Date of Hearing: April 12, 2023

ASSEMBLY COMMITTEE ON UTILITIES AND ENERGY
Eduardo Garcia, Chair
AB 1550 (Bennett) – As Introduced February 17, 2023

SUBJECT: Green hydrogen

SUMMARY: Mandates that by January 1, 2045, all hydrogen produced and used in California for the generation of electricity or fueling of vehicles shall be green hydrogen (undefined).

EXISTING LAW:

1) Defines "green electrolytic hydrogen" as hydrogen gas produced through electrolysis and does not include hydrogen gas manufactured using steam reforming or any other conversion technology that produces hydrogen from a fossil fuel feedstock. The statutory definition does not specify the type of energy input needed to drive the electrolytic reaction; thus any energy input would qualify under this definition. (Public Utilities Code § 400.2)

2) Defines "clean hydrogen" as hydrogen produced from eligible renewable energy resources, as defined within the Renewables Portfolio Standard (RPS), and otherwise consistent with the federal standard set for carbon intensity of clean hydrogen production, or as that federal standard is revised or supplemented by the California Air Resources Board (CARB). (Government Code § 12100.161)

3) Establish a Hydrogen Program within the California Energy Commission (CEC) to provide financial incentives to in-state hydrogen projects, so long as the projects are "derived from water using eligible renewable energy resources, as defined, or produced from these eligible renewable energy resources." (Public Resources Code §§ 25664-25664.1)

4) Requires the California Public Utilities Commission (CPUC), the CEC, and CARB to consider green electrolytic hydrogen an eligible form of energy storage and consider its potential uses. (Public Utilities Code § 400.3)

5) Establishes a RPS Program requiring certain percentages of electricity retail sales be served by renewable resources, most recently increased by SB 100 (De Leon, Chapter 312, Statutes of 2018) to 60% by 2030 and a state goal of procuring 100% of electricity from eligible renewable energy resources and zero-carbon resources by December 31, 2045. Existing law requires state agencies, including the CPUC, CEC, and CARB, to take certain actions to support these clean energy goals. (Public Utilities Code § 399.11)

6) Specifies that facilities using 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 qualify as RPS eligible facilities, if they meet other qualifying criteria as specified. (Public Resources Code § 25741)

FISCAL EFFECT: Unknown. This bill is keyed fiscal and will be referred to the Assembly Committee on Appropriations for its review.

BACKGROUND:

The Hydrogen Color Wheel – Hydrogen has been considered the "swiss army knife" of decarbonization technologies; praised for its touted zero-green house gas (GHG) emission profile and its potential to replace fossil fuels in most applications relatively easily. However, there are many types of hydrogen with varying levels of climate benefits. The type of feedstock (what material is used to make the hydrogen) and the production method (what is done to break apart the feedstock into hydrogen) plays a significant role in determining the lifecycle emissions associated with hydrogen use.

Some notable feedstocks of hydrogen include biomass, biomass-derived liquids like ethanol and bio-oil, biogas, coal, natural gas, and water. These feedstocks are then broken down through thermochemical processes to generate hydrogen. The thermochemical processes vary and can generate different amounts and types of particulate pollution and GHGs. In every process, energy is needed in order to generate hydrogen. Some processes rely on clean resources exclusively for their power, while others are less discriminating. The combinations of feedstocks and processes result in a multitude of hydrogen products. A simplified color spectrum has been adopted to describe these hydrogen products; however, the definitions of these colors are neither universally agreed upon nor rigorous.

- "Gray (or brown) hydrogen" is produced from a natural gas feedstock and whatever energy is cheapest, via natural gas steam methane reforming. **The vast majority of hydrogen currently used in the United States comes from this process.** While cheap and efficient, it generates carbon dioxide and other pollutants, depending on the energy source used.
- "Blue hydrogen" employs the same process as gray hydrogen, but the carbon dioxide emitted from steam methane reforming is captured and stored, lessening the GHG impact of this process.
- "Turquoise hydrogen" uses a natural gas feedstock, which is passed through molten metal to split the natural gas into hydrogen and solid carbon.
- "Green hydrogen" is produced using only renewable feedstock – such as biomass, renewable natural gas, or water – and typically (but not always) relies on renewable electricity to generate the hydrogen. Less than 0.1 percent of hydrogen production globally comes from water electrolysis. In the future, policymakers should approach the "green" hydrogen label with caution, as new definitions for green hydrogen are developed, and may not always include electrolytic production with no carbon release.
- "Green electrolytic hydrogen" is a specific type of green hydrogen which uses water as the feedstock and renewable electricity to split the water in order to generate hydrogen.

