Union of Concerned Scientists

To: Cheryl Laskowski

From: Jeremy Martin

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Subject: Comments to CARB on July 7th LCFS workshop

There are two broad principles that California should adopt to make the Low Carbon Fuel Standard (LCFS) a more effective policy and better aligned with the scoping plan

- Ensure that the scale of credit generation for various technologies or feedstocks under the LCFS is aligned with the goals of scoping plan and implement guardrails if necessary to maintain alignment. This is especially important when federal policies or incentives interact with California policies in ways that could produce unbalanced or counterproductive outcomes.
- Where direct support for specific pathways is creating problems, consider using a credit aggregator to more effectively target support at the core policy goals and avoid windfall profits or economic distortions that create problems in other markets.

Each of these principles can be applied to several specific policy challenges.

Set a cap on lipid-based fuels to ensure the LCFS supports a balanced portfolio of solutions and does not contribute to food price spikes or deforestation

The most urgent need for a new safeguard within the LCFS to maintain alignment with the scoping plan comes involves lipid-based fuels, especially renewable diesel. As we mentioned in our comments in January[1], CARB should cap the use of lipid-based fuels for LCFS compliance at a level that ensures that California does not use a disproportionate share of the lipid-based fuel available nationally. Since January we have developed additional analysis and recommendations in conjunction with the International Council on Clean Transportation in the paper "Setting A Lipids Fuel Cap Under the California Low Carbon Fuel Standard.[2]"

Recent developments in the lipid-based fuel sector have highlighted the urgency of taking action to limit the growth of these fuels under the LCFS. The use of soybean-oil based fuel in California has been growing rapidly and is poised to grow much more as new renewable diesel facilities scale up production. Existing safeguards, including the inclusion of indirect land use change emissions in the lifecycle, are no longer adequate to discourage the use of vegetable oil-based fuels. In response to anticipated demand, the industry is scaling up domestic soybean crushing for domestic fuel use, which will reduce the soybean oil available to international markets and contribute to high food prices in the short term and

[1] https://www.arb.ca.gov/lists/com-attach/83-lcfs-wkshp-dec21-ws-UyZRNAR2UV1QOgVs.pdf
[2] https://theicct.org/publication/lipids-cap-ca-lcfs-aug22/

will ultimately be replaced with vegetable oil produced elsewhere, partly from increased palm oil cultivation in Southeast Asia and partly from increased soybean production in South America.

The challenges to the efficacy of the LCFS arise in part because of the interaction of the LCFS with federal support for lipid-based fuels through the Renewable Fuel Standard and tax credits. Absent federal support it is unlikely the LCFS would support the surge of renewable diesel production being observed in California, even in the face of extremely high vegetable oil prices. The counterproductive surge in renewable diesel production and the associated credit production is in part responsible for pushing down LCFS credit prices, which undermines the support the program provides for transportation electrification and other clean fuel strategies. Setting a limit on the extent to which lipid-based fuels can be used for compliance can allow for a reasonable contribution from this fuel category without undermining other support for fuels and will allow the differentiated support the LCFS provides to encourage renewable diesel and other lipid-based fuel producers to seek the lowest carbon intensity feedstocks and production processes.

Constrain credits awarded for Carbon Capture and Storage (CCS) or other investment in petroleum extraction or refining at a level consistent with California's long term needs as defined in a petroleum phaseout plan

As discussed in our scoping plan comments in June[3], the draft scoping plan analysis included problematic assumptions about the extent to which oil refineries would implement CCS on their petroleum refining operations. We hope that these assumptions will be revised to a more realistic and strategic level in the final scoping plan. However, where the LCFS rulemaking is concerned it is important that the LCFS does not support the buildout of CCS-based mitigation of petroleum refinery emissions at a level that is inconsistent with California's anticipated demand for petroleum-based fuels. For this reason, there should be a ceiling on the share of LCFS compliance that can be derived from petroleum supply chain pathways at a level consistent with long-term needs under the scoping plan and other factors. Keeping in mind the rate of electrification described in the scoping plan, and the fact that CCS at oil refineries can only mitigate a small share of the lifecycle of petroleum-based fuels, it would be inconsistent with the scoping plan to have substantial petroleum refining in California, even with CCS, 20 or 30 years from now, and California fuel purchasers should not be asked to cover the cost of technology investments that will not be useful to them over the long term.

While it might seem unlikely that a market-based policy like the LCFS would encourage refineries to invest in projects with a limited return on investment, the interaction of federal support for CCS with the LCFS incentives could lead to outcomes would not be supported by the LCFS alone. While the situation is at an earlier stage than the renewable diesel refinery conversions discussed earlier, it seems quite plausible that a similar scenario would play out. The ability to stack state and federal incentives could lead to a buildout of projects to serve the California market at a level in excess of what is appropriate given California's goal of rapidly reducing the production, refining and use of petroleum and petroleum products. By capping the share of LCFS compliance from petroleum supply chain pathways at a level based on thoughtful petroleum phaseout plan, California can support an appropriate level of investment that is consistent with its long-term goals. Under such a cap California can benefit from federal support that reduces the cost of the investments that make sense in California, without allowing federal support

[3] https://www.arb.ca.gov/lists/com-attach/4157-scopingplan2022-BmcGcl0+U3MGYwlm.pdf

to distort the outcomes supported by the LCFS or other California policies in a manner inconsistent with the scoping plan.

