
Air Products and Chemicals, Inc.
7201 Hamilton Boulevard
Allentown, PA 18195-1501
Telephone (610) 481-4911

June 15, 2016

Via Email
LCFSWorkshop@arb.ca.gov

California Air Resources Board
Industrial Strategies Division
Transportation Fuels Branch
1001 I Street
Sacramento, CA 95814
Attn: Sam Wade

Re: Preliminary Draft of Proposed Regulatory Amendments to Low Carbon Fuel Standard (LCFS)

Dear Mr. Wade:

Air Products appreciates the opportunity to submit comments on the proposed amendments to the Low Carbon Fuel Standard (LCFS) related to the production and use of hydrogen in transportation and forklift markets in California.

As background, Air Products has more than 60 years of hydrogen experience and provides liquid and gaseous hydrogen and a variety of enabling devices and protocols for fuel dispensing at hydrogen stations across a number of end use markets. Hydrogen for these stations can be delivered to a site via truck or pipeline, produced by natural gas reformation, biomass conversion, or by electrolysis, including hydrogen production driven by renewable energy sources.

In review of the June 2, 2016 LCFS workshop materials we suggest the proposed legislation requires further review and consideration in the following subject areas:

Giving priority to the station operator as initial regulated party under the LCFS.

Air Products believes the assignment of regulated party priority in §95483(f)(1) to hydrogen station operator combined with hydrogen requiring renewable energy content in compliance with SB1505 is biased compared to other California renewable alternative fuels contained in the LCFS. The designation under §95483 of regulated Parties for Bio-CNG, Bio-LNG, and Bio-L-CNG is initially the producer or importer of the Bio-CNG or Bio-LNG or Bio-L-CNG and Air Products believes this same practice should be followed for hydrogen.

The LCFS defines “regulated party” as a person, pursuant to §95483 or §95481.1 that must meet the average carbon intensity requirements in §95484. Air Products believes the LCFS amendments addressing regulated parties for hydrogen and hydrogen blends are more complex and burdensome to hydrogen producers than station owners under the proposed amendments to the LCFS, so hydrogen producers should retain priority as the initial regulated party under the LCFS.

- Reporting and recordkeeping documentation of fuel transfers from hydrogen supplier to the regulated party (station owner) specified in §95491(c) remain the responsibility of the hydrogen fuel supplier.
- In the case where a hydrogen producer like Air Products supplies hydrogen to a station operator, §95483(f)(2) requires the hydrogen producer to be co-applicant on the fuel pathway submission and the hydrogen producer assumes the full responsibility in attesting to the renewable content of the hydrogen supplied to the station owners.

- All verification of hydrogen supply pathways and carbon intensities are ultimately the responsibility of the hydrogen producer. The producer therefore incurs the additional cost with no cost coverage. It is expected that the producers would use the additional funds to re-invest in further infrastructure to foster the rollout of hydrogen fuel cell vehicles.

Considering the potential size of the FCEV light-duty market and importance of 100% hydrogen supply reliability, Air Products believes a robust large scale hydrogen supply network will consist of a combination of primary, secondary, and even tertiary hydrogen supply facilities that will have varying carbon intensities. Hydrogen supply from one dedicated supply facility can't be guaranteed 100% of the time, so a specific hydrogen station hydrogen supply and carbon intensities will vary from the course of planned or "normal" operation. Air Products foresees mandatory reporting and recordkeeping at the producer level more manageable than at the hydrogen station level where reporting is limited to fuel dispensed. The producer level allows for aggregated hydrogen volumes encompassing a multitude of energy and hydrogen supply sources and distribution methods under the current LCFS legislation.

Making Hydrogen Opt-In participation in the LCFS mandatory.

Air Products believes the proposed regulatory amendments to the eligibility requirement for the opt-in provision of LCFS do not recognize hydrogen use as a transportation fuel. For a person or company to opt into the LCFS program for hydrogen the regulated party in the LCFS program must provide a fuel specified in §95482(b) and meets the requirements of §95483(f). Hydrogen fuel specified in §95482(b) only allows for LCFS credit generation opt-in provision for Hydrogen used in forklifts only.

Air Products asks the mandatory opt-in provision in the LCFS should still observe the proposed §95482(c) exemption option for specific alternative fuels like hydrogen. For example, §95482(c)(1)(A) of the LCFS proposed regulation does not apply to hydrogen alternative fuel that is not a biomass-based fuel or hydrogen used in on-road transportation; and supplied in California by all hydrogen providers for transportation use at an aggregated volume of less than 420 million MJ (3.6 million gasoline gallon equivalent) per year.

Credit Generation Opt-In Provision for Hydrogen used in forklifts.

For hydrogen used in forklifts, §9483(f)(4) allows for the forklifts fleet owner to be eligible to generate credits in §95482(b). By definition "Credit Generator" in §95483 means a fuel provider for an alternative fuel like hydrogen and as such the opt-in provision for hydrogen used in forklifts should be extended to the hydrogen fuel provider too.

Air Products would like to commend the California Air Resources Board for taking the initiative to understand the underlying facts on hydrogen and other alternative transportation fuels and taking a leadership position to effect such. We appreciate this opportunity to submit comments concerning hydrogen in the Low Carbon Fuel Standard and we welcome the opportunity to discuss our comments and viewpoints further with the Air Resources Board at your convenience.

Please feel free to contact me at (610)481-5222 if you have any questions or would like to discuss further.

Sincerely,



Brian B. Bonner
Product Manager
Hydrogen Energy Systems