PINESPIRE™

February 19, 2024

California Air Resources Board
Low Carbon Fuel Standard Program
Docket: lcfs-wkshp-feb23-ws

Re: Comments on Proposed Amendments to LCFS Regulation

PineSpire appreciates the opportunity to provide the following perspective on the proposed amendments to the LCFS Program in the Proposed Regulation Order as well as the Purpose and Rationale for LCFS Amendments and other associated documents.

## Summary of Issues

We have provided specific examples and issues to consider in the implementation of proposed changes below, and summarized the main issues for your consideration:

- The proposed changes to CI targets, proposed AAM, and updates to pathway evaluations are steps in the right direction, but do not go far enough to create a sustainable, viable marketplace.
- The proposed reduction of the EER in forklifts is not reflective of the forklift fleet in California or the remaining gap of electric conversion. This change would make participation of forklifts financially infeasible in light of additional proposed amendments.
- We support the move to metering of forklifts; however, we urge CARB to consider the many complications of developing and deploying devices that can accomplish this and to allow a gradual timeline to transition from estimation method to metering.
- The proposal to shift credit generation from forklift owner to operator would not resolve the issues that currently create complex registrations. Further work is needed to find a solution that supports accuracy as well as aligning the incentives with the entity making the investment in the hardware.

## Strengthen Carbon Intensity (CI) Targets and Auto-Acceleration Mechanism (AAM)

PineSpire appreciates CARB's recognition of the importance of strengthening CI standards to provide long-term stability and viability to the LCFS program. However, as currently proposed and as evidenced in the market value trends, the proposed updates to CI targets and the AAM are not strong enough to achieve those goals and maintain a viable marketplace. PineSpire strongly suggests accelerating the proposed targets and speed at which the AAM functions.

## Oppose the EER reduction for Forklifts as Untenable

The proposed reduction in EER, paired with metering requirements, will make it untenable for nearly all forklifts to participate. Unlike other EV chargers that have built in 'smart' capabilities and other financial incentives (i.e. fees for charging) to measure energy usage, the incremental cost to install metering devices, connect to the cloud, and extract energy usage data from forklift chargers, would very likely exceed the value of the credits if the EER is reduced as proposed.

PineSpire recommends CARB remove Class III lift truck eligibility to address the issues in the analysis instead of cutting the EER for all lift trucks. This would be a more accurate and precise adjustment than the proposed 50% reduction, which is unclear how it was calculated. Furthermore, it would be more aligned with the previous analysis and methodology used to develop the forklift EER.

PineSpire has concerns about the EER analysis and provides the following perspectives that may not have been included:

- California Specific Industries: The ITA data is a nationwide value that does not reflect the unique and very significant agriculture industry in California, which traditionally relies on propane due to varied indoor-outdoor working environments and seasonal demands for non-stop operations. It is not clear that this dataset is reflective of the sales and industries in California.

- Class V Lift Truck Replacement: Class V lift truck replacement is still relatively low because electric lift truck options that can effectively replace Class V trucks are a relatively recent technological advancement. The Class V truck is critical to several industries, particularly agriculture and food processing (as mentioned above). The proposed amendments focus on lift truck capacity as a metric for prevalence of internal combustion lift trucks, which overlooks the wide-spread use of internal combustion Class V trucks that typically have a capacity of 5,000lbs-6,000lbs. The current methodology and data provided do not account for the importance of conversion in this sector.

- Electric lift trucks are still being heavily innovated and evolving quickly, which keeps the cost of adoption higher (compared to the drop in prices in electric cars, for example). For example, many higher capacity electric forklifts were originally a conversion of an internal combustion machine, which came with the performance issues of a retrofit. Companies have now invested in developing electric options from the ground up, making them more efficient and effective at replacing the internal combustion option. However, this research and development, as well as innovations in battery chemistry, has kept the upfront cost of electric lift trucks significantly higher than their internal combustion alternatives.

Effectively eliminating the ability of these lift trucks to participate through the reduced EER, paired with metering requirement, erodes the financial return on investment needed to encourage low carbon equipment choices. Further, it discourages participation in the LCFS program by a wide range of critical California businesses.

## Metering Implementation

PineSpire understands CARB's goal to move forklifts towards increased accuracy and into alignment with other EVs by requiring metering of the energy usage. However, we urge CARB to be aware of the significant time and resources required to make this shift, and to provide adequate lead time for the transition. An abrupt transition would likely disenfranchise the vast majority of forklift owners from the opportunity to participate for several quarters; PineSpire recommends CARB to continue to allow participation of e-forklifts through the estimation method during a reasonable transition timeline.

To support this request, we have summarized some of the forklift-specific limitations on data collection that set this vehicle class apart from other types of equipment in the LCFS program:

Current limitations:

- Nascent technologies: The data collection industry for forklifts is in its early stages, unlike the more established on-road EV charger technology. Current telematics solutions remain under development to be able to reliably deliver the level of data and detail that would be required for LCFS reporting. Additional time is needed to deploy and scale financially viable solutions across the California forklift fleet.
- Unique Aspects of Forklift Metering: Typical metering solutions seen in other vehicle classes are unlikely to apply to most forklift operations for several reasons.
    - Unlike other vehicle classes, the cost of implementing energy measurement must show a reasonable return on investment solely from LCFS credits, as there are no fees for charging in this vehicle class.
    - Existing telematics solutions are prohibitively expensive, with upfront costs in the many hundreds of dollars per unit and ongoing monthly subscription fees. Additionally, some require costly technician site visits for manual data downloads. High upfront costs, ongoing fees, and limited functionality currently make the financial justification for adopting the telematics technology challenging.
    - Installing metering on the AC side is prohibitively expensive as it requires electricians, downtime to operations, and more costly hardware. As mentioned, forklift chargers are frequently distributed throughout facilities, not on a single AC circuit. And the AC circuits have the potential to serve other non-charging usage, thus requiring submetering.