Green electrolytic hydrogen is currently the only type of hydrogen defined in the Public Utilities Code (Public Utilities Code § 400.2). However, its statutory definition does not specify that renewable electricity must be used to split the water, making it only partially "green" in the traditional sense.

- "Pink hydrogen" refers to a specific type of green electrolytic hydrogen where only nuclear energy is used to split the water.
- "Yellow hydrogen" refers to a specific type of green electrolytic hydrogen where only solar energy is used to split the water.

As the Color Wheel indicates, any conversation about hydrogen is heavily dependent upon the color and precise definition of that color being discussed. With so many colors and so many loose definitions, it is easy to misunderstand or misascribe the climate benefits when discussing hydrogen.

What Do We Do With All the H_2? Hydrogen has the potential to be used in a multitude of applications – from fuel cells in cars; to replacing natural gas in homes; to fuel replacement in aviation, shipping, and trucking industries; and to generate electricity. One, much discussed, potential application of hydrogen is to firm our renewable energy grid. By using low-cost, abundant electricity from intermittent renewables during the day (i.e. solar and wind) to produce hydrogen, and then using that hydrogen in fuel cells or injecting into a pipeline to provide power at other times, hydrogen can act as a form of storage. However, in practice, many of the technologies used to produce hydrogen from renewables are still expensive and unable to economically cycle on and off in line with the availability of intermittent renewables. This example in the energy sector is characteristic of many other hydrogen applications – where the GHG footprint, cost, and availability of the hydrogen are uncertain or unclear – calling for a more thorough understanding of which hydrogen product is best suited to which application.

COMMENTS:

1) *Author's Statement.* 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. Bringing greater certainty about California's goal regarding hydrogen produces three major benefits. One, investors in hydrogen projects benefit from increased certainty. This bill lets them know in advance that they must achieve a 100% green level by 2045. Two, we will have less uncertainty and concern as to whether hydrogen projects are going to be used to extend the lifecycle of oil and gas, harming local communities with pollutants and emissions. Three, there are serious concerns that if we do not move forward to begin establishing an infrastructure for hydrogen soon, we will not be able to timely decarbonize hard to electrify sectors and industry will not

appropriately invest in California. Hydrogen is not the sole solution to our green energy and fueling needs, but it is an important one, especially for hard to electrify sectors like shipping, long-haul trucking, long-term storage, and aviation. We need to give more clarity and certainty to all stakeholders so that they know that California is committed to the environment, energy reliability, and meeting our green energy goals."

2) *Definition Overload.* There is currently no definition of "green hydrogen" in this bill nor in existing statute. As such, there is no clarity for the Legislature to know what forms of hydrogen would be deemed "green" by the state agencies to implement the 2045 goal imposed by this measure. A survey of current, and varied, definitions of hydrogen in statute and regulation include:

   - "Green electrolytic hydrogen" – defined in California statute[1] as hydrogen gas produced through electrolysis and does not include hydrogen gas manufactured using steam reforming or any other technology using a fossil fuel feedstock. The statutory definition does not specify the type of electricity input needed to drive the electrolytic reaction; thus any electricity input, including grid power or natural gas sources, would qualify under this definition. This definition of green electrolytic hydrogen is used by the CPUC, CARB, and CEC as an eligible form of energy storage.[2]

   - "Clean hydrogen" – defined in California statute[3] as hydrogen produced from eligible renewable energy resources [as defined within the RPS] and otherwise consistent with the federal standard set under the Infrastructure Investment and Jobs Act of 2021 (IIJA) for carbon intensity of clean hydrogen production, or as that federal standard is revised or supplemented by CARB.[4] This definition applies to California's application for federal grants under the IIJA, specific to the Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES) project at the Governor's Office of Business and Economic Development.[5]

   - "Clean hydrogen" – defined federally under the IIJA as hydrogen produced with a carbon intensity equal to or less than 2 kilograms (kg) of carbon dioxide equivalent (CO_2e) produced *at the site of production* per kg of hydrogen produced. However, the IIJA requires the Department of Energy (DOE) to work with the Environmental Protection Agency (EPA) to establish a standard for the carbon intensity of clean hydrogen and enables DOE to revise the definition of

