

communities across the country. These impacts are further compounded by poor implementation and enforcement of national building codes and fire risks associated with technology that make fires more common, more intense, and more destructive. These challenges pose heightened risks to the public and to first responders who safeguard our communities, and the challenge continues to evolve. For example, emerging technologies like Lithium-ion (Li-ion) powered devices and harmful chemicals including polyfluoroalkyl substances (PFAS) introduce new and continued risks to our communities and firefighters.”

Lithium-ion Batteries: Lithium-ion batteries are comprised of an anode, cathode, separator, electrolyte, and two current collectors (positive and negative). The anode and the cathode store the lithium. The electrolyte carries positively charged lithium ions from the anode to the cathode and vice versa through the separator. The movement of the lithium ions creates free electrons in the anode, which creates a charge at the positive current collector. The electrical current then flows from the current collector through a device being powered (cellphone, computer, etc.) to the negative current collector. The separator blocks the flow of electrons inside the battery.

Compared to other high-quality rechargeable battery technologies (nickel-cadmium, nickel-metal-hydride, or lead-acid), lithium batteries have a number of advantages. They have one of the highest energy densities of any commercial battery technology, approaching 300 watt-hours per kilogram (Wh/kg) compared to roughly 75 Wh/kg for alternative technologies. High energy densities and long lifespans have made lithium-ion batteries the market leader in portable electronic devices and electrified transportation, including electric vehicles and jets.

Risk of Thermal Runaway: One of the primary risks related to lithium-ion batteries is thermal runaway. Thermal runaway is a phenomenon in which the lithium-ion cell enters an uncontrollable, self-heating state. Thermal runaway can result in extremely high temperatures, violent cell venting, smoke, and fire. Faults in a lithium-ion cell can result in a thermal runaway, and these faults can be caused by internal failure or external conditions. Lithium-ion battery fires and explosions are triggered by the thermal runaway reactions inside the cell and, when stored near or next to another battery or batteries, can set off a chain reaction, making an already tough fire to fight even worse. When they reach thermal runaway, lithium-ion battery fires can burn for hours, or even days, until all the flammable chemicals in the battery have been consumed by the combustion reaction.

Growth of Battery Storage in California and Projected Need: Over the past several years, the deployment of battery storage systems has grown significantly in California, growing from 500 megawatts (MW) in 2019 to over 13,300 MW statewide in 2024. According to the CPUC, “Battery storage systems are one of the key technologies California relies on to enhance reliability and reduce dependency on polluting fossil fuel plants. Battery storage systems soak up clean energy in the daytime when the sun is shining, store that electricity, and then export it to the grid in the evening hours when the sun is down. In 2024, California made historic progress in clean energy deployment. The state brought more than 7,000 MW online—the largest amount in a single year in California’s history. This includes over 4,000 MW of new battery storage. California’s current installed battery storage capacity is over 20 percent of California’s peak demand. The state’s projected need for battery storage capacity is estimated at 52,000 MW by 2045.”

Arguments in support: The California Business Properties Association writes, “AB 588 (Patel), which takes a proactive step toward improving fire and electrical safety as lithium-ion battery

systems and EV charging infrastructure become standard features in California's built environment. The bill establishes a working group under the State Fire Marshal to identify safety gaps, develop best practices, and recommend guidance where the current building code falls short. As the state accelerates the adoption of lithium battery systems and EV charging infrastructure to meet its climate and electrification goals, builders, property owners, apartment operators, and local governments are on the front lines of integrating this technology into commercial, residential, and mixed-use buildings. But current safety guidance is limited, and enforcement varies across jurisdictions."

The California Professional Firefighters add, "The dangers of lithium-ion battery fires cannot be understated, both to the safety personnel responding to them as well as to the surrounding communities. In 2021, a firefighter sustained irreversible injuries while responding to a fire at a facility storing and refurbishing lithium ion batteries in Orange County. Tragically, they were forced to apply for a disability retirement due to the extent of their injuries, underscoring the dangers these fires present to our members. On May 15, 2024, a fire at an ESS facility in Otay Mesa burned for 8 days, releasing lethal levels of hydrogen cyanide and prompting a "shelter-in-place" order for nearby residents. On January 16, 2025, a fire at one of the world's largest ESS facilities in Moss Landing triggered evacuations and forced the closure of Highway 1."

Related legislation: AB 696 (Ransom) Requires the California Environmental Protection Agency to convene a Lithium-Ion Car battery Advisory Group to review and advise the Legislature on policies on handling and disposing of lithium-ion vehicle batteries. (Pending in the Assembly Committee on Appropriations)

AB 841 (Patel) Requires the State Fire Marshal to develop, in consultation with the Division of Occupational Safety and Health, a working group to make recommendations regarding personal protective equipment used in responding to lithium-ion battery fires, as specified. (Pending in the Assembly Committee on Appropriations)

AB 855 (Lackey) Requires the California Office of Emergency Services, in consultation with the State Fire Marshal, California Highway Patrol, and others to develop an action plan for responding to commercial motor vehicle battery fires. (Set to be heard in the Assembly Committee on Emergency Management on April 28, 2025)

AB 1285 (Committee on Emergency Management) Requires the State Fire Marshal, in consultation with the Office of Emergency Services, to develop fire prevention, response, and recovery measures for utility-grade lithium-ion battery storage facilities, as specified. (Pending in the Assembly Committee on Appropriations)

REGISTERED SUPPORT / OPPOSITION:

Support

Building Owners and Managers Association of California
California Building Industry Association (CBIA)
California Business Properties Association
California Business Roundtable
California Hotel & Lodging Association
California Professional Firefighters
California State Association of Electrical Workers

Coalition of California Utility Employees
Naiop California
San Diego Regional Chamber of Commerce
The Institute of Real Estate Management

Opposition

None on file.

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