



June 11, 2020

Chair Mary Nichols
 California Air Resources Board
 1001 I St.
 Sacramento, CA 95814

Dear Chair Nichols:

We, the undersigned, write to encourage the California Air Resources Board (CARB) to include in its Scoping Plan update and other programs the following nine recommendations to help drive renewable and green electrolytic hydrogen¹ market development, which we strongly believe can play a pivotal role in California’s economic recovery by expanding green jobs, while also enabling California’s ambitious climate, air quality, clean energy, equity and resilience goals.

Top Nine Recommendations to Advance State Climate Goals and Stimulate California’s Green Economy

1. **Establish a Renewable Gas Standard** that requires each gas corporation in California to procure at least 20% of its gas from renewable sources, including renewable and green electrolytic hydrogen, by 2030, and that offers long-term contracts to attract stable investment.
2. **Adopt a Strategic Plan for accelerating the production and use of renewable and green electrolytic hydrogen** in California, that includes among other elements a strategy for advancing renewable hydrogen as a fuel for firm renewable power generation.

¹ Renewable hydrogen is made from renewable feedstock, such as renewable electricity, biomass, or direct solar or wind energy. Green electrolytic hydrogen is defined by SB 1369.

3. **Establish near and long-term storage targets, including technologies that produce green electrolytic hydrogen** at the gigawatt scale to achieve cost competitiveness.
4. **Direct cap and trade revenue to fund programs that incentivize renewable and green electrolytic hydrogen market development through programs like grants or financing support, as have been employed in the dairy sector.** Specifically, ARB should be encouraged to direct cap-and-trade revenue to support and incentivize accelerated adoption of renewable gas, including renewable hydrogen. ARB might, as part of this program, provide additional incentives to buy renewable hydrogen to large gas users who have been particularly hard hit by the COVID-19 economic downturn, to help ensure their economic recovery also protects the climate.
5. **Call for green electrolytic hydrogen to be considered a zero carbon-emitting storage and power generation resource for purposes of implementing SB 100 and the Executive Order on carbon neutrality,** in order to provide system reliability, enable higher levels of renewable power integration into the electricity grid, and ultimately advance toward carbon neutrality in the electricity sector.
6. **Establish a critical consumption program that encourages hydrogen production to support grid reliability and integration of renewable generation.**
7. **Call for electrical corporations to file a petition at the Federal Energy Regulatory Commission to file tariffs for the removal of the noncoincident peak demand charge.**
8. **Encourage the Department of General Services to fuel switch from natural gas to renewable gas, including renewable hydrogen, as part of their decarbonization strategy at existing buildings,** especially those that are high energy consumers and connected to natural gas infrastructure (e.g. prisons). This could be implemented as a series of pilot projects that demonstrate large scale building decarbonization with renewable hydrogen and other types of renewable gas.
9. **Implement of all recommendations related to hydrogen fuel cell transportation included in the *Draft Assessment of CARB's Zero Emissions Vehicle Programs Per Senate Bill 498*, in addition to establishing a state target of 1000 hydrogen fueling stations by 2030. Establish a 10-year sales and use tax exemption on hydrogen fuel production and dispensing equipment. Adopt a uniform exemption for the taxation of zero-emission vehicles fuels.**

Why renewable hydrogen?

Renewable hydrogen emits zero greenhouse gas over its lifecycle in any use case, making it key to reducing greenhouse gases, including short lived climate pollutants (SLCPs), in hard to abate sectors, such as heavy duty and long distance transportation, aviation, shipping, heavy industry, gas-fueled electricity generation that will be necessary to implement SB 100, heating for existing buildings, and backup power.

When used in fuel cells, renewable hydrogen also emits zero criteria air pollutants over its lifecycle, thereby eliminating public health threats from sources including cars, medium and heavy-duty vehicles, equipment, and multi-day back-up generators. This has never been more relevant, as COVID-19 disproportionately ravages communities that suffer from air pollution, and as wildfires demand long duration onsite and microgrid power generation.

Hydrogen fuel cell vehicles furthermore help ensure the transition to zero emissions vehicles is equitable, since it is a more convenient option for many low-income Californians, many if not most of whom cannot easily plug in at home.

Hydrogen fuel cells in both mobile and stationary applications are established, and in many cases commercially available technologies that either are or projected to soon be economically competitive, and renewable hydrogen as a drop-in fuel blend to displace – and ultimately replace - fossil natural gas is being demonstrated in power plants, building appliances, and industrial processes around the world.