[1] Public Utilities Code § 400.2
[2] Public Utilities Code § 400.3
[3] Government Code § 12100.161
[4] Original definition based on the federal definition of 2 kg of CO_2e per kg at the production site, as defined in the IIJA. This definition has since been updated to be 4 kg of CO_2e per kg on a lifecycle basis.
[5] https://business.ca.gov/california-launches-statewide-alliance-to-establish-federally-co-founded-hydrogen-hub/

clean hydrogen based on the standard developed with the EPA.[6] This definition is used to guide eligibility for $8 billion in DOE funding for regional hydrogen hubs grants. Subsequent action by the DOE has aligned this definition with the "4 kg of CO_2e" standard for "clean hydrogen" established under the Inflation Reduction Act of 2022.[7]

- "Clean hydrogen" – defined federally under the Inflation Reduction Act of 2022 (IRA) as a hydrogen production process that does not emit more than 4 kg of CO_2e per kg of hydrogen produced on a *life-cycle basis*.[8] Clean hydrogen meeting this definition would be eligible for a 10-year federal production tax credit or investment tax credit.

- "Hydrogen" as used within the CEC's Hydrogen Program – defined in California statute[9] as being "derived from water using eligible renewable energy resources [as defined within the RPS], or produced from these eligible renewable energy resources." This hydrogen would be eligible for $100 million in financial incentives for development of in-state projects.[10]

- "Clean renewable hydrogen" – defined in the CPUC's recent biomethane proceeding as hydrogen that meets the emission definition under the IRA and does "not use fossil fuel as a feedstock or production energy source."[11] The additional loosely defined "renewable" standard included in this definition beyond what is in the IRA is ultimately contingent on further deliberation. Currently, the prohibition on the use of fossil fuel in this "clean renewable hydrogen" definition does not apply to an eligible renewable energy resource that uses a de minimis quantity of fossil fuel, as allowed under PUC § 399.12(h)(3).

- "Hydrogen" as used within CARB's low carbon fuel standard (LCFS) program – is inclusive of any production pathway and based on a carbon intensity (kg of CO_2e), with the lower carbon intensity products eligible for more LCFS credits.

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[6] 42 U.S. Code § 16166 (b)(1)(B); https://www.law.cornell.edu/uscode/text/42/16166#:~:text=%28B%29%20define%20the%20term%20%E2%80%9C%20clean%20hydrogen%20%E2%80%9D,%28C%29%20take%20into%20consideration%20technological%20and%20economic%20feasibility.
[7] U.S. Department of Energy Clean Hydrogen Production Standard (CHPS) Draft Guidance, November 14, 2022; https://www.hydrogen.energy.gov/pdfs/clean-hydrogen-production-standard.pdf
[8] https://www.energy.gov/eere/fuelcells/articles/clean-hydrogen-production-standard
[9] Public Resources Code §§ 25664-25664.1
[10] AB 209 (Committee on Budget, Chapter 251, Statutes of 2022)
[11] Order paragraph #4, pg. 67, D. 22-12-057. "Decision Directing Biomethane Reporting and Directing Pilot Projects to Further Evaluate and Establish Pipeline Injection standards for Clean Renewable Hydrogen;" R. 13-02-008; December 19, 2022.

The LCFS usage of hydrogen is inclusive of steam methane reformation using fossil natural gas as feedstock.[12]

- "Renewable hydrogen" – as currently proposed in AB 324 (Pacheco, 2023), is defined as hydrogen only derived from water or bioenergy feedstocks, and using electricity only derived from resources consistent with the RPS.

Like the color wheel, these varied definitions have led to considerable confusion amongst both stakeholders and policymakers as to the eligibility of various hydrogen products for the variety of state and federal programs seeking to develop hydrogen production. Consensus around a singular definition may ease confusion; however, having one singular definition when hydrogen may have varied end-uses, with varied emission reductions benefits depending on the end-use, seems ineffective.

3) *Should the End-Uses Justify the Mean(ing)s?* This bill contemplates "green hydrogen" as being the only hydrogen produced and used in California for the generation of electricity or fueling of vehicles after January 1, 2045. While "green" is undefined, it is curious the bill identifies only the electricity and transportation sectors as inclusive of this term; seemingly suggesting other sectors, such as industrial production or buildings, would be able to use another category of hydrogen beyond 2045.

