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2021 Draft IEPR Volume III - Decarbonizing the Gas Grid CHBC Comments

California Hydrogen Business Council Comments

Additional submitted attachment is included below.

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California Energy Commission
Docket Unit MS-4
Docket No. 20-IEPR-01
715 P Street
Sacramento, CA 95814

January 28, 2022

RE: Draft 2021 Integrated Energy Policy Report, Volume III: Decarbonizing the State's Gas System

The California Hydrogen Business Council (CHBC)[1] appreciates the opportunity to submit comments on the Draft 2021 Integrated Energy Policy Report (Draft IEPR), Volume III: Decarbonizing the State's Gas System. Hydrogen's inclusion in the Draft IEPR is encouraging because hydrogen will be critical to decarbonizing California's gas grid, as it will serve as a replacement for the state's existing use of fossil fuels to power the gas grid. However, in the Draft IEPR, hydrogen is limited in its definition and application to help the state achieve a decarbonized gas grid. Therefore, the CHBC proposes the following amendments be made to the Draft IEPR:

A. "Green hydrogen" is not defined in statute, therefore, the adoption of a "green hydrogen" definition at this time is improper without the legislature's guidance. The assessment of a fuel's viability in achieving decarbonization in the state's gas grid should be calculated with a carbon intensity score—a tangible metric that calculates a fuel's lifecycle emissions.

[1] The CHBC is comprised of over 130 companies and agencies involved in the business of hydrogen. Our mission is to advance the commercialization of hydrogen in the energy sector, including transportation, goods movement, and stationary power systems to reduce emissions and help the state meet its decarbonization goals**. The views expressed in these comments are those of the CHBC, and do not necessarily reflect the views of all of the individual CHBC member companies.** CHBC Members are listed here: https://www.californiahydrogen.org/aboutus/chbc-members/

Identifying hydrogen's decarbonization potential through a color wheel as illustrated in the "Hydrogen Production" section of the Draft IEPR is not based in law. "Green hydrogen" is not defined in statute; therefore, there is no authority to define it in this Draft IEPR. Additionally, defining various types of hydrogen fuels based on the color wheel of the feedstock is inefficient because it cannot capture the decarbonizing potential of developing hydrogen feedstocks. Instead, the decarbonizing potential of fuels, including hydrogen, should be determined through a carbon intensity score, the same metric used in the California Air Resources Board's highly successful Low Carbon Fuel Standard (LCFS). A carbon intensity score captures the lifecycle emissions of a fuel with a metric of carbon emissions as compared to diesel and gasoline. Hydrogen, on a carbon intensity score, can have as low as -105 carbon intensity to as much as 70 carbon intensity depending on the production feedstock and process.[2] Pinpointing a carbon intensity metric as a basis for eligibility creates competition of fuel producers to meet a decarbonization target and allows for more innovation as fuel producers aim to reach the carbon intensity goals.

B. The "United States Department of Energy: Hydrogen Shot" ("Hydrogen Shot") discussion should include details from the recently passed "Infrastructure Investment and Jobs Act" (H.R.3684, 2021-2022) ("IIJA") because the critical investments and declarations within the IIJA support the goals of the Hydrogen Shot.

The Hydrogen Shot highlighted in the Draft IEPR to cut hydrogen production costs will be successful through the coordination in administration of supporting legislation like the IIJA. The Hydrogen Shot discussion should be amended to include details from the IIJA that makes

[2] "LCFS Pathway Certified Carbon Intensities." California Air Resources Board. https://ww2.arb.ca.gov/resources/documents/lcfs-pathway-certified-carbon-intensities.

critical investments and declarations to support the goals outlined in the Hydrogen Shot program. Additions to be made to the Hydrogen Shot section are as follows:

1. The IIJA definition of "clean hydrogen" as "hydrogen produced with a carbon intensity equal to or less than 2 kilograms of carbon dioxide-equivalent produced at the site of production per kilogram of hydrogen produced." Sec. 822(b)(1)(B).
2. The total allocation of funds for clean hydrogen programs in the IIJA, which is $9.5 billion.
3. The funding allocation for Regional Hydrogen hubs at $8 billion to develop at least 4 large-scale hydrogen production and utilization projects in diverse geographies with diverse feedstocks and multi-sector end uses of hydrogen.
4. The funding allocation for the Clean Hydrogen Electrolysis Program at $1 billion for research, development, demonstration, commercialization, and deployment program for commercialization to improve efficiency, durability, and reduce cost of producing clean hydrogen using electrolyzers. The funding also includes hybrid storage.
5. The funding allocation for Clean Hydrogen Manufacturing and Recycling at $500 million to support a clean hydrogen domestic supply chain.
6. The funding allocation for the Clean School Bus Program - $1 billion for adoption of clean school buses and zero-emission school buses.
7. Grant funding for Charging and Fueling Infrastructure at $7.5 billion for grant program to award grants to install publicly accessible electric vehicle charging

infrastructure, hydrogen fueling infrastructure, propane fueling, or natural gas fueling infrastructure directly related to the charging or fueling of a vehicle.

