

Date of Hearing: April 28, 2025

ASSEMBLY COMMITTEE ON EMERGENCY MANAGEMENT

Rhodesia Ransom, Chair

AB 716 (Carrillo) – As Amended April 21, 2025

**SUBJECT:** Fire safety standards: hydrogen facilities

**SUMMARY:** Requires the State Fire Marshal to adopt the National Fire Protection Association Hydrogen Technologies Code as the statewide fire safety standards and guidelines for hydrogen production, storage, and distribution facilities, as specified. Specifically, **this bill:**

- 1) Requires the State Fire Marshal to adopt the National Fire Protection Association Hydrogen Technologies Code (NFPA 2) as the statewide fire safety standards and guidelines for hydrogen production, storage, and distribution facilities.
- 2) Allows local governments, in consultation with the State Fire Marshal, to adopt fire safety standards more stringent than the statewide fire safety standards.
- 3) Requires the State Fire Marshal to appoint a hydrogen fire expert to answer questions and provide clarification on the implementation of NFPA 2 to ensure that hydrogen facilities comply with the most up-to-date fire safety standards.
- 4) Requires the State Fire Marshal to provide ongoing training to local fire departments and building inspectors to ensure that hydrogen-related safety protocols are understood and enforced statewide.

**EXISTING LAW:**

- 1) 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)
- 2) Under the Global Warming Solutions Act of 2006 and updates thereof, requires the California Air Resources Board (CARB) to ensure that statewide greenhouse gas (GHG) emissions are reduced to at least 40% below the 1990 level by 2030 (Health and Safety Code Section 38500)
- 3) Under the California Climate Crisis Act, states that it is the policy of the state to achieve net zero GHG emissions no later than 2045, and to ensure that by 2045 statewide anthropogenic GHG emissions are reduced to at least 85% below the 1990 level. (Health and Safety Code Section 38562.2)
- 4) Provides a variety of energy, transportation, water, and semiconductor projects eligible for expedited judicial review under the California Environmental Quality Act (CEQA). (Public Resources Code Section 21189.81)

- 5) Provides the CEC's siting jurisdiction to include solar, wind and energy storage facilities that meet certain criteria. (Public Resource Code Section 25545)
- 6) Establishes a Renewables Portfolio Standard Program requiring certain percentages of electricity retail sales to be served by renewable resources. (Public Utilities Code Section 399.11)
- 7) States that is the goal of the state to procure 100% of electricity from eligible renewable energy resources and zero-carbon resources by December 31, 2045. (Public Utilities Code Section 454.53)
- 8) Establishes a Renewable Energy Resources Program administered by the Energy Commission and defines a “renewable electrical generation facility” as a facility that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current and sets certain requirements for these facilities. (Public Resource Code Section 25741)

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

**COMMENTS:**

Purpose of the bill: According to the author, “As California continues to lead the fight against climate change and towards a green economy, hydrogen infrastructure will likely play a key role in hard to decarbonize sectors. Some of hydrogen’s unique properties require additional engineering and safety considerations to ensure and enable its safe use. Local jurisdictions across California are required to enforce fire safety standards across all development and AB 716 will provide much needed resources, and guidance as the hydrogen economy continues to grow.”

Equity impact: According to the author’s office, “Expanding the hydrogen economy can create high-quality jobs in production, transaction and maintenance. To the extent these jobs can help provide a landing place for the tradesman that are being impacted by the move away from fossil fuels, the hydrogen economy could prove to be a valuable asset for these traditionally working class people. Additionally, if hydrogen facilities are able to replace legacy natural gas power plants it could have a significant impact on air quality in disadvantaged communities.”

Hydrogen: Hydrogen is the most abundant element in the universe but occurs naturally on Earth, mostly in compound form with other elements. Pure molecular hydrogen (H<sub>2</sub>) can be extracted by decomposing or by chemically reacting hydrogen feedstocks—sources of hydrogen such as fossil fuels, biomass, and water. Once hydrogen molecules are extracted, they can be used for functional purposes.

For decades, technologies such as steam methane reforming (SMR) and coal gasification have used fossil fuels as hydrogen feedstocks for the manufacture of ammonia, fertilizers, and petroleum products and for other industrial processes. Emerging and potential future applications for hydrogen include storing energy, heating, and replacing natural gas in certain functions. Almost all current hydrogen production in the United States uses fossil fuels as feedstocks and directly emits carbon dioxide (CO<sub>2</sub>).

Safe use of Hydrogen: According to the U.S. Department of Energy, some of hydrogen's properties require additional engineering controls to enable its safe use. Specifically, hydrogen has a wide range of flammable concentrations in air and lower ignition energy than gasoline or natural gas, which means it can ignite more easily. In addition, some metals can become brittle when exposed to hydrogen, so selecting appropriate materials is important to the design of safe hydrogen systems.