   There have been recent evaluations seeking to identify the "least-regrets" end-uses of hydrogen, especially given the costliness of initial hydrogen production and the varied emissions benefits of hydrogen usage in different sectors. For instance, Earthjustice, an environmental law organization, released a report in 2021 identifying promising applications for green hydrogen and ranking hydrogen use by least-regrets uses, sectors to explore with caution, and sectors where hydrogen is not a solution.[13] The report categorizes the least-regrets use for hydrogen as displacing fossil hydrogen in current industrial feedstocks. The usage of hydrogen in maritime shipping, aviation, and long-haul trucks and trains were categorized as "sectors to explore with caution." While Earthjustice categorized hydrogen usage in combustion in fossil gas power plants, gas-burning appliances in homes and commercial buildings, and cars, buses, and regional trucks as sectors where hydrogen is not a solution.

   Following the passage of SB 1075 (Skinner, Chapter 363, Statutes of 2022), CARB, the CPUC, and the CEC are evaluating the possible deployment, development, and uses of hydrogen in the state. The evaluation is mandated to be publicly posted by June 1, 2024. CARB must also consult with the California Workforce Development Board and labor and workforce organizations on the evaluation. SB 1075 also requires the CEC to study

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[12] CARB, *LCFS Guidance 19-05: Book-and-Claim Accounting for Biomethane,* May 2019; https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/guidance/lcfsguidance_19-05.pdf
[13] Saadat, S. and Gersen, S., *Reclaiming Hydrogen for a Renewable Future*, Earthjustice's Right to Zero campaign, August 2021; https://earthjustice.org/wp-content/uploads/hydrogen_earthjustice_2021.pdf

and model potential growth for hydrogen and its role in decarbonizing the electrical and transportation sectors of the economy as part of the 2023 and 2025 editions of its Integrated Energy Policy Report. Ideally this joint agency work will aide understanding of the appropriate end-uses of hydrogen within the state. It may be worth the Legislature contemplating different definitions of hydrogen corresponding with different end-uses. Sectors identified as yielding less emission benefits for the cost of hydrogen production may be more suited to rigorous, i.e. "cleaner," definitions of hydrogen than those that would realize enormous emissions benefits from hydrogen usage regardless of the source of the hydrogen.

4) *How Best to Manage Grid Impacts.* Hydrogen can be produced using renewable electricity, electricity from the electric grid, or both. Hydrogen production facilities can be integrated with both on-site renewable energy power plants and the retail or wholesale electricity markets. In any scenario, hydrogen production will demand additional power from the electricity grid. Currently, the CEC is projecting upwards of 6 gigawatts of new solar, wind, and battery storage resources will be needed annually for California to meet its existing clean energy targets by 2045.[14] This is equivalent to three times the average annual build rate of solar and wind, and eight times the average build rate of battery storage.[15]

   When hydrogen production is considered, a significant increase in electricity demand is forecasted, with an 87% increase in demand by 2045 relative to 2020 demand.[16] In order to meet this increase in demand from hydrogen production, the CEC forecasts over double the amount of solar energy is needed per year by 2045 than forecast without hydrogen production.[17] The projected additional cost from this hydrogen scenario is approximately $12 billion annually by 2045 relative to the reference scenario; these costs do not include anticipated infrastructure associated with hydrogen production which may increase these costs even more.[18] In other words, having large amounts of hydrogen production in California by 2045 will lead to strain on the electric grid and enormous cost to ratepayers to ensure the grid can provide power to these facilities.

   Most of the continued operations costs to developers for producing hydrogen in California will arise from the purchase of electricity, and vary by the utility serving the hydrogen production facility. A recent study by the National Renewable Energy Lab projected the cheapest way to produce hydrogen in California is to have the hydrogen

