e-Mission Control

March 15, 2023

Ms. Cheryl Laskowski
Chief, Transportation Fuels Branch
California Air Resources Board
1001 I Street,
Sacramento, CA 95814

RE: e-Mission Control Comments on February 22, 2023 CARB LCFS Workshop

Energy Mission Control, Inc. (e-Mission Control, eMC) appreciates the opportunity to comment on the proposed Low Carbon Fuel Standard (LCFS) Public Workshop and proposed changes to the program. e-Mission Control is a Sacramento-based technology company that helps facilitate participation in the LCFS, as well as in Oregon's Clean Fuels Program, Washington's Clean Fuel Standard, British Columbia's Low Carbon Fuel Standard, and shortly, the national Canadian Clean Fuels Regulation for hundreds of small- and medium-sized businesses operating electric material handling equipment, cargo handling equipment, electric refrigeration units, and on-road light, medium, and heavy-duty vehicles and much more. Building upon nearly two decades of clean-transportation industry and public funding experience, eMC has developed a comprehensive and streamlined software platform that eliminates many of the administrative roadblocks that traditionally preclude small fleets from opting into clean fuel programs and allows them to take clear, affirmative, and immediate steps to reinvest in the electrification of their goods movement and material handling operations.

We offer support, additional background on typical industry practice, information on the current state of affairs on electric off-road vehicle and equipment fleet participation, and a series of suggested alternatives or improvements on the current regulation language and amendment proposals:

e-Mission Control strongly supports the concept of an "acceleration mechanism," or separately referred to as a "ratcheting mechanism" to inject significant confidence in the long-term stability of the program. Recent significant price depression in the program is generally seen as an overperformance of the program with major new renewable fuels and electricity deployment in the state and an auto-adjustment feature may result in a much quicker way to achieve targeted CI reduction with the continued faster-than-expected deployment of renewable and zero-emission fuel sources.

e-Mission Control supports the amended text reflecting transition of E_{xD} Displaced calculated values not applying to forklifts, and similarly should be expanded to fixed guideways. Original intent and discussion of a model year threshold in both applications was tied to the implementation date of the LCFS program[1], the equipment's already-deployed status, and not to the physical difference in equipment efficiencies across those model year threshold dates. The elimination of any model year association with technology deployments, especially as the LCFS program ages, makes less and less sense with newer technologies being deployed and streamlines the administrative work with submitting and reviewing applications greatly. There is no meaningful purpose for pre-2011 or post-2010 designations in these categories, or any others moving forward should new transportation equipment types be introduced in the future.

[1] https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/lcfs_meetings/12022016discussionpaper_electricity.pdf

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e-Mission Control strongly opposes the EER reduction for forklifts under 12,000lb lift capacity, for three important reasons:

1) This will **heavily undermine the success of the Zero-Emission Forklift Rule**, which uses the LCFS program funds, as currently calculated, to show a beneficial ROI. Reducing the EER by half increases the ROI by 50% or more, directly impacting small and medium-sized businesses who will be required to purchase new lifts and equipment to comply.

2) The **EER is not the place to account for market penetration effects of the LCFS program**. The purpose of the EER, the *Energy Economy Ratio*, is to define how much more energy efficient an alternative-fueled vehicle or equipment is relative to an internal-combustion baseline. By making miscellaneous adjustments to the EER value implies that the same may happen to other vehicle or equipment categories as market penetration is increased, even if that is not the agency's current intent. If an EER adjustment is the only variable available to account for a market penetration, CARB should apply it to only Class 3 lifts, which drastically influence market penetration calculations amongst Class 1, 2, and 3 lifts. Separately, trying to delineate energy consumption amongst above and below 12,000lb lift capacities will be difficult for most fleets.

3) **Any tactic taken to reduce credit generation should only come from adjusting the compliance curve.** CARB has an unprecedented opportunity to move more and more capital from regulated entities to fleet electrification, with relatively very little argument from such regulated entities, and we believe any roll-backs of opportunity is simply a delaying of the overall GHG reduction opportunity in the transportation sector.