Hydrogen is stored under high pressure and, due to its relative weight compared to the surrounding air ventilation, leak detection and emergency response plans are crucial. In addition to designing safety features into hydrogen systems, training in safe hydrogen handling practices is a key element for ensuring the safe use of hydrogen. In addition, testing of hydrogen systems—tank leak tests, garage leak simulations, and hydrogen tank drop tests—shows that hydrogen can be produced, stored, and dispensed safely.

National Fire Protection Association's (NFPA) Hydrogen Technologies Code: The NFPA 2 is a critical element of the framework for deploying hydrogen technologies in the United States. With the increased interest in hydrogen being used as a vehicle fuel source, the NFPA was petitioned to develop an all-encompassing document that would establish the necessary requirements for hydrogen technologies. The NFPA's technical committee was formed in 2006, and the NFPA 2 is continuously updated. The focus of the NFPA 2 standard is all aspects of hydrogen storage, use and production and draws from existing codes and standards. The standards are developed for code users and enforcers, such as the State Fire Marshal.

Hydrogen Production: Hydrogen is currently produced both intentionally (on-purpose hydrogen) and as a byproduct of other processes. On-purpose hydrogen produced and sold to a consumer is known as merchant hydrogen, while on-purpose hydrogen produced by a consumer for internal use is called captive hydrogen. On-purpose hydrogen differs from byproduct hydrogen, which is the result of processes that are not for the express purpose of producing hydrogen. Examples include processes for producing chlorine and sodium hydroxide.

Estimates of hydrogen production may cover on-purpose hydrogen, or they may cover both on-purpose and byproduct hydrogen combined. A U.S. Department of Energy (DOE) Hydrogen and Fuel Cells Program Record published in 2019 estimates that about 10 million metric tons (MMT) of on-purpose hydrogen is produced in the United States annually. Production in the United States accounts for approximately 14% of total hydrogen produced worldwide, which is around 70 MMT. Most of the hydrogen produced globally and almost all of the hydrogen produced in the United States comes from natural gas.

Zero-Emission Vehicles and Hydrogen Fueling in California: As zero-emission vehicles (ZEVs), hydrogen-powered fuel cell electric vehicles (FCEVs) play a significant role in reducing California's greenhouse gas and smog emissions. Significant growth in ZEV deployment over the coming decades is necessary to meet the state's climate and air quality goals. Deployment of sufficient fueling infrastructure for the coming ZEV fleet is a necessary first step, as recognized by the passage of Assembly Bill 8 in 2013.

In January 2018, Governor Brown signed Executive Order B-48-18, setting targets of 200 hydrogen-fueling stations and 250,000 EV chargers to support 1.5 million zero-emission vehicles (ZEVs) on California roads by 2025. The 2025 target is an interim goal on the state's path to 5 million ZEVs by 2030 and 100 percent of in-state sales of new passenger cars and trucks as

ZEVs by 2035. Although the vast majority of those vehicles are projected to be battery EVs supported by EV chargers, the state currently has approximately 8,000 FCEVs on the roads and 65 hydrogen-fueling stations, according to the CEC's Zero Emission Vehicle and Infrastructure Statistics dashboard.

Arguments in support: The California Hydrogen Coalition writes, "We write in support of AB 716 (Carrillo) which would ensure the State Fire Marshall adopts the National Fire Protection Association Hydrogen Technologies Code (NFPA 2) for production storage and distribution as well as require the State Fire Marshall to appoint an expert on the issue along with providing ongoing training to local fire departments and building inspectors. The mission of CHC is to enable California's transition to zero emission vehicles by expanding the availability of reliable, convenient and affordable hydrogen fueling to support the state's emission reduction goals."

Prior legislation: SB 414 (Allen) of the 2023-24 Session. Would have required the Air Resources Board (ARB), upon appropriation, to complete an assessment of the use of hydrogen in specified applications. (Died in the Assembly Committee on Appropriations)

AB 1550 (Bennett) of the 2023-24 Session. Would have required, on and after January 1, 2045, all hydrogen produced and used in California for either the generation of electricity or the fueling of vehicles be "renewable hydrogen of biological origin" or "renewable hydrogen of nonbiological origin." (Died on the Assembly Floor)

SB 1418 (Archuleta, Chapter 607, Statutes of 2024) requires every city and county to adopt an ordinance to create an expedited, streamlined permitting process for hydrogen-fueling stations.

SB 1075 (Skinner, Chapter 363, Statutes of 2022) directs CARB, in consultation with the CPUC and CEC, to develop an evaluation by June 1, 2024 which includes, among other topics, policy recommendations regarding the use of green hydrogen in the state, an estimate of reduced GHG emissions achievable through the use of green hydrogen.

SB 1369 (Skinner, Chapter 567, Statutes of 2018) requires the CPUC, CARB, and CEC to consider green electrolytic hydrogen an eligible form of energy storage, and to consider other potential uses of green electrolytic hydrogen.

Double referral: This bill is double-referred. Should the Assembly Committee on Emergency Management approve the bill it will be referred to the Assembly Committee on Utilities and Energy.

## **REGISTERED SUPPORT / OPPOSITION:**

### **Support**

The California Hydrogen Coalition

### **Opposition**

None on file.

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