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RE: CARB should appoint a credit aggregator for avoided methane emissions using a "pay it forward" approach to address problems associated with LCFS dairy methane pathway implementation

As described in our comment on the Public Workshop to Discuss Potential Future Changes to the Low Carbon Fuel Standard (LCFS) Program[1], the current LCFS implementation for biomethane from manure is providing large subsidies for manure capture that risk distorting the market for milk and contributing to industry consolidation and larger more concentrated facilities that have major negative environmental consequences and public health outcomes. Moreover, the current design creates perverse incentives that reward the production of a powerful pollutant to claim credit for avoiding its release and create an ongoing entitlement to subsidies so large that they make dairy biomethane uncompetitive in other sectors outside of transportation where its targeted deployment may be of higher priority due to a lack of decarbonization alternatives.

An efficient mechanism to address these problems is for CARB to appoint a credit aggregator to monetize avoided methane credits and distribute the funds in support of agricultural methane emissions reductions in a manner that supports best practices, avoids distorting the dairy market and is complimentary with other state policies and consistent with other state goals, including minimizing copollutants and promoting environmental justice. This proposal was developed in collaboration with Professor Kevin Fingerman at Cal Poly Humboldt and draws from his research on the biomethane pathway under the federal Renewable Fuel Standard[2].

Background

The Low Carbon Fuel Standard connects the market value of a fuel to its full lifecycle emissions. However, market structure and program design decisions have an enormous impact on how fuel producers can participate and how much of the nominal credit value they can claim. For example, the LCFS regulations direct credit value associated with residential EV charging to utilities acting on behalf of their customers under specific rules. Individual EV drivers are not able to claim the LCFS credits associated with their charging but instead CARB delegates to utilities the responsibility to act on behalf of EV drivers as a group, pooling the credits, monetizing them, and using the proceeds to strategically promote transportation electrification through purchase incentives, charging infrastructure development, and programs targeting EV uptake in disadvantaged communities.

[1] https://www.arb.ca.gov/lists/com-attach/24-lcfs-wkshp-dec21-ws-AHVSN1MhVlpXNQRl.pdf
[2] Younes, A., Fingerman, K., et al (2022). How the US Renewable Fuel Standard could use garbage to pay for electric vehicles. Energy Policy. In Press

This “pay it forward” approach to supporting EVs is essential to the long-term viability of the LCFS. Using LCFS credit proceeds to help more people make the transition from polluting fossil fuel powered combustion engines to zero emission vehicles makes much more sense than rewarding people who already have EVs, and a “pay it forward” approach allows flexibility to address equity and environmental justice goals that would be difficult or impossible to support in a framework where credits flow directly back to the party that generated them. As California moves further along in its transition to zero emission vehicles the need for a “pay it forward” approach will become ever more critical, to make sure that LCFS funds that come from drivers of older gasoline and diesel powered cars and trucks are used to help these same people make the transition to EVs, rather than providing an unnecessary windfall to generally more affluent people who made the transition to EVs earlier.

A similar “pay it forward” approach should also be applied to the treatment of avoided methane emissions in LCFS pathways and may also make sense in other situations to ensure the LCFS avoids windfall profits and counterproductive outcomes and aligns with other policy goals.

Low carbon fuel production and avoided methane pollution are different goals that require appropriate policy design

LCFS credits arising from pathways for methane captured from manure lagoons recognize two separate and distinct climate benefits, a low carbon biogenic replacement for a fossil fuel and avoided methane pollution. While it is reasonable to provide incentives to increase the production of low carbon fuel, it is important not to provide incentives that could increase the production of pollution. To better align the LCFS program design with policy goals, the credit for manure biomethane should be split into two components, a primary credit for low carbon energy production and a second credit recognizing avoided methane emissions that phases out once methane capture equipment is in place. The low carbon energy credits should follow existing rules and encourage the production of low carbon alternatives to fossil hydrocarbons. The credit for avoided methane emission should be designed to efficiently and equitably support reduced methane pollution, should avoid windfalls for facilities that already have methane capture equipment in place and should phase out as methane capture is fully implemented.

A credit aggregator should be designated to use avoided methane credit value to support methane pollution mitigation

As currently administered, the LCFS manure biomethane pathways are not supporting best practices in the dairy industry and are distorting these markets in counterproductive and harmful ways. An efficient way to correct this problem is to delegate to a credit aggregator the credit monetization and distribution of funds associated with avoided manure methane emissions. Fuel pathways that include credit for avoided methane emissions would be treated similarly to residential EV charging credits. In the case of residential EV charging, base credits calculated by CARB based on statewide average grid carbon intensity are transferred to utilities with specific instructions on the use of the associated proceeds, including directing the largest share of credit value to a point-of-sale EV incentive and the majority of remaining funds to benefit transportation electrification for disadvantaged communities. Additional incremental credits, based on carbon intensity reductions below the statewide average, are awarded to other entities that act to reduce the carbon intensity of electricity used for charging. This approach breaks the credit value into two streams to address two barriers related to the pathway. It directs the largest share of the support to breaking down the barriers to getting more people into EVs, using a “pay it forward” approach that avoids a windfall to existing EV drivers, who have already benefited from

substantial policy support, and instead directs the funds to addressing barriers to increased transportation electrification consistent with state goals and values. It directs a smaller share of support to reducing the carbon intensity of electricity used for charging.

