

Liane Randolph, Chair
California Air Resources Board
1001 I Street
Sacramento, CA 95814

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

Dear Chair Randolph:

Monolith Materials (“Monolith”) appreciates the opportunity to submit comments to the February 23, 2023, Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (“LCFS”). We appreciate the effort that the California Air Resources Board (“CARB”) put into compiling the feedback from previous workshops and putting forth a comprehensive set of revisions, many of which we support.

Since its founding in 2012 in California, Monolith has been a leading clean hydrogen and materials producer. Through its proprietary technology, Monolith has pioneered the process of methane pyrolysis, which uses a custom-built reactor and clean electricity to convert natural gas or renewable natural gas (RNG) into cleanly made hydrogen and solid carbon, called carbon black. Importantly, Monolith’s methane pyrolysis process results in 96% fewer greenhouse gas (GHG) emissions than traditional, emission-intensive ways of making hydrogen (e.g., steam methane reforming (“SMR”)) and carbon black (furnace process).

After over a decade of research and development, Monolith successfully built and operates its first commercial-scale hydrogen and carbon black plant in Hallam, NE, Olive Creek 1 (“OC1”), the largest of its kind anywhere in the world. The company is about to break ground on an expansion of that plant, Olive Creek 2 (“OC2”) which will be completed in 2027. Once complete, OC2 will be one of the largest clean hydrogen facilities in the world. Monolith also has five near-term projects of similar size in its pipeline, and up to 40 additional projects under consideration. Importantly, the company provides lasting, high-quality, high wage clean manufacturing jobs wherever its projects are located.

We have the following comments pertaining to the proposed changes to the LCFS:

1. **The proposed increase of carbon intensity benchmark to 30% by 2030, relative to a 2010 baseline is welcomed** and speaks to the success of the LCFS program to date. Furthermore, we are supportive of an auto-ratchet system that would allow the CARB to accelerate carbon intensity goals, based on a clear set of guidelines and targets that would trigger a need for a change.
2. **Given the rapid pace at which hydrogen production needs to expand, we support allowing hydrogen producers to indirectly source biomethane from projects in North America** and not subjecting the industry to the deliverability requirements. Indirect book accounting factors and market-based mechanisms will be necessary to build a mature hydrogen economy. Hydrogen is a peculiarly difficult molecule to transport: it causes conventional pipes to become brittle and even crack, specialized pipelines are expensive, and transporting hydrogen over long distances requires substantial investment in compressors and other ancillary technologies. This difficulty is borne out by the limited quantity of hydrogen pipelines in the United States. There are

approximately 1,600 miles of dedicated hydrogen pipelines, dwarfed by the approximately three million miles of natural gas pipelines. While research may eventually yield an effective solution to hydrogen transportation, today, the best approach is to minimize transportation altogether and build hydrogen production facilities near ultimate hydrogen applications. While clean hydrogen producers consider many factors when making siting decisions, proximity to demand for hydrogen or to the limited quantity of hydrogen pipelines in the United States is often an overwhelming consideration. Thus, we support the use of market-based mechanisms and indirect book accounting factors as they enable hydrogen producers to support biomethane production while making the most efficient siting decision.

3. **With respect to 95488.8(i)(1), we ask that CARB not limit the use of book-and-claim accounting solely for hydrogen produced via electrolysis.** Technologies like methane pyrolysis can produce hydrogen at or below the most stringent GHG emissions rate (0.45 kgCO₂e/kgH₂) as defined by Section 45V of the IRA. Internal analysis shows that our methane pyrolysis process utilizes about 50% less electricity and 25% less water than electrolysis to produce a comparable amount of clean hydrogen. Most importantly, we believe that policies like the LCFS can be most effective when it supports a technology neutral framework, rather than putting in place provisions that give advantage to one production method over another. As such, we urge CARB to allow indirect accounting mechanisms for all hydrogen production by modifying section 95488.8(i)(1) as follows: *“Reporting entities may use indirect accounting mechanisms for low-CI electricity supplied as a transportation fuel or for hydrogen production ~~through electrolysis~~ for transportation purposes.”*
4. While we support CARB staff’s desire to align book-and-claim eligibility with the Inflation Reduction Act (“IRA”), it is unclear why hydrogen derived from fossil or renewable gasses are excluded. **The IRA does not specify exclusions based on feedstock or technology and is instead oriented around emissions. We encourage CARB to do the same.** There are novel technologies, including methane pyrolysis, that are successfully using fossil fuel without generating incremental emissions through their respective processes. In addition, technologies like Monolith’s methane pyrolysis can not only reduce emissions but can achieve a sub-zero emission score with renewable natural gas feedstocks, by drawing down emissions that would otherwise go into the atmosphere. Such restrictive measures will stifle this type of innovation, limit diversity of clean energy supply available to meet our carbon intensity targets and increase the cost to decarbonize our industries and transportation sectors.
5. Once Monolith has successfully taken its methane pyrolysis process through CARB’s tier-2 fuel pathway application process, **we ask that CARB incorporate our innovative technology into the Tier-1 Hydrogen CI calculator.** Innovative hydrogen projects would be disadvantaged relative to existing SMR and electrolysis processes if they are unable to receive simplified CI calculation capabilities. Placing innovative clean hydrogen production technologies at a disadvantage restricts the potential of the hydrogen industry which will prevent the U.S. from scaling the industry at the rate needed to achieve decarbonization goals.

Thank you for the work you and your staff has put into updating the LCFS Standards and considering our comments. We look forward to working with you to ensure that LCFS program continues to lead us to a decarbonized future.



Sincerely,

Anna Wishart
Director of Government Affairs & External Relations
anna.wishart@monolith-corp.com | 402-413-5763
134 South 13th Street | Ste 700 | Lincoln, NE 68508
www.monolith-corp.com