How advancing renewable and green electrolytic hydrogen supports California jobs

With COVID-19 devastating our economy and leading to historic unemployment, California policymakers will be under increasing pressure to create programs that help build up business in the state and put Californians back to work. The gas system, like the electricity distribution and transmission grids, spans both the state and across regions, and decarbonizing the gas that runs through the system presents a clear opportunity to spawn a vast number of good construction, engineering and other blue and white collar jobs, similar to what we have seen in the electricity system with the increase in renewable power. Unleashing renewable gas market development in California would greatly support job retention in the gas sector, as the gas system’s massive workforce repurposes their skills to transition the pipeline network from a climate challenge into a climate solution. This would also encourage creation of new jobs along the renewable gas production supply chain - for example, numerous people will need to go to work to build renewable and clean hydrogen production facilities and the renewable electricity sources, such as solar and wind, to power them. Notably clean hydrogen is a centerpiece of the European Union’s recently announced 750 billion euro green stimulus package.²

Supporting renewable gas, including renewable hydrogen development, is in line with state law.

California has passed several laws and is considering several bills calling for renewable hydrogen to be adopted into California climate, clean air, and energy planning. For example:

- SB 1383 requires state agencies to consider and adopt appropriate policies and incentives to significantly increase the sustainable production and use of renewable gas, as part of California’s strategy to reduce short lived climate pollutants, the most imminently dangerous greenhouse gas. CARB and the CEC have consistently recognized renewable hydrogen as one of the types of renewable gas that ought to be supported to implement this mandate.³
- SB 1369 calls for increased use of green electrolytic hydrogen as a storage resource and for potentially other useful resources.
- SB 1505 calls for at least a third of hydrogen used for transportation to come from renewable sources in California, a target surpassed by the hydrogen industry.⁴ Notably the global hydrogen industry aims to achieve 100% decarbonized hydrogen for transportation by 2030,⁵ a goal that the CHBC supports.
- SB 662, which is currently being considered by the state legislature⁹ includes fuel cell electric vehicles powered by renewable and clean hydrogen in the definition of transportation electrification. Renewable

² <https://www.fch.europa.eu/news/clean-hydrogen-next-generation-eu>

³ 2017 IEPR includes power-to-gas (i.e. electrolytic gas) in its recommendations for SB 1383 implementation on pp. 284-285. https://ww2.energy.ca.gov/2017_energyplan/; 2019 IEPR in line with previous two IEPs, finds that hydrogen and methanated hydrogen derived, are types of renewable gas that are important resources for decarbonizing the gas system, among other needed benefits. See pp. 45, 253-254, 286 https://ww2.energy.ca.gov/2019_energyplan/; CARB SLCP Strategy implies hydrogen use in its call for replacing fossil fuels with alternatives to reduce fugitive emissions, see p. 60 https://ww2.arb.ca.gov/sites/default/files/2018-12/final_slcp_report%20Final%202017.pdf; CARB 2017 Scoping Plan, pp. 66, footnote 233 on p. 94 https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf

⁴ 2020-2023 Investment Plan Update for the Clean Transportation Program, California Energy Commission, March 2, 2020, p. 47

⁵ <https://hydrogencouncil.com/en/our-2030-goal/>

and clean hydrogen will decarbonize hydrogen production at the pace of the grid and reflect the principles of SB 100.

- Recently the legislature introduced several bills to accelerate renewable hydrogen development, which have been put on hold, due to limitations on the legislature caused by the COVID-19 crisis, but which we strongly believe should be taken up by the agencies on their own. These include:
 - SB 1352 (Hueso)⁶, which seeks to implement a renewable gas procurement standard that includes renewable hydrogen.
 - AB 2940 (Quirk)⁷, which seeks to establish a critical consumption program for hydrogen production and processing and to require electrical corporations file a petition at the Federal Energy Regulatory Commission to file tariffs for the removal of the noncoincident peak demand charge.
 - SB 1122 (Skinner)⁸ would require the state board, by December 31, 2022, as a part of the scoping plan, to prepare a strategic plan for accelerating the production and use of green electrolytic hydrogen in California and an analysis of how curtailed power could be better utilized to help meet the state’s greenhouse gas emissions reduction goals, along with requiring the PUC to consider green electrolytic hydrogen to be a zero carbon-emitting resource for purposes of identifying a diverse and balanced portfolio of resources needed to ensure a reliable electricity supply that provides optimal integration of renewable energy resources in a cost-effective manner.

Why a Renewable Gas Standard is important to support renewable hydrogen market development

Similar to the role the Renewable Portfolio Standard played in spurring the renewable power success story in California, a Renewable Gas Standard with clear, incremental procurement targets and long-term purchase agreements is an essential next step to encourage mass scale and enduring investment. Without this, California risks creating an uncertain environment for investors and losing renewable hydrogen industry growth to other more favorable regions, along with the environmental and job creation benefits that come with it.

We greatly appreciate your consideration and look forward to working with you and your agency to expand renewable and green electrolytic hydrogen as a key solution in California’s effort to clean the environment, protect public health, provide reliable and resilient energy, and revive the economy with jobs and new industries that can thrive long into the future.

Best regards,

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⁶ http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201920200SB1122

⁷ http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201920200AB2940

⁸ http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201920200SB1122

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