March 3, 2023

California Resource Board

1001 | Street

Sacramento, A 95814

**Re: Comments on February 22, 2023 *Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard***

Thank you for your hard working in developing and implanting solutions that help drive impactful change on our climate and ultimately the quality of life of millions of people. CARB doesn’t have an easy job and there are always a number of situations and circumstances to consider when making each incremental regulatory decision. As experienced energy project developers, Lone Cypress Energy is deep in the development of multiple blue hydrogen facilities, one of which, located in California. Our goal with our comments is to be clear to CARB and our perspective to be taken into consideration.

The California Air Resource Board should allow hydrogen produced from natural gas to be eligible for book and claim, specifically hydrogen produced for natural gas and the carbon emissions captured and sequestered. "Blue Hydrogen" will be pivotal in enabling the market demand and supplying end users with hydrogen. As compared to green hydrogen, blue hydrogen is much more cost- comparable to diesel, the incumbent fuel that hydrogen is looking to displace in transportation (speaking specifically on heavy-duty trucking). In addition, you can produce blue hydrogen at scale today, even more so at a scale that can justify liquefaction, a crucial attribute of hydrogen that changes the dynamics of the cost, volume, and distance in which hydrogen can be delivered. Trucking liquefied hydrogen is next best distribution method outside of a hydrogen pipeline, which is still years away. Ultimately, the ability to scale and be cost-competitive to diesel are critical pillars in driving the adoption of heavy-duty trucking in California, which are attributes that exist in blue hydrogen production today.

In addition, effective carbon capture equipment and instillation captures over 96% of Co2 emissions produced during the production of the molecule. Blue hydrogen is truly "low-carbon," and can be crucial in helping the California Air Resources Board's goal of reducing emissions to 85% below 1990 levels by 2045. Carbon capture systems are costly to construct and operate (considering disposal fees), but it is necessary to provide hydrogen to California's market while also addressing the carbon intensity of the production.

 By making hydrogen produced from natural gas ineligible for book and claim, CARB would effectively delay scaled market adoption of heavy-duty trucking in California. CARB is making a risky bet that there will be enough cost-comparable green hydrogen on the market to satisfy expected demand in the heavy-duty sector but due to a variety of factors including and not limited to; feasibility, levelized cost of energy, renewable energy availability, etc., that won't be the case. That statement shouldn't be anything new to CARB, who said in the [2022 Scoping Plan For Achieving Carbon Neutrality,](https://ww2.arb.ca.gov/sites/default/files/2022-11/2022-sp.pdf)

"There is a high degree of uncertainty around the availability of solar to support both electrification of existing sectors and the production of hydrogen through electrolysis. Producing hydrogen required under the Scoping Plan Scenario with electrolysis would require about 10 gigawatts (GW) of additional solar capacity." (pg. 105)

To acknowledge the significant uphill battle facing green hydrogen production while considering making it more expensive to purchase the next best low-carbon alternative isn't a sound strategy to move the hydrogen market forward. If anything, it comes across as CARB is working against succeeding in its goals. CARB states later in the scoping plan, "Low Carbon Fuel Standard is the primary mechanism for transforming California's transportation fuel pool with low-carbon alternatives and has fostered a growing alternative fuel market" (pg. 190). CARB's statement is true by evidence of the most recent data shared showing an increase in low carbon fuels into the market since the LCFS inception, which would, again, make the potential decision of not allowing book and claim for blue hydrogen that would effectively eliminate any LCFS possibility, challenging to understand. CARB itself knows that the ability to claim LCFS is critical for end users, which would mean it's vital for producers looking to supply the market with a fuel that qualifies for LCFS. Disabling such a powerful mechanism, wouldn’t be of benefit to reaching CARBs goals.

What seems to be understood by all pertinent parties is the reality of where the hydrogen supply market sits today, and the time it will take to develop long term. Green hydrogen isn’t a realistic solution to meeting demand and is a very small fraction of what is sold into hydrogen fueling stations in California today. Therefore, propping up green hydrogen as the only pathway of claiming LCFS won't accelerate the adoption of fuel cell vehicles; it will slow it down. If end users see a lack of supply and high fueling cost, they will stick with what they have; in this case, that would be a diesel truck. Allowing blue hydrogen producers to fill that gap with significant volumes of low-carbon hydrogen that is, importantly, cost-comparable to diesel is necessary for market adoption. Being able to claim the LCFS credit could very well be the reason low-carbon hydrogen becomes at cost-parity with diesel in the not so distance future. A realistic reality that would help activate the hydrogen market in California and put CARB on its path to reach it's goals. A path that can, in the future, then become more stringent on how end users and producers are incentivized.  The hydrogen market is far to much in its infancy to start making it more difficult to flourish.

Thank you for your consideration.

TaMarco Davis

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