Intersect Power

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January 5, 2022

Cheryl Laskowski
Branch Chief, Transportation
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

RE: LCFS Rulemaking Input- Expanding book-and-claim Eligibility for Hydrogen and other Hydrogen-Related Regulatory Recommendations

(Comment submitted electronically via Comment Submittal Form at https://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=lcfs-wkshp-dec21-ws&comm_period=1)

Dear Ms. Laskowski,

This letter is submitted by Intersect Power. Founded in 2016, Intersect Power is a clean energy infrastructure company bringing innovative and scalable low-carbon solutions to its customers in retail and wholesale energy markets. The company develops some of the world's largest clean energy resources providing low-carbon electricity, fuels, and related products to customers across North America. Intersect Power has a portfolio of portfolio of 2.2 GW of late-stage solar projects with 1.4 GWh of co-located storage that will be in operation by 2023, an emerging pipeline of more than 6 GW of renewable generation, and more than 6.5 GWh of energy storage and 600 MW of ultra-low carbon intensive (CI) hydrogen production. The company has also developed and sold more than 1.7 GW of contracted solar projects across California and Texas.

Intersect Power is excited to embark on production of ultra-low CI hydrogen as an output of high-capacity factor, low-cost clean electricity. We believe that the capital expenditure and time required to replace all carbon intensive infrastructure in our short time frame is prohibitive. Infrastructure is persistent - especially the broadly distributed infrastructure that relies on liquid and gaseous fuels. Creating liquid or gaseous fuels without carbon, but

which have high energy density, familiar storage properties and other flexibility will make them far more valuable than clean electrons in a battery or on a wire.

We believe that ultra-low CI hydrogen and e-fuels are a critical next step for the decarbonization of the economy because they represent multi-gigaton solutions which can scale with retrofit and reuse of current infrastructure. We believe these solutions can be a powerful accelerant for decarbonization because these zero carbon fuels are "drop in" replacements for hydrocarbons. For these reasons, it is even more important that the LCFS embrace ultra-low CI hydrogen to initiate the cost reductions that scale creates.

This LCFS is a Policy Success Story

We applaud CARB for its leadership and diligence in developing and stewarding the LCFS through its first decade of existence. The LCFS has reduced over 75 MMT of GHG reduction in the transportation sector and driven over $10B in credit value over its existence. This has sent a strong signal to the market that California has established a long-term valuable and stable program that delivers a reliable CI-based revenue stream to producers of low carbon fuels.

Ultra-low CI Hydrogen Book-and-Claim

As a key component of the success described above, and consistent with Executive Order N-79-20, CARB has integrated specific strategies to accelerate the transition to zero emission vehicles. In the most recent major LCFS rulemaking, CARB authorized the use of book-and-claim accounting for qualifying low carbon intensity electricity supplied as a transportation fuel or used to produce hydrogen via electrolysis. Section 95488(i)(1). This provision has enabled enhanced GHG reductions from ZEVs by providing recognition of the environmental benefit of sourcing low CI power via renewable energy credit ("REC") or via a green tariff program.

The LCFS similarly authorizes the use of book-and-claim accounting for pipeline- injected biomethane ("RNG") used as a transportation fuel via section 95488.8(i)(2).

We support CARB's interest in expanding book-and-claim accounting within the hydrogen sector to continue this progress and expand the viability of low-CI hydrogen projects and facilities. Hydrogen bears similarity to electricity and RNG in terms of the criteria and GHG

pollutant reductions that the fuel can provide and the feasibility of transporting hydrogen via either dedicated hydrogen pipelines or commingled hydrogen/natural gas pipelines.

Per California's Zero-Emission Standards for 2018 and Subsequent Model Year Passenger Cars ("ZEV Standards"), "The Executive Officer shall certify new 2018 and subsequent model year passenger cars, light-duty trucks, and medium-duty vehicles as ZEVs, vehicles that produce zero exhaust emissions of any criteria pollutant (or precursor pollutant) or greenhouse gas, excluding emissions from air conditioning systems, under any possible operational modes or conditions." 13 CCR §1962.2(a). Within the ZEV Standards, a "Hydrogen fuel cell vehicle" is defined as "a ZEV that is fueled primarily by hydrogen but may also have off-vehicle charging capability."