Implementation challenges:

These implementation challenges are based on our experience deploying meters across forklift chargers at a range of facilities in Oregon.

- Hardware: Current monitoring options may require essential hardware modifications to accommodate the diverse range of forklift chargers, unlike the more standardized EV charger hardware. For example, there is a wide range of voltage and frequencies at which forklift chargers operate, both of which have the potential to 'fry' electric components of meters. Ensuring safety and functionality of new hardware, as proven in a range of test environments, is key before requiring widespread deployment.
- Connectivity: Reliable data connectivity requires site-specific troubleshooting and ongoing refinement. Additionally, successful implementation requires working with individual facilities to ensure all use of connectivity technology is secure. The one-off nature of this issue requires more time to implement than a universally designed charging network.
- Software complexity: Frequent software updates are needed to comply with varying state reporting and registration requirements, while maintaining historical data accuracy. This translates to significant lead times and resource allocation for the engineering and manufacturing updates of measurement devices.
- Evaluation burden: Developing hardware quotes, connectivity plans, and completing ROI analyses require time and resources for each individual site and its equipment team. This would be further complicated by the changes the proposed Amendments may have on LCFS values and the associated

financial analysis. Allowing entities time to put together this information, after other proposed amendments have been addressed and their market impact demonstrated, is appropriate.

Additional Considerations:

- Consistency with other CARB regulations: Fleet owners and operators are simultaneously responsible for complying with other CARB regulations, such as the proposed Zero Emission Forklift rule. CARB's zero-emission rules typically rely on a phased-in approach for adoption and implementation, as an acknowledgment of the cost and resources required for compliance. This phase-in approach also ensures a smoother transition for all parties by providing a more gradual 'ramp up' of metering. Using a phased-in approach with metering in the LCFS would be consistent and appropriate.
- Agriculture and Processing Industry Issues: Agricultural, food processing, wine, and beverage industries have several operational constraints relevant to developing hardware, connectivity solutions, and deploying meters. For example, many post-harvest and food processing facilities operate equipment within environments with a high level of dust that may require specific hardware enclosure designs. Similarly, cold storage facilities may challenge typical hardware specifications and require time to adapt specifications. Additionally, during harvest/post-harvest seasons (which can last one to two quarters), many facilities operate around the clock and do not have staff resources nor fleet down-time that would be required to deploy meters. Many of these facilities are large and forklift charging equipment is dispersed at many locations; it is common for facilities not to have reliable Wi-Fi reach throughout these dispersed locations, meaning that additional time and cost is required to deploy routers solely for use by energy measurement devices.

PineSpire represents dozens of agricultural and food processing businesses across California, responsible for thousands of acres of farmland, and millions to billions of dollars of food production. If CARB has specific questions for these types of facilities, we are happy to put you in touch with facility managers to discuss further.

## Forklift Credit Generator: Owner <> Operator

PineSpire represents many forklift rental companies, with thousands of locations and several thousand forklifts across their fleets. We understand CARB's concerns with the complications of registering rental forklifts for each location where they are used, however we have serious concerns about the disenfranchisement of credit generators under the proposed changes. If CARB has additional questions on this issue you'd like to gather information on, we are happy to facilitate conversation(s) with rental fleet owners.

Concerns with proposed changes, including Operator providing energy usage data:

- Investing in electrification: Rental fleet owners are continually investing in maintaining and updating their electric rental fleet, including upgrading to expensive lithium batteries, updating charger hardware, and purchasing newer forklifts. These investments by rental fleet owners increase the likelihood of fleet managers to use electric equipment as rentals, often serving as a stepping-stone for purchasing electric. Changing the credit generator to the operator would also contradict the draft Zero Emission Fleet (ZEF) regulations, which place extensive requirements on rental fleet owners.

- Long-term commitment vs. short-term rentals: Participating in the LCFS program requires sustained resource investment (understanding the program, compiling registration information, regular reporting updates, etc.). Rental forklifts are frequently a short-term business solution for operators. The long-term investment in the purchase, maintenance, repairs of a rental forklift is made by the rental fleet owner, therefore the long-term benefits that come from the LCFS program should also accrue to the owner.

- Data Management: In the current framework, the "credits generator" is the facility owner (i.e., the rental operator) who may not have permission to add metering to chargers or forklifts, even in the rare long-term rental case where it makes financial sense. This mismatch creates issues with the ability to implement metering, access data, and reporting for most rental forklifts as proposed under the amendment.

- Does not achieve CARB's stated goal of eliminating registration burdens: The reality of forklift ownership and operation is that a significant portion of all facilities operate both owned and rented equipment simultaneously. For example, the majority of rental lift trucks come with a rental charger that would not be picked up by the fleet operator's metering. We recommend reconsidering options for modifying registration requirements that better align with the realities of mixed-fleet ownership, and metering implementation. We do appreciate there are a range of scenarios of ownership and operation, however we caution against moving ahead with updates that would not reduce the registration burdens.

## Updates to eTRU registration

PineSpire strongly supports the proposed updates to eTRU credit generation to align with the realities of eTRU operations and ownership. TRUs are more similar to on-road EVs, moving continually from site to site and frequently not having a direct contractual relationship with their charging location, therefore the proposed changes are the most practical solution to enable wider participation in this sector.

## Multi-Family Residential

PineSpire supports the proposed updates to the classification of multi-family residential charging as commercial in order to align with how these chargers are often financed and deployed, and making these LCFS incentives more widely accessible.

Thank you for your consideration of our comments.
Sincerely

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