   As has long been established, the LCFS is meant to incentivize the adoption and use of low-, zero-, and negative-carbon fuels, and any policy within the program that facilitates this goal should be supported. e-Mission Control currently represents many hundreds of small and medium-sized fleets, all of whom are operating some mix of equipment and vehicle types. For example, a small company may operate a few forklifts and a number of light-duty cars as part of their general operation. Simultaneously, a large company may operate hundreds of forklifts, thousands of refrigeration units, dozens of light and heavy duty vehicles, several off-road pieces of equipment (i.e. yard trucks or rail car movers), and a host of other transportation technologies. In our experience, **none** are entirely zero-emission across their operation. The LCFS program should holistically support fleets of all types, mixes, and sizes, and, as there is no prohibition on spending of funds generated from one technology (i.e. forklifts) on another (i.e. converting TRU's to hybrid eTRU's), CARB should continue incentivizing zero-emission technologies until **entire fleets, not specific technologies**, are entirely zero-emission.

   Additionally, considering specific technologies for a reduced EER value simply based on the commercialization readiness or market penetration becomes an extremely slippery slope. In addition to forklifts, total cost of ownership analysis for light-duty vehicles[2], shore power[3], hybrid eTRU's[4], natural gas

[2] https://ww2.arb.ca.gov/sites/default/files/2020-06/190225tco_ADA.pdf
[3] https://theicct.org/sites/default/files/publications/ICCT-WCtr_ShorePower_201512a.pdf
[4] https://www.safeconnectsystems.com/the-ultimate-user-guide-to-etru/six-steps-to-convert-to-etru/ & https://www.mass.gov/doc/etru-grant-brochure/download

Class 8 trucks, and soon, heavy-duty vehicles[5], all regularly show a net benefit, even without incentive from the LCFS, and many will reach a significant market penetration in the next several years. The shore-power market penetration of container vessels subject to the At-Berth Regulation is over 90%, but eOGV is still an eligible category in the LCFS, as it should remain, so ports and port tenants can continue reinvesting in other technologies and other shore power verticals needing upgrades. This trend will continue as manufacturing becomes more effective, supplies become more readily available, and efficiencies and storage capacities increase substantially over the next five to ten years. We believe that the argument for reduced credit generation potential, if based on the concept of additionality (whereby a key decision maker would have made the decision to electrify a certain piece of equipment anyway, even without the LCFS), should be fleet-focused, and not equipment-focused. As mentioned above, being equipment-focused is a short-sighted perspective considering the volume and mix of equipment at any one company, and is entirely juxtaposed with the intention of the LCFS. For example, the question should not be, "Will a fleet operator purchase a forklift even without the LCFS value?" but instead should be, "Without the funds that an electric forklift would generate from the LCFS, would that fleet operator have upgraded vehicles or equipment on site that does not have a beneficial TCO?" If "No" is the response to the second question, then no equipment, regardless of commercialization, TCO, or market penetration should be excluded from the LCFS.

Also, while it is not in CARB's jurisdiction to consider other states or geographies developing clean fuel programs/standards, CARB should note that much of California's LCFS regulatory language is often heavily utilized in the deployment of other programs (i.e WA and OR both use much of the FSE definition, EER values, and much more). In the same way that the localized emission reductions from out-of-state renewable fuels imported into the state are seen outside of California (i.e. methane avoidance in Iowa is counted toward the CA transportation CI score average), CARB should consider the implications of regulatory change influencing other agencies considering adoption of similar programs. Excluding technologies now will set a bad precedent, intentional or otherwise, for states that need to lean on the CARB LCFS regulatory language for success, and worse, heavily influence greenhouse gas emission reduction in areas that do not have wide adoption of electrified vehicles and equipment.

Metering requirements for forklifts need to be phased in. There is widespread agreement that metering for forklifts is a preferred method of reporting for credit generation, as it more closely aligns with other reporting categories, is more accurate, and would eliminate an administrative burden related to registering and tracking equipment locations. However, as is also widely agreed, **the electric forklift technology evolution status is still very rudimentary,** with almost all deployed charging systems not having any integrated metering. To date, telematic deployments are still largely cost-prohibitive on a per-unit/battery level to be installed just for purposes of LCFS participation, have difficulty with data access and transfer within confined warehouse operations, and may not be appropriate across mixed OEM fleets. As "smarter" technologies are made more available by OEM's to give energy consumption insight to fleet operators, we believe a **phase in schedule similar to the ZE Forklift Rule** is appropriate to accommodate for naturally-occurring turnover to new systems.