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[14] CEC, "2021 SB 100 Joint Agency Report Summary," March 2021; https://efiling.energy.ca.gov/GetDocument.aspx?tn=239588&DocumentContentId=73021
[15] Based on 10-year average; CEC, "2021 SB 100 Joint Agency Report Summary," *Ibid.*
[16] Pg. 70; CEC, *2021 SB 100 Joint Agency Report: Achieving 100 Percent clean Electricity in California: An Initial Assessment*, March 2021; https://efiling.energy.ca.gov/EFiling/GetFile.aspx?tn=237167&DocumentContentId=70349file:///C:/Users/shybutla/Downloads/TN237167_20210315T110256_2021%20SB%20100%20Joint%20Agency%20Report%20(2).pdf
[17] 4.1 GW per year, compared to 1.8 GW per year by 2045; pg. 101; CEC, *2021 SB 100 Joint Agency Report*; *Ibid.*
[18] Pg. 86; CEC, *2021 SB 100 Joint Agency Report*; *Ibid.*

production plant connected directly to the California Independent System Operator (CAISO) transmission system.[19] Such a scenario, under 2019 tariffs and rates, would be approximately $3 per kg,[20] or $24 per million British thermal units (MMBtu).[21] (For comparison, fossil natural gas prices in the state average around $9.40/MMBtu, while biomethane prices average around $17.70/MMBtu.[22] So even these "cheapest" hydrogen prices are very costly.) The statewide cap on direct access currently prevents this pathway from new development in California, but it served as a base case for the study.[23]

The next cheapest pathway found in the study involved hydrogen production directly connected to onsite renewable generation, via an electrolyzer combined with a wind plant operating under a Pacific Gas and Electric time-of-use tariff, at $4.29/kg or $34.3/MMBtu.[24] If colocation of a renewable resources was not considered, the cheapest pathway was a hydrogen production facility taking grid power under Southern California Edison's real-time pricing tariff, at $4.7/kg or $37.6/MMBtu. (Note these models optimized for the large IOU rates; they did not run the models against the publicly owned utility rates, which are typically lower.) These pathways differ largely in how the electric upgrade costs will be borne by the hydrogen facility. In the colocation scenario, the obligation to install onsite renewable generation would fall on the hydrogen developer, presumably as part of the financing for the hydrogen facility. In the grid-connected scenario, any additional electricity needed to serve the load of the hydrogen production facility would presumably be paid for by utility ratepayers.

These cost studies suggest that colocation of renewable energy with a hydrogen production facility would not only reduce ratepayer expense of managing the extra demand on the grid from the hydrogen facility, but actually lead to lower breakeven costs for the hydrogen facility operators; seemingly a win-win scenario. Moreover, from an emissions standpoint, CARB has determined that electrolytic hydrogen produced using average grid electricity is almost 65% more carbon intensive than diesel fuel. When the electrolytic hydrogen is produced using only zero-emission electricity sources, such as onsite renewable generation, the carbon intensity declines by almost 90% relative to

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[19] The actual cheapest pathway was a scenario of the hydrogen production facility using federal hydropower; however the author's noted it is institutionally complicated and may be legally infeasible. Nevertheless it produced costs approaching the U.S. DOE's $1/kg target. Pg. 25, Guerra Fernández, O.J., et al., NREL, *Integrating Hydrogen Production and Electricity Markets: Analytical Insights from California*, June 2022; https://www.nrel.gov/docs/fy22osti/80902.pdf
[20] Guerra Fernández, O.J., et al., NREL, 2022, *Ibid.*
[21] Using the conversion of $1/kg = ~$8/MMBtu; Seeking Alpha, "Hydrogen vs. Natural Gas for Electric Power Generation;" December, 2, 2020; https://seekingalpha.com/article/4392471-hydrogen-vs-natural-gas-for-electric-power-generation https://seekingalpha.com/article/4392471-hydrogen-vs-natural-gas-for-electric-power-generation
[22] D. 22-02-025, *Decision Implementing Senate Bill 1440 Biomethane Procurement Program*, R. 13-02-008, February 24, 2022; https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M454/K335/454335009.PDF
[23] PUC § 365.1
[24] Pg. v, Guerra Fernández, O.J., et al., NREL, 2022. *Ibid.*

diesel fuel.[25] The Legislature may wish to consider a requirement to colocate renewable resources with hydrogen production facilities, as from both a grid-management and an emissions viewpoint the benefits seemingly outweigh the costs.