Intersect Power supports the utilization of book-and-claim accounting related to ultra-low CI hydrogen injected into hydrogen pipelines nationwide. As CARB has seen with the number of pathways certified ultra-low CI RNG, this market-based approach enables the most efficient, scalable opportunities to be pursued, while generating the expected reductions.

Specifically, we support expansion of book-and-claim for ultra low-CI hydrogen injected into hydrogen pipelines nationwide in order to:

- Expand private investment in ultra-low CI hydrogen production where it is most economic
- Broaden the use of ultra-low CI hydrogen as an economic method for additional decarbonizing of refinery operations
- Reduce indirect GHG emissions from liquefaction and transport of ultra-low CI hydrogen by transporting greater percentages of ultra-low CI hydrogen into pipelines for use

While book-and-claim is currently available for the low-CI electricity used in electrolytic hydrogen production, we recommend that CARB carefully evaluate the possibility of unintended consequences that could result from granting excessive flexibility pertaining to RECs. In particular, in order to assure that real-world GHG reductions are achieved, green hydrogen transferred by pipeline with the environmental attribute transferred contractually must not also be authorized to utilize book-and-claim accounting for the low-CI electricity unless the power production underlying the RECs can be matched to the

hourly production profile of the electrolyzer. Without such a limitation, resource shuffling could occur and the intended environmental benefits may not be realized.

Intersect Power also supports similar book-and-claim accounting methodologies for injection of hydrogen into natural gas pipelines nationwide for a variety of reasons:

- Getting ahead of pipeline regulatory authorization is important to demonstrate that market opportunities are available
- Reducing the carbon intensity of natural gas is important for CNG vehicles as well as hard to abate sectors of the economy
- Natural gas is also important as a feedstock to refineries in their production of gasoline, diesel and jet fuels, and permitting this additional pathway will provide additional opportunities to lower the carbon intensity of California's fuels

Data and New Technology

IP support for changes in data and new technology. It is appropriate to establish a new Tier 1 calculator for hydrogen fuel pathways for a variety of reasons:

- Hydrogen has numerous production methods with varying CI levels. Clear accounting for the lifecycle emissions in production of hydrogen is important to stand up hydrogen as a low-CI fuel source
- Electrolytic hydrogen using grid power backed up with RECs is a complicated CI equation that must take into account the CI of the individual hours of electrolysis operation and the individual hours of renewable generation producing the RECs
- Expanding the use of green hydrogen in the LCFS should be based on a clear understanding of the range of credit potential for operating electrolyzers directly with renewable electricity or with grid power + RECs

Streamlining Implementation

We would also like to express our support for streamlining implementation and enhancing exportability:

- California's LCFS has greatly influenced other jurisdictions to adopt a similar regulatory framework and link commercial activity with growing markets.
- We support intentional expansion of the opportunities for low-CI hydrogen to participate across jurisdictions, including enabling Refinery Investment credit for low-CI hydrogen generation at locations separate from refineries in order to support private investment in the best clean hydrogen resources in a scalable manner

- This type of flexible application of LCFS credit generation helps encourage export of the LCFS regime by creating early investment interest where low carbon resources are available to create decarbonization solutions for petroleum supply chain use at lowest cost

Conclusion

As the fifth largest economy in the world, California's continued leadership on climate is critical. California's role in demonstrating to the world that the United States is taking concrete and material steps to reduce carbon emissions has never been more important, particularly given the recent uncertainty on whether any additional US federal support will be implemented via the Build Back Better Act.

This leadership can be further shown by CARB strengthening pre-2030 targets and establishing CI targets beyonds 2030.

Thank you for your consideration of our input. We would welcome the opportunity to provide any further information that would be valuable to CARB on this subject.

Respectfully,

Michael Wheeler
Principal, Government Affairs
Intersect Power