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POLICY INSTITUTE FOR ENERGY, ENVIRONMENT, AND THE ECONOMY

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Cheryl Laskowski, Branch Chief
Industrial Strategies Division, Transportation Fuels Branch
California Air Resources Board
1001 I St.
Sacramento CA, 95814

Re: LCFS Public Workshop on Potential Program Changes - 12/7/21

Dear Ms. Laskowski:

Thank you for the opportunity to comment on the ideas put forward at the recent Low Carbon Fuel Standard (LCFS) Public workshop on potential future changes to the LCFS program. This comment letter touches on several of the topics discussed, principally in the areas where input was sought. These initial thoughts at the outset of public engagement are not meant to be comprehensive.

Incentivizing Investment and Alignment with Long-Term GHG Goals

Several stakeholders commented on the need for long-term targets, with target escalation that maintains a robust demand for LCFS credits given the anticipated growth in alternative fuel use in California. Additional target setting, so essential to maintaining a policy signal to invest in low-carbon fuels, is appropriately done in coordination with modeling and stakeholder consultations connected with the Scoping Plan. However, given the anticipated timeline of the scoping plan, providing some signal regarding future targets could help support continued investment in low-carbon fuel production. The *Driving California's Transportation Emissions to Zero by 2045* study, recently released by UC-ITS evaluated several scenarios of fuel supply and demand and could inform CARB's process in setting expectations regarding future LCFS targets.[1] While the modeling conducted in that study indicated that a modest increase in the 2030 target may well be feasible, especially with robust ZEV growth, any tightening of targets pre-2030 would therefore have to be done with the utmost attention to process, as it could shift obligations on regulated parties in as yet unplanned ways.

Book and Claim Accounting for Low-CI Hydrogen

The proposed book-and-claim accounting for low-CI hydrogen injected into hydrogen pipelines would expand flexible treatment similar to that given to some other low carbon fuels in the

[1] https://escholarship.org/uc/item/3np3p2t0

program. While such accounting does provide significant flexibility for fuel producers, careful attention must be paid to criteria that guard against double counting of environmental attributes. This could involve, for example, tracking through a system similar to M-RETS. Imposing an additionality criterion would strengthen the environmental impact. Note however, that while this approach is similar to current project-based credit accounting (e.g., for petroleum fuel production as an end use) that use "own-baselines", it differs from that applied to many other low-carbon fuels (e.g., biogas). How to better align the approach and the existing program, keeping technology neutrality in mind, is worth exploring; with many potential and emerging hydrogen systems, the potential risks, and benefits, of this approach require further examination.

Smart Charging

The smart charging approach already in existence should, ideally, incentivize electricity storage, as noted in the presentation. However, the potential impact of this option is complicated by the difficulty of integrating temporal considerations when matching generation and consumption when storage is part of the system. The LCFS is conceptually compatible with crediting the value of using storage to bring zero-carbon renewable electricity to fuel EVs, however recent research on the consequential impacts of storage has demonstrated the complexities entailed in this issue,[2] and current book-and-claim zero CI electricity credit options may make it less attractive, at least in the near term. While there is clearly potential to leverage the LCFS to maximize the emission-reducing value of storage, careful analysis, modeling, and consultation will be needed to achieve the desired outcomes.

Harmonizing with Federal Policy

Credits associated with petroleum projects provide an important incentive to lower carbon intensity of the most consumed fuels in the state – namely petroleum fuels – and thus an opportunity to reap near-term carbon reductions as well as pioneer innovations that could lower carbon from petroleum while it remains in use. To date, credit generation from this source has been extremely modest. That said, setting limits so that this source of crediting does not threaten to flood the market with credits, or reach levels likely to prolong viability of fossil fuel infrastructure, align with the clear scientific consensus that significant petroleum consumption is incompatible with long-term climate stabilization. The suggested limit of capital cost recovery seems to fit this purpose. Alternatively or perhaps as well, CARB may want to explore how to institute a system by which credits earned in this manner "erode" in a similar manner to what occurs for low-carbon fuels of a constant CI score under declining targets. This would allow for a phase-out similar to what can occur for fuels that earn fewer credits as targets decline.