5) *Opening up the RPS.* There has been multi-year legislative efforts to include hydrogen—either a colored definition or undefined—as an eligible fuel for the RPS. While hydrogen can be made using feedstocks that are already eligible under the RPS (and actually receive LCFS credit under such a scenario), it is not clear what types of hydrogen could be eligible for the RPS when used to repower electric power plants. This bill, while currently silent on the definition of "green hydrogen," could provide an opportunity to define the term for purposes of RPS eligibility, so long as all the applicable rules and standards for RPS resources apply. These include:

   a. All electricity inputs used in the production and delivery of hydrogen are eligible renewable energy resources.

   b. The procurement of electricity for hydrogen production may not increase GHG emissions elsewhere in the western grid or result in resource shuffling.

   c. All green hydrogen produced for RPS eligibility must physically flow into a California electrical generating facility in order for that facility to claim RPS credit for the hydrogen usage.

6) Need for Amendments. Given the undefined nature of the 2045 goal set by this bill, the author and committee may wish to consider amendments which:

   a. Provide a definition of "green hydrogen" for purposes of use in the electricity sector.

   b. Provide appropriate standards on the type of electricity used to generate the green hydrogen, to include: RPS eligibility of input electricity, no resource shuffling, no tradable renewable energy credits, and requiring the colocation of renewable generation with the hydrogen production facility.

   c. Ensure the hydrogen is only electrolytic, derived from water.

   d. *Allow for hydrogen produced in this manner to be RPS eligible, so long as it is delivered to a California electrical generation facility or an electrical generation facility with a first point of interconnection to a California balancing authority, similar to the requirements for biomethane RPS eligibility.*

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[25] Diesel has a CI of 100.45; H2 from grid power has a CI of 164.46; while H2 from zero-carbon electricity has a CI of 10.51. CARB, Table 7-1. "Lookup Table for Gasoline and diesel and Fuels that Substitute for Gasoline and Diesel," accessed April 5th, 2023; https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/ca-greet/lut.pdf?_ga=2.203004886.653322344.1614708040-1879896213.1525667140

7) *Related Legislation.*

AB 324 (Pacheco, 2023) establishes a definition of "renewable hydrogen," and requires the CPUC to consider renewable hydrogen procurement goals for each gas corporation and transporter, as specified, on a proportionate basis. Status: *pending hearing* in the Assembly Committee on Natural Resources.

SCR 21 (Archuleta, 2023) urges the Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES) to prioritize renewable, clean hydrogen for California, focus its efforts in communities with the largest pollution burden, and prioritize the hardest-to-abate sectors with the largest emissions profiles, among other items. Status: on Senate Floor after passage in the Senate Committee on Environmental Quality on March 15, 2023.

8) *Prior Legislation.*

SB 1075 (Skinner) requires CARB and the CEC to analyze options for using hydrogen as part of decarbonization strategies. Previous versions of the bill included a definition for "renewable hydrogen" that was removed prior to passage, but was similar to the definition provided in this bill. Status: Chapter 363, Statutes of 2022.

AB 157 (Committee on Budget) defines "clean hydrogen" as hydrogen produced from eligible renewable energy resources, as defined within the Renewables Portfolio Standard (RPS) Program, and otherwise consistent with the federal standard set for carbon intensity of clean hydrogen production, or as that federal standard is revised or supplemented by CARB. Status: Chapter 570, Statutes of 2022.

SB 18 (Skinner, 2021) would have required CARB, CPUC and the CEC to incorporate green electrolytic hydrogen into various decarbonization strategies, and would have required CARB to analyze and provide recommendations regarding potential uses of hydrogen to reduce economy-wide emissions. Status: Held in the Assembly Committee on Appropriations.

SB 1369 (Skinner) established a definition of green electrolytic hydrogen, required the CEC and CPUC to incorporate green electrolytic hydrogen as a resource that may be considered for procurement to reach state clean energy goals, and required the CPUC, CEC, and CARB to consider green electrolytic hydrogen an eligible form of energy storage. Status: Chapter 567, Statutes of 2018.

9) *Double Referral.* This bill is double-referred; upon passage in this Committee, this bill will be referred to the Assembly Committee on Natural Resources.

REGISTERED SUPPORT / OPPOSITION:

Support

None on file.

Support If Amended

350 Bay Area Action
The Utility Reform Network (TURN)

Oppose

State Building and Construction Trades Council of CA
Western States Petroleum Association

Oppose Unless Amended

California Hydrogen Business Council
California Hydrogen Coalition
Clean Energy
Coalition for Renewable Natural Gas
Oberon Fuels

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