GreenPower MOTOR COMPANY

Porterville, CA
Rancho Cucamonga, CA
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Online Docket: due 8-8-22
https://www.arb.ca.gov/lispub/comm/iframe_bcsubform.php?listname=lcfs-wkshp-jul22-ws&comm_period=1&_ga=2.263571141.890565268.1657343988-1413733057.1586491489

We appreciate CARB's proposal for meaningful changes in the future. Below are comments from *GreenPower Motor Company (GP)*.

Adjusted CI:

The staff needs to present the adjusted CI model in a table that includes the details year over year thru 2045. This should include all of the components impacting the credit values (EER, CI Electricity Fuel pathway, Energy Density, CI Benchmark standard, LCFS Credit Value).
The CI Electricity fuel pathway will decrease annually based on the power mix of the grid at 60% renewables by 2030 and 100% clean energy by 2045. Therefore, the CI benchmark standard when decreased (adjusted CI) impacts that credit value. This is critical information as historically this information has created a signal that has driven private investments and a future decreased CI coupled with a cleaner energy grid will reduce the value of the base LCFS credit.

MHD FCI Infrastructure Crediting Application:

The proposal to include the BEV MHD FCI stations is necessary and can be well justified due to the various ZERO Emissions mandates that the MHD commercial vocations must meet. They face strict ZEV vehicle procurement mandates tied to their vehicle composition. An MHD program will likely prove to be more cost-effective than LDA toward the unused capacity that the current LDA program generates.

The BEV Medium-Duty sector and vehicles can immediately perform over 90% of the fleet routes and jobs when supported and designed with fast charging and even more specifically high voltage fast charging. This program will help to meet the needs of the small size fleets, private, and independent drivers whereby this infrastructure is critical to support their ZEV procurement. Truck and Bus Dealerships, Garage Services, and Warranty support centers could be well aligned to implement MHD FCI stations and maybe some of the best locations to do so. For example, MHD commercial enterprise dealerships have an interest and have the opportunity to improve their business model as they face implementing a program to support EV technology. They depend on parts and services as their main revenue source and they have locations that could bundle

programs to include charging as they tend to be located in urban and densely populated hub areas and already implement a program to support customers with MHD buses and trucks. Additionally, these centers have space for these larger vehicles. This will harmonize a solution with the mandates and an integrated EV charging model for dealerships allows for a new revenue stream from the EV charging and capacity credits.

We recommend the following in the program and consider the specific needs of the BEV MHD vehicle deployment applications and future scaling needs. We do not recommend the program to include or be shared with LDA vehicles. The two different vehicle types and use-cases are black and white, they are not at all closely related. The LDA cars on average travel 40 miles per day with the current BEV technology. The average new LDA BEV gets up to 300 miles per charge and averages 3 miles per kWh; thereby the LDA BEV only needs to charge on average 1 x week. The average fast-charging public station rate is $0.43 per kWh which results in $0.143 per mile for LDA.

However, this program should focus on MHD specifically. The MHD drivers and vehicles need ingress and egress accessibility for the larger size vehicles. They have an immediate need to get reliable access due to their larger-size battery packs that require longer charging sessions. The BEV MHD vehicle technology averages 55-200 miles per charge and will likely need to charge daily and sometimes 2 x per day for high volume mileage vocations and applications that go beyond the range and or share a vehicle. The charging experience and reliability are critical to this sector. The design and needs of the MHD sector are vastly different than the needs of the LDA. There is no synergy between these two different sizes of vehicles. We need to focus on this sector before considering a mix. This sector is sensitive to the range and long charging sessions and the experience & up-time of the BEV early adopters require a focus to get it right. Additionally, the station cost can be more cost-effective if focused on larger size commercial vocations versus mixing a design for two vastly different needs and requirements.

I suggest a program that has an incentive to encourage hub sharing for small-size fleets versus focusing on public access. There needs to be an incentive for neighbor fleets to have access to charging that could likely be installed by larger entities. Such an incentive could increase site utilization, and cost-effectiveness, local charging will reduce miles traveled, and the increased utilization could put downward pressure on the effects of demand or subscription fees. The program could include a plus-up incentive to add resiliency to the site for a 2-3 hour window during the peak hours, for example,

battery storage or renewables generation, this could reduce grid constraint or capacity upgrades by the utility.

A 5-year crediting period should be the minimum, if battery storage is included the program could be either longer or shorter depending on what considerations should take place to achieve fairness for the additional investment.

The nameplate should be on a case-by-case basis. However, the Electrify America stations have been very successful. The chargers should be at a minimum of 150 to 350 kW.

Further, MHD charging infrastructure could benefit and perfectly align with your new battery storage business consideration and I would encourage a % of battery storage to be included for Peak-Time use hours (maybe a 2-hour window) to continue to support grid constraints at Peak time and establish smarter designs that benefit the technology, end-users, utility, and society.

Evaluate the site based on its location, its ability and willingness to share the hub, open hours, parking for MHD size vehicles, and bandwidth connectivity to support DCFC charging including in more rural areas & a program to maintain specific maintenance & tolerance to keep all equipment available (running) as there is no consequences for equipment that is not available.

Update to the EER data:

We recommend an EER data update, this is required to establish EV Vehicle Standards with the MHD Class vehicles under the baseline method.
The Current program does not logically result in a method that supports the best and most efficient MHD EVs.
We need to begin developing awareness toward an EV MHD fuel economy standard for each MHD class whereby the most efficient kWh/mile achieves more credits and more opportunities toward increased revenues.

For example:

- Class 4-6 as one category
- Class 7-8 as one category

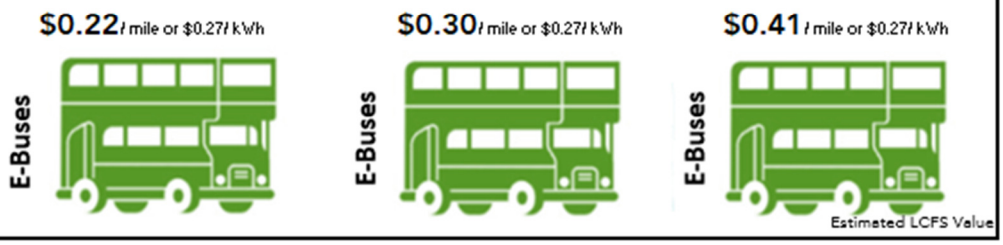
Instead of currently all Class 4-8 in one category.

The Fuel economies from the MHD should create a standard for the specific vehicle class as the amount of battery storage that is installed in the vehicle is similar to the class size. OEMs should design the technology with quality and with the best engineering judgment and components that achieve the best fuel economy. This directly impacts the fleets and ensures the technology creates a cost-per-mile benefit.

I do not object to the fuel density equivalent method. What needs updating is another step for converting the kWh/mile efficiency to a result that is higher and better for the most efficient class of MHD EV vehicles. Moreover, with this change, the less efficient vehicles will NOT continue gaining more credits as they currently can generate (see figure below).

YOUR ESTIMATED LCFS EXPLAINED.
Fuel Revenue Credits Per Mile. Shuttle HDV.

EV Per Mile Revenue			
Credit Price	HD (Class 4-5) = 5.0 EER		
$/Credit	kWh/Mile	kWh/Mile	kWh/Mile
Value	0.8	1.1	1.5
$100	$0.11	$0.15	$0.20
$160	$0.17	$0.24	$0.33
** $200	$0.22	$0.30	$0.41



Essentially creating consideration for an average fuel economy standard for each MHD class is necessary and this will result in the best and most efficient vehicles with the most credits.

~Lisa McGhee, GreenPower Motor Company