Date: 11/4/2020

California Air Resources Board
1001 I Street
Sacramento, CA 95812

Sent Via Email To: LCFSWorkshop@arb.ca.gov

Re: Comments on Low Carbon Fuel Standard Potential Regulation Amendments

Dear Sir / Madam,

This letter is submitted by Smart Charging Technologies LLC (SCT) in response to CARB's potential regulation amendments. Smart Charging Technologies LLC (SCT) is one of the leading designators for managing LCFS credits for material handling fleets, primarily electric forklift trucks. SCT is also a leading technology company that has developed cloud-based smart charging and battery monitoring solutions. Our deep understanding of industrial batteries and chargers has allowed us to accurately calculate forklift truck usage across our clients' various operations.

Below are our comments / feedback on some of the proposed revisions:

1. Electricity Dispensed for Electric Forklift Fueling:
   Staff is considering proposing to require metered data for all electric forklift fueling
   - Results in accurate crediting and aligns electric forklift reporting requirements with all other reported fuel applications
   - Removes the need to track and report forklift fleet movement
   - Eliminates estimated forklift credits issued to EDUs which have declined due to increased reporting of electric forklifts by other entities

   Comments:

   There are two challenges with metering forklift truck fueling:

   I. Almost all industrial battery chargers do not have any built-in metering. In addition, forklift charging stations are placed at different locations throughout warehouses and manufacturing facilities. As such, there is no single point to place a meter to aggregate energy measurements. Such a requirement will require major infrastructure upgrades in terms of placing many meters throughout a single facility and will overwhelm such facilities with added expenses and costs. This will be viewed as a major obstacle to having owners/operators of forklift trucks participate in the LCFS program.

   II. Even if the fueling stations are metered, it will be almost impossible to separate the kWhrs of old trucks versus new trucks. In many warehouses and manufacturing facilities, the batteries that operate electric forklift trucks are swapped at the end of shifts and new fully charged batteries are placed into those forklifts. There is no way of tracking whether a

given battery charged by an industrial ccharger ends up on a new or old truck. As such, **separating and reporting the kWhrs of old and new trucks is impossible**.

Recommendations:

We recommend having the **forklift trucks metered** through **truck monitoring and tracking devices** rather than having the charging stations metered. Having the trucks metered will address many of the issues that CARB is concerned about, namely:

a. Allows for accurate crediting of forklift trucks based on actual usage.

b. Allows for accurate reporting of kWhrs of old and new trucks.

c. Tracks forklift truck movement.

Proposed Tracking Solution:

SCT has developed **IoTAh** product platform[1], an innovative, cloud-based forklift truck monitoring and data logging device. IoTAh automatically tracks and logs **true Amp-Hour and KWHr** usage of electric forklift trucks thus providing an audit trail of actual forklift truck usage at client facilities. By measuring and reporting the kWHr usage of a forklift truck, the charging kWhrs can be easily calculated by applying a charging return factor (1.1) and an efficiency factor (1.11 assuming 90% charger efficiency), or a net 1.22 multiplier. The new IoTAh product is intended to support the LCFS program reporting and comply with new proposed CARB amendments. Each IoTAh unit is equipped with wireless communication for remote monitoring and configuration, where data is automatically uploaded to SCT's cloud-based servers. The IoTAh unit can also track where the forklift trucks are thus accurately tracking forklift truck movement.

Challenges with Deploying Forklift Tracking Devices:

There are two challenges with deploying forklift truck tracking solutions:

a. *Hardware and installation costs as well as recurring reporting expenses*. Acquiring the hardware as well as installing the monitoring devices will lead to additional costs incurred by operators of forklift truck fleets. In addition, and since the data reporting will be automated through a cloud app (requires one cell service per site), monthly recurring connection costs will be incurred.

b. *Reduced LCFS credits*. Since LCFS credits will be accurately logged and reported, the number of LCFS credits earned by forklift truck operators will be reduced. This is due to the fact that the present calculation method assumes that forklift trucks are operated consistently based on the audited operation profile. While SCT typically subtracts downtimes associated with breaks throughout a shift, actual operation logs will lead to lower reported forklift truck usage and thus lower LCFS credits. This may disincentivize forklift truck operators from installing these devices as it will lead to lower earned LCFS credits.