At only a 50% market adoption of electric forklifts (including Class 3 lifts), there is still a significant amount of equipment that needs to be transitioned to a zero-emission fuel source, especially considering that the overall electric market share has not changed in recent years. This 50% is also primarily indoor, warehouse-type operations. The adoption rate for outdoor and heavy-lift applications is much lower, closer to 0%. As mentioned in

[5] https://ww2.arb.ca.gov/sites/default/files/2020-06/190225tco_ADA.pdf

the paragraphs above, many of the companies we facilitate LCFS access for have mixed fleets and rely on the funds from their LCFS participation to expedite the continued conversion of their forklifts and to work towards full conversion of their on- and off-road fleets. e-Mission Control supports the continued use of the Calculated Methodology used for forklift energy consumption, though technical revisions could be considered to ensure data accuracy and integrity.

Regarding Third-Party Verification for the electricity provisions, e-Mission Control supports extra visibility into data submissions as long as it avoids generating prohibitive burdens for small generators. According to FSE-level registration data, aggregation service providers represent approximately 94% of FSEs participating in the LCFS, which we suspect is due largely to the burden of reporting and transaction activities. Specifically, the verification process should not be so burdensome as to prevent small generators from participating in the program, with or without an aggregator. eMC encourages the ARB to further clarify the process of EV charging verification. In regards to site visits, program participants would benefit from understanding what information other than meter data would need to be verified. If the addition of verification increases participation costs, small fleets and/or aggregators may be prevented from helping small groups participate in the LCFS program. If verification is expanded to include EV Charging transaction types (eTRU, eCHE, and eOGV Fueling, etc), e-Mission Control would support the exemption threshold of 6,000 credits or deficits that currently applies to liquid fuels. This exemption will help ensure small generators are not deterred from participating in the program.

e-Mission Control strongly supports the inclusion of MHD infrastructure crediting, but we suggest more clarity around the "more than a single fleet" definition and intent, especially if "fleet" itself is not defined.

Other administrative opportunities for improvement:

e-Mission Control supports the inclusion of other equipment types, though we suggest CARB establish EER values for GSE and agriculture equipment. During the July 7 workshop, CARB mentioned that staff is considering the inclusion or addition of zero-emission applications for rail, agricultural equipment, commercial harbor craft and airport GSE under the Tier 2 EER-adjusted CI pathway application process. new equipment usage types through an EER-adjusted Tier 2 pathway. We highlight that these application opportunities are already present under the current regulation and any pathway applicant may submit an EER-adjusted Tier 2 pathway application. Using other studies, such as the CAC's EER RFP[6], CARB should consider the additions of these equipment types to Table 5, significantly improving the likelihood of LCFS participation of these new technologies and would route badly needed funding toward fleets considering deployment.

We suggest the first reporting entity and credit generator for eTRU's be the entity that makes facility and equipment use decisions, operates the equipment, and pays utility costs, i.e. the "Fleet Operator".

As the current regulation is written, the "fleet owner" is the credit generator and is applicable to both over-the-road dry-box style containers as well as the "shipping container" style units. In practice, shipping container eTRU's are often moved from the ship then plugged in on-site akin to shore-powering a vessel before they are unloaded/loaded and sailed out again. Operationally, these eTRU's are moved at the same frequency and with the same global footprint as typical dry-box shipping containers. They are exclusively owned by shipping lines and leasing companies but plugged in by distribution facilities and terminal operators. As a container arrives, it is plugged in, then may never see that same facility again after it leaves. Any single container is typically only on site

[6] https://www.oregon.gov/deq/rulemaking/Documents/CFP2022EWcacStudy.pdf

for no more than seven days. These facilities have the capability to independently meter electricity consumption to just the eTRU's, but can't track to which eTRU, on a per-serial-number basis. Importantly, there are many facilities state-wide that have no or very little infrastructure in place to directly plug-in eTRU's on-site. These facilities must rely on diesel gensets to power the electrical componentry of the eTRU's. Facilities that have opted to green their operations by installing associated electrical infrastructure have spent millions of dollars to do so and are also the entities paying utility costs. This industry example is the perfect candidate for the LCFS program to lessen the use of diesel fuel in thousands of gensets and increase penetration of grid-connected eTRU's. We suggest that the first fuel reporting entity be the "fleet operator" and to redefine the FSE as the meter monitoring energy consumption to the eTRU.

e-Mission Control thanks CARB for the opportunity to comment and participate in the amendment process and looks forward to working with the LCFS team on future improvements that facilitate the transition of California's transportation fuel pool toward a more sustainable and decarbonized future.

Sincerely,

Energy Mission Control, Inc.

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