ASSEMBLY THIRD READING
AB 1550 (Bennett)
As Amended
Majority vote

SUMMARY

Requires, 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" and also makes a facility that generates electricity using these two specified categories of hydrogen an eligible renewable energy resource.

Major Provisions

1) Requires the California Air Resources Board (CARB), in consultation with the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC), to develop interim targets to ensure the state achieves the 100% "renewable hydrogen of biological" or "nonbiological origin" goal for the electricity and transportation sectors by January 1, 2045.

2) Defines "renewable hydrogen of biological origin" as hydrogen gas that meets specified requirements, including:

    a) That it is produced from water using renewable electricity or from specified biomethane and biomass feedstocks.

    b) That if it is produced from water using renewable electricity, that the electricity must be from a new or repowered facility or a curtailed facility, and, beginning in 2028, that this electricity be generated and consumed to produce hydrogen at the same time.

3) Defines "renewable hydrogen of nonbiological origin" as hydrogen gas that meets specified requirements, including:

    a) That it is produced through electrolysis and that uses electricity from solar photovoltaic, solar thermal, wind, geothermal, or small hydroelectric renewable resources and a material feedstock that is water, among other requirements.

    b) That electricity used to produce it must be from a new or repowered facility or a curtailed facility, which is located in the same part of the electric grid as the hydrogen production facility, and, beginning in 2028, is generated at the same time it is consumed to produce hydrogen.

4) Makes both "renewable hydrogen of biological origin" and "renewable hydrogen of nonbiological origin" eligible renewable energy resources for purposes of the California Renewables Portfolio Standard Program (RPS) if it meets certain specifications regarding the location of a facility that uses this hydrogen, the facility's physical relation to a California balancing authority, and beginning in 2028, the electricity used to produce this hydrogen is generated at the same time it is consumed.

5) Makes requirements for the delivery of hydrogen eligible under the RPS and permits it to be moved via dedicated pipeline, truck or rail.

COMMENTS

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 climate goals. This is because hydrogen can displace other energy sources used in electricity generation, transportation, space heating and other applications, depending on the energy source displaced and how the hydrogen that is displacing it is produced. 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 a 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. Nearly all hydrogen produced for use in California today is the relatively dirty gray variety. This bill seeks to encourage hydrogen that is much greener and more renewable.

The author intends this bill to ensure California develops an industry to deliver renewable hydrogen by 2045 and sets that year as the date at which all hydrogen used to generate electricity and to fuel vehicles must be renewable, as defined.

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."

Arguments in Support
This bill is supported by California Environmental Voters, the Environmental Defense Fund, Environment California, EarthJustice, the Natural Resources Defense Council, and the Climate

Center, among others, who jointly write that "strict standards for hydrogen production are essential because emissions-intensive hydrogen production technologies could worsen the climate crisis and harm public health in California's most vulnerable communities. AB 1550 takes an important step forward by codifying production standards for hydrogen used in certain sectors, adding environmental protections that are necessary to align hydrogen production with California's climate and air quality goals," though these comments are based on the immediately prior but similar version of this bill.

Arguments in Opposition
This bill is opposed by the Western States Petroleum Association, the Bioenergy Association of California, the Coalition for Renewable Natural Gas, the State Building and Construction Trades Council of CA, the California Hydrogen Business Council, the Coalition for Renewable Natural Gas, and a District Supervisor from Tuolumne County, among others. In comments based on the immediately prior but similar version of this bill, the opposition cites concern with the limitations imposed by the bill in restricting hydrogen to only "green hydrogen," argues this bill "poses significant financial risks to major hydrogen production projects," and "the Legislature should prioritize carbon intensity and renewable attributes with consideration for the timelines and post-2030 flexibility for 'clean' resources allowed for the grid."

FISCAL COMMENTS

According to the Assembly Committee on Appropriations, based on the immediately prior but similar version of this bill, this will results in costs to the CEC in the low hundreds of thousands of dollars annually to incorporate hydrogen as defined into regulations governing renewable electrical generation facilities and ensure compliance (Energy Resources Program Account) and costs to the CPUC to plan for and monitor use of 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).

VOTES

ASM UTILITIES AND ENERGY: 11-4-0
YES: Garcia, Calderon, Wendy Carrillo, Connolly, Holden, McKinnor, Muratsuchi, Reyes, Santiago, Schiavo, Ting
NO: Chen, Dixon, Mathis, Wallis

ASM NATURAL RESOURCES: 8-3-0
YES: Luz Rivas, Addis, Friedman, Muratsuchi, Pellerin, Ward, Wood, Zbur
NO: Flora, Hoover, Mathis

ASM APPROPRIATIONS: 11-4-1
YES: Holden, Bryan, Calderon, Wendy Carrillo, Mike Fong, Hart, Lowenthal, Papan, Pellerin, Weber, Ortega
NO: Megan Dahle, Dixon, Mathis, Sanchez
ABS, ABST OR NV: Robert Rivas

UPDATED

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CONSULTANT: Laura Shybut / U. & E. / (916) 319-2083 FN: 0002582