March 15, 2023

California Air Resources Board (CARB)
1001 I Street, Sacramento, CA 95814
Submitted Electronically

RE: CALIFORNIA AIR RESOURCES BOARD FEBRUARY 23, 2023 PUBLIC WORKSHOP TO DISCUSS POTENTIAL CHANGES TO THE LOW CARBON FUEL STANDARD

Dear California Air Resources Board Staff,

CRS appreciates this opportunity to submit comments in response to the Feb 23, 2023 Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (LCFS) (hereafter "Workshop"). We support the LCFS Program and the Assembly Bill (AB) 32 Scoping Plan. Our comments pertain to a utility-specific carbon intensity (CI) value of electricity and book-and-claim accounting for biomethane and hydrogen.

BACKGROUND ON CRS AND GREEN-E®

CRS is a 501(c)(3) nonprofit organization that creates policy and market solutions to advance sustainable energy and has been providing renewable energy and carbon policy analysis and technical assistance to policymakers and other stakeholders in California for over 20 years. CRS also administers the Green-e® programs. For over 20 years, the Green-e® program has been the leading independent certification for voluntary renewable electricity products in North America. In 2021, the Green-e® Energy program certified retail sales of over 110 million megawatt-hours (MWh), serving over 1.3 million retail purchasers of Green-e® certified renewable energy, including over 309,000 businesses.[1] The Green-e® Renewable Fuels program was launched in 2021, initially as a standard and certification for biomethane products and associated environmental attributes. This program is in the process of expanding to certify green hydrogen transactions and programs and can serve as a guide for CARB as it helps accelerate the adoption of biomethane and clean hydrogen, while ensuring that they are from sustainable renewable resources and meet the highest environmental standards, and that customers are protected in their purchase and ability to make verified usage claims.

[1] See the 2022 (2021 Data) Green-e® Verification Report (soon to be published) here for more information: https://www.green-e.org/verification-reports

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COMMENTS ON THE WORKSHOP

Utility-Specific Carbon Intensity Value of Electricity

1. We recommend that the Lookup Table CI value for electricity be utility-specific CIs that represent retail electricity delivery.

The Lookup Table CI value for electricity should allow for entities to claim a utility-specific CI instead of the California grid mix. This enables a more accurate reflection of the emissions associated with electricity use and is already part of the Oregon Clean Fuels Program.[2] To further improve the accuracy of this value, it should be updated to reflect electricity delivery to retail sales. The Lookup Table CI value for California grid electricity currently reflects the statewide grid average of electricity generation and does not reflect the sale of Renewable Energy Certificates (RECs) or voluntary electricity products. Since the LCFS allows for adjustments of CI scores based on contractual mechanisms like RECs and other contracts for specified power, the default CI should also reflect retail deliveries, not simply generation.

The California Energy Commission's (CECs) Power Source Disclosure (PSD) program would be the best place to start in determining this value. PSD calculates provider portfolio-specific emissions intensities that are intended to represent the emission intensity of electricity delivered to retail load. The PSD program requires that RECs must be owned and not sold.[3] The program also backs out voluntary renewable electricity product sales from provider's default emission intensity.[4] Using these emissions intensities could avoid double counting where voluntary green power programs and RECs are used to generate additional and incremental LCFS credits (i.e., the same renewable energy is included in the statewide grid average).

Book-and-claim for Biomethane

2. We recommend that CARB not adopt a requirement that eligible pipelines flow towards California at least 50% of the time.

CRS supports the current LCFS program rules that biomethane use may be demonstrated via book-and-claim accounting, but we are concerned by a proposal by CARB Staff at the Workshop that would

[2] Oregon Clean Fuels Program Updated Electricity Carbon Intensity Values for 2021. Available at: https://www.oregon.gov/deq/ghgp/Documents/cfpUpdated2021CIs.pdf
[3] See Section 1393(c)(1)(B) of Power Source Disclosure Regulation in Title 20, CCR Available at: https://www.energy.ca.gov/programs-and-topics/programs/power-source-disclosure/power-source-disclosure-resources-retail
[4] See Section 1394.1 (a) of Power Source Disclosure Regulation in Title 20, CCR Available at: https://www.energy.ca.gov/programs-and-topics/programs/power-source-disclosure/power-source-disclosure-resources-retail

require that eligible pipelines flow towards California at least 50% of the time. We request more information regarding the rationale behind the 50% number, and how often it will be verified, as well as the overall the purpose or need for this restriction.

The use of book-and-claim accounting, without the pipeline flow restriction, is an appropriate and successful use of book-and-claim accounting as it recognizes the realities of common carrier pipelines—in which fossil methane and biomethane are blended and indistinguishable—and values incentivizing biomethane production without undue restrictions regarding physical traceability. Limiting book-and-claim accounting based on the physical flow of pipelines is inconsistent with its premise and the contractual basis for credible claims of biomethane use from common carrier pipelines that CARB has established. The direction of physical flow on the pipeline does not affect the biomethane use claim of the entity holding the attestation of environmental attributes.

If CARB wishes to establish additional requirements for verification of credible use claims for book-and-claim accounting for biomethane using both Renewable Fuels Certificates and the Green-e® Renewable Fuels program, please refer to CRS's December 14, 2022, comments to the California Energy Commission.[5]

<u>Book-and-claim for Hydrogen</u>

3. CRS recommends allowing the purchase and retirement of attributes and use of contracts to demonstrate use of renewable energy for hydrogen production from both electrolysis and steam methane reforming.