[2] E.g. https://pubs.acs.org/doi/abs/10.1021/es505027p and https://www.annualreviews.org/doi/abs/10.1146/annurev-environ-012320-082101

Including intrastate jet fuel as a regulated fuel is in keeping with the spirit of the program to generate low carbon fuels for all transportation, bringing in the hard-to-decarbonize aviation sector that must be addressed in a net-zero carbon future. Program design would need careful modeling and stakeholder interaction, though, as different set-ups could strengthen the incentive for all low carbon fuels or more narrowly those targeting aviation.

Accelerating ZEV Transition and the Medium- and Heavy-Duty HRI Concept

We recognize that expanding the availability of hydrogen fueling infrastructure has been identified as a key step towards meeting the state's ZEV deployment goals, and that vehicles beyond the light-duty sector, especially Class 7 and 8 long-haul trucks, are challenging for other ZEV options to satisfy. The proposal raises a number of concerns that would need to be addressed in order to ensure that it supports California's progress towards its GHG reduction goals within the scope of the LCFS.

First, to our knowledge, there is no widely agreed-upon standard connector for the high-volume hydrogen fueling of the type that would be supported by this protocol. Additionally, long-haul trucking fleets predominantly purchase fuel via long-term contract, distributed through cardlock facilities or delivery to a fleet depot. This allows them price certainty and the ability to restrict access to a limited number of trucks, minimizing delays during the refueling process. The provisions in the existing HRI provisions explicitly prevent this sort of controlled access, and may limit the ability of fueling providers to provide long-term price certainty. Without these characteristics, and without a fueling connector standard, it is difficult to predict whether the stations supported by the proposed protocol would be attractive to the fleets they are intended to serve.

Second, there are a variety of open questions about how this provision would affect long-run credit market and revenue dynamics that make it challenging to predict how the proposed provision would ultimately impact the LCFS program, and California's progress toward decarbonization goals. These include:

- Given that a rationale given for the infrastructure capacity credits provision was to support ZEVs in line with state goals, would an equivalent provision for medium- and heavy-duty electric trucks be needed to create a level playing field with the other likely ZEV technology pathway?
- How will LCFS credit markets react to an increasing share of credits generated by infrastructure capacity credits as opposed to near-term quantifiable GHG reductions, and what impact will this have on the rate of GHG reduction?
- Would the LCFS target be increased to reflect the additional source of credits?

- How will the proposed provision interact with the existing HRI incentive and should this be implemented as a carve-out or expansion of the existing provision, or would it be entirely separate?
- How have the existing HRI and FCI programs performed, do they represent a cost-effective way to support ZEV fueling station deployment, and how have they impacted costs, utilization, and availability of hydrogen and DC fast charging?

We recognize and appreciate the discussion of EERs, as well as CARB's desire to update current EERs to reflect the most recent evidence. Investigating available data on EERs for new applications, and exploring how this might work for micro-mobility options, is timely for this program and as a blueprint for others.

Implementation and Exportability

Implementing a single benchmark for on-road gasoline and diesel fuels and their CI scores for streamlining and exportability would not disrupt the intent of the program. Transitioning from the current system, however, may have market consequences (e.g., in terms of incremental deficits), and are worth considering and investigating during the rulemaking process.

Stakeholder Concepts

While it is true that no consensus has emerged regarding indirect emissions from fuels, consideration of the current approach in light of likely growth in biofuel use over the decade to 2030 is warranted. Some fuels currently evaluated as wastes or residues, for example, may have indirect impacts that should not be overlooked.

Regarding site-specific agricultural credits, as pointed out in the presentation, a consideration of average CI scores for those not opting in would be essential. Moreover, more work is needed on properly accounting for the inherent variability in agronomic practices and soil carbon response due to factors beyond the grower's control, as well as for the risk that changes in future agronomic practices could result in the loss of soil carbon which had previously been the basis for crediting.

Thank you again for the opportunity to comment on the initial proposals and thoughts for this important rulemaking process. If we can offer any clarification to this letter, or assistance to the broader process, please contact Colin Murphy at cwmurphy@ucdavis.edu or +1(530)754-1812.

Signed,

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