Excessive or unbalanced investment in the petroleum supply chain could lead refiners to invest in decarbonizing production capacity that is later used to export fuel to other states or countries after it was no longer needed in California. Investment that prolongs the life of petroleum supply chain would impose an unfair burden on communities near refineries and other oil extraction supply chain infrastructure. Support for pollution mitigation in the petroleum supply chain should be guided by a petroleum phaseout plan that considers California's needs and ensures burdens are equitably shared.

Appoint a credit aggregator to distribute credit value associated with avoided methane emissions to ensure the LCFS supports methane pollution reduction instead of subsidizing methane creation

As discussed in our January 2022 comment on the December 2021 LCFS workshop[4] and additional comment on the March 2022 Workshop on Methane, Dairies and Livestock, and Renewable Natural Gas in California[5], CARB should restructure the treatment of avoided methane emissions to ensure that support for investments that reduce methane emissions are not inadvertently creating incentives to maximize the production of methane.

Methane is a powerful heat trapping pollutant that should be kept out of the atmosphere. In some cases, the capture and beneficial use of biomethane may provide additional climate mitigation by displacing fossil natural gas use with a biogenic alternative. However, because the 100-year Global Warming Potential of methane is 27-30 times higher than carbon dioxide, and the 20-year Global Warming Potential is approximately 86 times higher, keeping the methane out of the atmosphere is vastly more important for the climate than displacing fossil methane in combustion applications. Given the significant fugitive emissions associated with all methane production and distribution, incentives for the use of biomethane that subsidize its production can easily become counterproductive even if the biomethane is mostly used to displace fossil gas.

By creating a large incentive to maximize the production of a powerful heat trapping pollutant, the LCFS is tilting the economic playing field in milk (and pork) production in favor of facilities that produce the most methane pollution. The LCFS is designed as a transportation fuel policy and LCFS administrators should ensure it is not distorting food or other markets in a counterproductive manner. This policy failure can be addressed by appointing a credit aggregator to direct the value of credits associated with avoided methane pollution to support sustainable strategies to mitigate methane pollution.

As electric drivetrains become commonplace in certain vehicle segments or applications, appoint a credit aggregator to direct credit value to break down remaining barriers to transportation electrification

In the workshop CARB discussed phasing out incentives for mature low carbon technologies, and in particular discussed phasing out credits for electric forklifts. I don't have a strong view on policies governing electric forklifts in particular, but the question of whether and how to wind down LCFS incentives for EVs when they are no longer justified has much broader applicability over the timeframe in which the LCFS will be in place. As initial cost premiums, total cost of ownership, cost and availability

[4] https://www.arb.ca.gov/lists/com-attach/24-lcfs-wkshp-dec21-ws-AHVSN1MhVlpXNQRl.pdf
[5] https://www.arb.ca.gov/lists/com-attach/19-dairywkshp220329-ws-VCFXMlQmWVVWNFQ1.pdf

of charging and other barriers to electric vehicles fall, the type of support needed to advance the use of low carbon electricity as a transportation fuel will be change. If the LCFS mechanisms do not also change, they could become inefficient, counterproductive or unfair: inefficient because they will be delivering an economic windfall to parties without changing their behavior; counterproductive if they encourage driving, which even has other serious externalities beyond fuel supply chain emissions; and unfair if the cost of this support is passed along to lower income people who do not have equal access to EVs.

To address these risks, the policy needs to evolve over time, and a useful model to facilitate this evolution is already present in the use of utilities as credit aggregators for credits from light duty EV charging. CARB currently requires utilities to direct a significant portion of credits associated with light duty residential EV charging towards the Clean Fuel Rewards point of sale rebate, and to use the majority of the balance of funds to benefit disadvantaged communities. The importance of a point-of-sale rebate depends on many factors, including other state and federal programs and the price premiums associated with EVs, but if the next round of LCFS amendments take the program out to 2035 or 2040, it is likely this timeframe will see 100% of new light duty vehicles sales become EVs, at which point a purchase rebate will be hard to justify. However, even once 100% of new light duty vehicles sales are EVs, there will still be many ICE vehicles in the fleet for more than a decade thereafter. LCFS credits from EV charging should be gradually redirected away from a new vehicle point of sale rebate to instead focus on breaking down remaining barriers for communities that use older vehicles, whether these focus on up-front costs of new or used vehicles, access to charging or other barriers. Once up-front cost barriers and charging have been sufficiently addressed, LCFS credit value could help cover the cost of ICE retirement programs, to accelerate the completion of the transition to EVs. Redirecting credit value in this way is not only important in terms of total pollution, but also ensures that operators of older vehicles that pay a premium for high carbon liquid fuels are able to benefit from programs to help them transition to EVs.

Because residential charging is handled through utilities, CARB should be able to adjust the rules for utilities that act as credit aggregators on behalf of their customers. Similar approaches may also make sense in other sectors. For example, as initial cost barriers and total cost of ownership fall for medium and heavy-duty vehicle classes and use cases, the policy justification for directly subsidizing electricity use by these vehicles will also change. However, rather than simply excluding the vehicle class or use case from the policy, a credit aggregator could be appointed to appropriately target support on remaining barriers.

Coming back to the question of forklifts, I support the idea that policy changes are appropriate to avoid windfall profits in vehicle classes or use cases where LCFS credits are no longer necessary to support a transition to EVs. But rather than simply excluding a segment from the program, I encourage CARB to consider whether a credit aggregator could be appointed to direct the credit value to help complete the transition to electric drive in that segment or a related segment. The general point is that specific pathways and incentives will need to be evolve as market structure and regulatory context changes, but until the carbon intensity of transportation fuel in California is zero, the work of the LCFS is not complete.