8. The funding allocation for Electric or Low-emitting Ferry Pilot Program at $50 million to provide grants for the purchase of electric or low-emitting ferries and the electrification of or other reduction of emissions from existing ferries
9. The funding allocation for Port Infrastructure Development Program at $2.25 billion for projects that improve the resiliency of ports to address sea-level rise, flooding, extreme weather events, earthquakes, tsunamis, and projects that reduce or eliminate port-related criteria pollutant or greenhouse gas emissions. This includes workforce training and development.
10. The creation of the Clean Hydrogen Research and Development Program to advance research and development to demonstrate and commercialize the use and storage of clean hydrogen in the transportation, utility, industrial, commercial, and residential sectors. Incorporates fossil fuels with carbon capture, utilization, and sequestration, renewable fuels, biofuels, and nuclear energy.
11. The creation of the National Clean Hydrogen Strategy and Roadmap – directs the development of the first US national strategy to facilitate a clean hydrogen economy by May 15, 2022.
12. The implementation of the Clean Hydrogen Production Qualifications that directs the development of a clean hydrogen production carbon intensity standard.

C. An incomplete statement in the "Uses of Hydrogen" section on minimal fuel cell electric vehicle (FCEV) adoption in California should be amended to read that FCEV adoption lags behind battery electric vehicles (BEV) due to dramatically less state investment and later commercialization as compared to BEVs.

It is misleading to state the minimal adoption of FCEVs in California is due to cost when FCEVs and the supporting infrastructure continuously get left out of funding allocations as compared to BEVs. Not only have BEVs and the supporting infrastructure been prioritized over FCEVs without any evidence of greater decarbonization capabilities—in fact the average renewability of electric grid fuel used in BEVs was 33% in California[3] compared to 90% renewability for hydrogen fuel dispensed in the LCFS program[4] (93% of California hydrogen stations are in the LCFS program)—BEVs have been identified as the main solution to meeting our zero-emission, air quality, and decarbonization goals. This is unrealistic because 50%[5] of Californians live in multi-unit housing and are unable to charge at home, many Californians need short fueling options, and various duty-cycles of light duty vehicles require long-range. Although these numbers are clear and relying on one technology to meet our zero-emission, decarbonization, and air quality goals is risky, in 2021, the California legislature approved $314 million for light-duty electric vehicle charging infrastructure and $77 million for hydrogen refueling infrastructure.[6] The slow adoption of FCEVs is not due to the vehicle cost, but the lack of parity in the state's investment of zero-emission vehicles. Stating otherwise is detrimental

[3] "2020 Total System Electric Generation," California Energy Commission. https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2020-total-system-electric-generation.
[4] "2021 Annual Evaluation of Fuel Cell Electric Vehicle Deployment and Hydrogen Fuel Station Network Development." California Air Resources Board. https://ww2.arb.ca.gov/sites/default/files/2021-09/2021_AB-8_FINAL.pdf.
[5] https://www.forbes.com/sites/energyinnovation/2020/09/28/california-wont-achieve-its-new-zero-emission-vehicle-goal-until multi-unit-dwellers-can-access-ev-charging/?sh=1ebe67d45ff2. Of the 90 percent of chargers that are located at residences, only 18 percent of those chargers are in multi-unit dwellings where half of all Californians live.
[6] "CEC Approves $1.4 Billion Plan for Zero-Emission Transportation Infrastructure and Manufacturing." California Energy Commission. https://www.energy.ca.gov/news/2021-11/cec-approves-14-billion-plan-zero-emission-transportation-infrastructure-and.

towards accelerated adoption of FCEVs and, as a result, the less likely the state is to meet its stated climate goals.

D. CHBC supports the discussion of hydrogen used as a long-duration storage medium in the "Grid Reliability" discussion, but this section falls short in identifying all ways hydrogen can be stored and then dispatched using fuel cells.

The CHBC appreciates the recognition of hydrogen as a "long duration storage medium" as noted in the "Grid Reliability" section of the Draft IEPR. To support this discussion, the CHBC recommends adding that for long-duration storage, hydrogen can be stored in depleted oil fields, rock formations, salt caverns (out of state), and pressurized storage tanks for months to years to capture current curtailed energy and be dispatched when necessary.

Fuel cells are a zero-emission solution to dispatching energy stored in hydrogen and a replacement of today's diesel generators. As the state's power and transportation sectors electrify, there is a growing need for backup power generation during public safety power shutoffs, low energy generation, and extreme weather events. Calling upon diesel generators not only adds to the carbon emissions that are causing such extreme weather events, but further exacerbates local air pollutants. Fuel cells must replace diesel generators for these reasons and be implemented in various other scenarios where fossil fuels are used to support the state's existing infrastructure, to heat buildings, water, and support appliances. It is critical that hydrogen and fuel cells are included in the state's grid reliability plans.

The CHBC appreciates the opportunity to provide comments on the Draft IEPR and we look forward to the proposed changes in the final publication.

Respectfully Submitted,

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