Date of Hearing: May 17, 2023

ASSEMBLY COMMITTEE ON APPROPRIATIONS
Chris Holden, Chair
AB 1550 (Bennett) – As Amended April 18, 2023

Policy Committee:	Utilities and Energy	Vote:	11 - 4
	Natural Resources		8 - 3

Urgency: No State Mandated Local Program: Yes Reimbursable: No

SUMMARY:

This bill requires, on and after January 1, 2024, all hydrogen produced and used in California for the generation of electricity or fueling of vehicles be "green hydrogen" and makes a facility that generates electricity using green hydrogen potentially an eligible renewable energy resource.

In addition, this bill, among other things:

1) For purposes of hydrogen used to generate electricity, defines "green hydrogen" as hydrogen gas produced through electrolysis and that uses electricity that is eligible under the California Renewables Portfolio Standard Program (RPS) and a material feedstock that is water, among other requirements.

2) Makes "green hydrogen" an eligible renewable energy resource for purposes of the RPS if it meets certain specifications regarding the location of a facility that uses green hydrogen and the facility's physical relation to a California balancing authority.

FISCAL EFFECT:

1) Costs to the California Energy Commission (CEC) in the low hundreds of thousands of dollars annually to incorporate "green hydrogen" into regulations governing renewable electrical generation facilities and ensure compliance (Energy Resources Program Account).

2) Costs to the California Public Utilities Commission (CPUC) to plan for and monitor use of "green hydrogen" and ensure compliance with statutory requirements. The CPUC estimates it will need one position at a cost of approximately $200,000 annually (Public Utilities Regulatory Account).

COMMENTS:

1) **Purpose.** According to the author:

> California has set a very ambitious goal to reach a 100% clean grid by 2045. To reach that goal we have focused on wind energy, solar energy, and battery storage. However, CARB's draft 2022 scoping plan identifies a role for hydrogen for the state to reach its climate goals. What is not clear is what type of hydrogen that will be in the long run. AB 1550 seeks to bring greater certainty by making clear

that any hydrogen used and produced in this state must be green by the same deadline as the grid, 2045.

2) **Background.** California has ambitious statutory, regulatory and administrative goals to reduce its emissions of greenhouse gases (GHG). The state has had some success in this effort, though the emissions from some sectors have proven stubbornly sticky and, arguably, the greatest challenges, and costs, lie ahead. The use of hydrogen has the potential to help the state achieve its clean energy goals. This is because hydrogen can displace more carbon-intensive energy sources used in electricity generation, transportation, space heating and other applications. For example, hydrogen can be used to generate electricity from a fuel cell. Or, hydrogen can store energy generated by electricity produced from renewable energy sources, such as the sun and wind, or from nuclear reactions or from hydropower.

   Hydrogen is extremely abundant on earth. However, it is rarely found in isolation; rather, hydrogen is usually bound in a compound, such as water (hydrogen and oxygen) or methane (hydrogen and carbon). The carbon intensity of a hydrogen application depends upon, at least, the source of the hydrogen (water, natural gas, etc.) and the source of the energy used to "split" the hydrogen from its compound. For example, hydrogen sourced from water and split from oxygen molecules using electricity generated by a zero-carbon resource, such as solar power, may have a very low carbon intensity. Conversely, hydrogen produced from methane using heat, carried by steam generated by burning a fossil fuel, would have a fairly high carbon intensity.

   An informal color wheel's worth of labels exists to succinctly characterize the varying carbon intensity of hydrogen. At one end is "black" hydrogen, which generally uses the dirtiest coal as its feedstock and the most carbon-intensive sources of energy to split the hydrogen. At the other extreme is "green" hydrogen, which generally uses excess electricity produced from renewable energy to split hydrogen from water. Between these two extremes are grey, brown, blue and, according to some, pink and turquoise hydrogen, each of which describes a hydrogen with a relatively greater or less carbon intensity. Most hydrogen produced today is the relatively dirty gray variety. This bill seeks to encourage hydrogen that is much greener.

   The author intends this bill to ensure California develops an industry to deliver green hydrogen by 2045 and sets that year as the effective date for the bill's requirements. It may be worth considering interim targets along the way.

3) **Related Legislation.** AB 324 (Pacheco) requires the CPUC to consider establishing procurement goals for "renewable hydrogen" applicable to gas corporations and core transport agents. AB 324 is pending in this committee.

   AB 1711 (Juan Carrillo) requires CEC to equitably allocate moneys appropriated by the Legislature for hydrogen-fueling infrastructure to specifically prioritize rural communities and low-income communities and to provide a related report to the Legislature by January 1, 2025. AB 1711 is pending in this committee.

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