CRS supports the use of book-and-claim accounting for hydrogen produced by electrolysis or Steam Methane Reforming (SMR). At the Workshop, CARB Staff proposed to align book-and-claim eligibility of hydrogen with the production incentives for the Inflation Reduction Act (IRA). While Treasury and the Department of Energy (DOE) have yet to release specific guidance on the requirements for clean hydrogen production under the IRA, CARB can set requirements that will ensure the production of clean hydrogen is traceable and verifiable. Book-and-claim accounting practices for renewable electricity and renewable natural gas (i.e., biomethane) rely on energy attribute certificates[6] (e.g., RECs and Renewable Thermal Certificates, RTCs) to demonstrate clean energy use. The sections below describe the importance of energy attributes for clean hydrogen produced by electrolysis or SMR.

[5] Comments on the California Energy Commission (CEC) Clean Hydrogen Program under AB209 (Docket 22-ERDD-03). Section: "Hydrogen Produced by Steam Methane Reforming" Pg. 3-4.
Available at: https://resource-solutions.org/document/121422/

[6] Delivery of energy attributes may also be verified in contracts and attestations which specify which party retains the right to make environmental claims on the attribute, and that no other party may make claims on the attributes. Using established certificates (e.g., RECs and RTCs) and tracking systems facilitates verification of attribute ownership.

Allowing hydrogen production facilities to purchase attributes and use contracts to demonstrate use of renewable energy for hydrogen production (book-and-claim) is essential to the feasible implementation of a clean hydrogen pathway. Requiring the retirement of these attributes or verifying their contractual delivery for use in renewable energy for hydrogen production avoids double counting. Relying on existing market mechanisms and established best practices facilitates the growth of clean hydrogen.

Hydrogen Produced by Electrolysis

Given CARB's ability to establish project eligibility and other guidelines, CARB should set requirements on what it means to "produce" clean hydrogen. Verifying both the use and production of clean hydrogen produced from an electrolyzer requires renewable energy certificates (RECs). RECs are defined very clearly in California by the California Public Utilities Commission (CPUC) as including "all renewable and environmental attributes."[7] As such, RECs are required to substantiate delivery and use of renewable electricity and the specified carbon intensity (CI) of a renewable generation unit. They are the legal and most precise means of tracking renewable electricity[8] and therefore, the appropriate tool to verify that renewable electricity is being used to produce clean hydrogen from an electrolyzer. Whether renewable electricity is procured for hydrogen production using onsite generation, a power purchase agreement (PPA), or a utility program, for example, the associated RECs should be retired to substantiate exclusive use of renewable electricity at that hydrogen production facility and prevent double counting. Registering generators in the Western Renewable Energy Generation Information System (WREGIS) would facilitate verification of the retirement of RECs used for clean hydrogen production. In the case that the renewable generator used is not registered with WREGIS, RECs or generation attributes should be transferred and retired contractually on behalf of hydrogen production.

The RECs in a Green-e® certified product are verified under CRS's Green-e® program, and the seller of a Green-e® certified product is required to disclose the quantity, type, vintage, and geographic source of each certificate. CRS also verifies that the RECs are not sold more than once or claimed by more than one party. LCFS can use Green-e® certification to assist with verification under this program.

Hydrogen Produced by Steam Methane Reforming

[7] See CAL. PUB. UTIL. CODE § 399.12(h)(2).
[8] Comments to the U.S. Securities and Exchange Commission (SEC) on Proposed Climate-Related Disclosures for Investors. Available at: https://resource-solutions.org/document/061722/

In the United States, 95% of hydrogen is produced by SMR, a reaction between a methane source, such as natural gas, and high-temperature steam[9]. Biomethane, also known as renewable natural gas (RNG), is increasingly recognized for its lower lifecycle greenhouse gas emissions and presents an opportunity to lower the carbon intensity of Hydrogen produced by SMR.

There are multiple pathways for producing RNG, each with their own environmental and social considerations. Many of the same factors that are relevant to producing high quality renewable energy, such as accounting for fuel delivery, using sustainable resources, credit vintage requirements, and facility age have bearing on RNG production as well. *At a minimum, the LCFS should require the retirement of energy attributes associated with RNG used to produce clean hydrogen*. The Green-e® Renewable Fuels program can serve as a guide for the eligibility rules for the LCFS to ensure that RNG used in hydrogen production meets the highest standards and has positive impacts.

If CARB wishes to establish additional requirements for hydrogen production and use claims (e.g. fuels certificates, time-matching, facility age, vintage requirements, etc.), please refer to CRS's December 14, 2022 comments to the California Energy Commission[10] regarding the use of both Renewable Fuels Certificates and the Green-e® Renewable Fuels program as well as impact considerations for Hydrogen.

We thank you for this opportunity to provide comments on the LCFS Program. Please feel free to reach out with any questions or comments.

Sincerely,
Lucas Grimes
Manager, Policy

[9] For further discussion see U.S. IRS (2020). HYDROGEN STRATEGY Enabling A Low-Carbon Economy. Available at: https://www.energy.gov/sites/prod/files/2020/07/f76/USIRS_FE_Hydrogen_Strategy_July2020.pdf
[10] Comments on the California Energy Commission (CEC) Clean Hydrogen Program under AB209 (Docket 22-ERDD-03). Pg. 4-6. Available at: https://resource-solutions.org/document/121422/