[1] https://smartchargetech.com/service/iotah-forklift-truck-monitor-new/

Recommended Changes to the LCFS Credits Earned with Tracking Devices:

The above challenges will disincentivize operators of forklift trucks to install forklift truck tracking devices due to the added costs and reduced LCFS credit earning potential. In order to overcome the above objections, we recommend ***creating a special category for metered forklift trucks employing tracking devices to receive additional credits to cover some of the added costs and reduced LCFS credit earning potential.***

2. Clarifications for Uses of On-Vehicle Telematics:
Staff is considering proposing to
    - Allow use of on-vehicle telematics to measure electricity dispensed in other electric transportation applications for LCFS reporting purposes. For example, electric forklifts, drayage trucks, etc.

Comments:

Many industrial forklift trucks lack on-vehicle telematics that aggregate forklift truck kWhrs. Most of these vehicles track and log operational hours (key-on), which cannot be translated into kWhrs (cannot account for true truck operation). In addition, even if such telematics exist, logging this data, tracking it and reporting it would require sizeable resources. Finally, verifying the accuracy of these telematics across different manufacturers and over time is not straightforward.

Recommendations:

We also recommend a **truck monitoring and tracking device** as the one proposed in the previous response as it will ensure accurate logging and tracking of truck kWhr usage and will ensure consistent data across all types of trucks and all manufacturers.

3. Electricity Credit Proceeds Spending Requirements
Staff is considering proposing to
    - Incorporate clarifications arising from feedback on guidance 20-03
    - Clarify spending requirements applying to all the entities generating credits using electricity pathways, including electric forklifts and fixed guideway applications
    - Add details on appropriate uses of credit proceeds, including limits on using for administrative costs

Comments:

The guidance document does not explain the spending requirements for non-LSE. It uses the language of 'may use', namely "Non-LSEs **may use** the electricity credit proceeds resulting from a specific category or sector of electric transportation to invest in transportation electrification projects in the same category or sector"

A reference to Paragraph 7 in section 95491(d)(3)(A) of the LCFS regulation was used in the guidance document. This paragraph was under Non-Metered Residential EV charging. Forklifts were listed

under 95491(d)(3)(E) with no spending requirements. There should be more clarification on how the forklifts spending requirement was included. In the case of Non-Metered Residential EV charging, the proceeds go directly to the LSE.

Recommendations:

In the case of the Forklifts, LCFS credits' proceeds go directly to end users. We suggest that only the portion that is claimed by LSE to have the spending requirement imposed. A specific distinction should be given for non-LSE. For non-LSE, the owners/users of the forklift trucks receiving credits have already made the investment in advance for electrification. It is not clear why owners/users who are paying for electricity and upgrades need to invest a portion of their credits or be restricted on how they need to invest their credit proceeds for fleet electrification that they have already done.

4. First Fuel Reporting Entity for eOGV, eCHE, eTRU and eforklifts

Staff is considering proposing to

- Change the first fuel reporting entity (default credit generator) for
    - Electric Cargo Handling Equipment (eCHE) and shore power delivered to Ocean Going Vessels at-berth (eOGV) if the owner of the facility or location where electricity is dispensed for fueling
    - Electric Transportation Refrigeration Units (eTRU) is the owner of the eTRU o Electric forklifts it ***is the fleet owner***
- Staff is considering changing the first fuel reporting entity for eOGV, eCHE, eTRU and electric forklift to the entity that owns the charging equipment used for fueling

Comments:

The presented language refers to the owner of the actual equipment (for example forklift truck) with the owner of the charging equipment used for fueling. A clarification on the ownership is needed. There are many instances where the fleet is leased. The lessee will hold temporary ownership of the equipment while under lease. It is also not easy to verify ownership records.

Recommendations:

We recommend referring to the owner as the entity who pays for the fuel used to power the equipment, which in this case is electricity, to be in line with the other fuels in the regulation.

5. Third-Party Verification of Electricity Transactions

Staff is considering proposing

- Third-party verification requirements for electricity transactions

Comments:

In the case of electricity, the credit generated based on the data by each metered or unmetered vehicle is very small in comparison to other fuels. The dispensing mechanism for the electricity as a fuel is also hard to gauge over larger number of vehicles because it is used for other purposes as well. Imposing third-party verification will add significant cost and a hurdle to participate in the program.

We would like to thank CARB for the opportunity to comment on the proposed amendments. For any questions or further clarifications to our comments or recommendations, please contact me at nkutkut@smartchargetech.com.

Sincerely,

Nasser Kutkut, PhD, DBA
CEO
Smart Charging Technologies LLC