In the case of manure methane pathways, base credits would be associated with fossil methane replacement, and would not include avoided methane credits. These base credits would be passed along through the supply chain of the fuel and would ensure that manure biomethane was available at a reasonable cost consistent with other biomethane sources. Credits for avoided methane emissions would be calculated on a statewide basis and would be passed to a credit aggregator to monetize and pay forward in support of efficient and equitable manure methane pollution mitigation. The credit aggregator should be directed to use the funds to minimize methane emissions from animal agriculture, for example by providing support to project developers to cover the costs of the anaerobic digester (AD), but to do so in a manner that is complimentary with other state policies and consistent with other state goals, including minimizing copollutants and supporting environmental justice. Like the residential EV charging case, this recognizes that the manure methane pathways in the LCFS are supporting two distinct but connected goals, fossil fuel displacement and manure methane mitigation, and ensures that the LCFS structure is designed to effectively address both goals.

Rules for a methane avoidance credit aggregator

The credit aggregator should administer programs under rules specified in statute or regulation and should be overseen be a governing (or advisory) board with representatives from the dairy industry, affected communities, environmental justice and environmental organizations. The credit aggregator should provide support for methane mitigation projects based on an assessment of their costs and environmental co-benefits. On the cost side, support should be limited to net costs incurred in pollution mitigation, taking into account other grants or payments as well as expected revenue from fuel sales, to avoid windfall profits associated with waste disposal that could create incentives to increase production of pollution or could otherwise distort the market. The goal should be to help dairies to reduce their footprint and to prepare for future regulations rather than to create a new profit center associated with methane generation. Methane mitigation projects that do not generate fuel, including alternative manure management, should also be eligible.

This approach disentangles the benefit of displacing fossil fuels from the benefit of avoided methane pollution. These goals are not identical, and there are strategies to minimize the initial creation of methane that may be preferable and should be treated at least with parity in the policy support they can receive or given a preference based on their cobenefits. This approach also recognizes that while the cost structure of ADs favors the largest operations, there are many negative externalities associated with larger herds, and fuels policy should avoid distorting the economics of animal agriculture at a minimum, and ideally should support broader policy goals in this area. A credit aggregator can provide support for methane mitigation at a level consistent with costs and recognizing cobenefits to avoid these harmful outcomes.

Lifecycle accounting for avoided methane emissions

CARB's current treatment of biomethane makes extreme assumptions that should be adjusted. The current lifecycle treatment assumes that absent capture for use as transportation fuel, all methane would be emitted. While this assumption may have been justifiable initially, it is not appropriate to

ignore the widespread deployment of anaerobic digesters (ADs) systems going forward. The current pathways also treat the methane as a pure waste and do not assign any responsibility for the upstream emissions associated with the dairy to fuel pathway. Under current rules LCFS credits are a large share of the revenue associated with operating a diary, and under these circumstances it is naïve to continue to treat the methane as a pure waste product indefinitely into the future. If our vision of the future is that dairies diversify their product portfolio to include not only milk but also bioenergy production, then the lifecycle of the energy they produce should be assigned an appropriate share of the full lifecycle emissions of the dairy, from crop production to enteric emissions and etc. However, this is a deeply flawed vision of the future, because viewed as energy producers, dairies are expensive, inefficient and highly polluting. Manure is clearly a waste and methane from dairies is primarily a pollutant, and policy should keep this in mind and focus primarily on reducing pollution and not encouraging its production.

The "pay it forward" approach can help. As LCFS and other policy support or regulation lead to more widespread adoption of methane mitigation, the counterfactual assumption in the lifecycle analysis should be adjusted based on current industry practice and regulation. This will gradually reduce the credit generation associated with avoided methane emissions in line with the unmet needs to implement methane capture. As AD systems and other methane mitigation strategies become widespread, avoided methane credits will fall, naturally sunsetting this element of the LCFS program and ensuring that credits for clean fuels are focused on displacing petroleum. Moreover, since support will be limited to offsetting the costs of the methane mitigation, there will be no windfall profits that require the treatment of methane as a coproduct, and instead the continued treatment of manure methane as a waste with limited economic value would be justifiable.

Sincerely,

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