

November 8, 2019

California Energy Commission (CEC) Docket Office,
MS-4 Re: Docket No. 19-TRAN-02
1516 Ninth Street
Sacramento, CA 9581

Sent via e-mail to DOCKET@energy.ca.gov

Re: Adding plug-in Hybrid EVs to the concepts for CEC Clean Transportation program funding regulation (Oct 25, 2019 workshop)

Dear CEC staff

On behalf of the Strong Plug-in Hybrid Electric Vehicle (SPHEV) Coalition, we are pleased to submit the following comments on the October 25th workshop on concepts for ZEVs and ZEV infrastructure funding using the CEC's Clean Transportation Program funds (\$47.5 million in FY 2018-19 and FY2019-2020). The Strong PHEV Coalition, established July2019, represents a group of over 20 electric car and truck experts with over 300 years of collective EV professional experience from our current or former careers representing most aspects of the EV industry including academia, electric truck and car manufacturing, research institutes, government, utility EV programs, EV consumer groups, EV fleet / charging station management, and consulting.

With the specific goal to support California's and the United States' efforts to reduce GHG emissions, the coalition educates about the value of PHEVs in cars, trucks, and commercial vehicles with a focus on mid-range and long-range PHEVs which drive most of their miles powered by clean electricity.¹

We recommend that CEC's Clean Transportation program funding support CARB's proposed Advanced Clean Truck (ACT) regulations (class 2b-8 trucks) by allowing PHEVs to be eligible for RD&D funding under the \$47.5M available for Medium and Heavy-duty ZEVs in the Clean Transportation program. The upcoming ACT rule only

¹ A Strong PHEV is a mid-range PHEV and long-range PHEV (car, truck or commercial vehicle) that drives most or almost all of its average annual miles from low-emission electricity. The second propulsion system can be an internal combustion engine or fuel cell and should be capable of using a very low carbon fuel. In addition, strong PHEVs should be safe and road worthy in any driving mode, mostly eliminate cold starts and be tested for performance and emissions on the most real-world, established test cycle. A Strong PHEV's engine should rarely come on when there's ample battery state-of-charge. A long-range PHEV should have minimal -engine maintenance for the life of the vehicle. A commercial PHEV should be able to use a common established connector for DC charging

allows battery EVs, fuel cell EVs and PHEVs to qualify, and we think the CEC should take the same approach and add PHEVs to the list of eligible vehicles in this part of the Clean Transportation program. Further, we recommend that PHEVs utilized in fleet applications be allowed to use ZEV infrastructure funded by this CEC program.

We are pleased to provide CEC with the following specific comments regarding the October 25th workshop. The Strong PHEV coalition is a data-oriented group. Based on what we know today, our analysis suggests that for medium and heavy-duty vehicles that Strong PHEVs, especially long-range PHEVs, in combination with BEVs are better in the near and long-term than BEVs with no Strong PHEVs.

The Strong PHEV coalition offers the following justification to support our request that Strong PHEVs in vehicle classes 2b-8 be eligible for ZEV funding, especially the RD&D components in the \$47.5M CEC Clean Transportation program funding for medium and heavy-duty ZEVs.

The USDOE's Office of Energy Efficiency and Renewable Energy (EERE) supports RD&D for PHEVs in trucks and off-road vehicles,² and the CEC's Clean Transportation Program could and should seek to leverage those DOE funds by allowing PHEVs in its program. This will help attract additional funds to California.

In addition, Strong PHEVs (mid-range to long-range all-electric range) for commercial trucks compared to a BEV only approach offer:

- **Faster path to zero greenhouse gases worldwide**
 - Mid-range and long-range PHEVs together with battery EVs and fuel cell EVs help reduce greenhouse gases faster by getting more people into low-GHG trucks than a battery EV and fuel cell EV only approach
 - Eventually, long-range PHEV trucks with 90% of annual miles as e-miles and 10% existing biofuels are a long-term solution
- **Less need and cost for public charging stations for fleets**
 - Most charging at home base fleets with SPHEVs
- **Better solution to survive in long-term catastrophes and daily emergencies**
 - Wildfires, earthquakes, hurricanes, floods, riots, etc.
 - SPHEVs are dual fuel and can rely on the 2nd fuel source
 - Also, SPHEVs can be designed for resiliency and exportable back-up power in public service power shut offs and other outages.
- **Better solution for fleets who may have range concerns**

² Specifically, last July, the USDOE announced \$50M and innovative research of technologies for trucks, off-road vehicles, and the fuels that power them, and will go to a wide range of advanced alternative fuel trucks including electric, plug-in hybrid and fuel cell-powered trucks.

- Also, flexible SPEVs can use away-from-home charging only and make it easier for first, second and third owners of a PHEV truck
- **Less cost to electric grid**
 - Lower level charging for commercial fleet charging with SPHEVs compared to all-electric trucks
- **Higher adoption levels help the truckmaker's business case**
 - More feasible to get over the commercialization hurdle (the "valley of death") faster with at least some truck makers taking a SPHEV or SPHEV+BEV approach
- **Better solution for rural drivers / cold weather regions**
 - A potential better option for the portion of the world that covers small and mid-size towns where trip distances (when needed) exceed urban megacity regions
 - A potentially better option for areas with extreme cold weather
 - As a world leader, California's RD&D efforts should not be focused on California, but the needs of trucks in all parts of the world including rural regions, cold weather regions and regions with frequent power outages and catastrophes.

Thank you for your commitment to zero-emission mile technology and the development of the medium and heavy-duty ZEV parts of the Clean Transportation Program and for the opportunity to comment on the Oct 25th workshop. Our coalition looks forward to dialogue with the CEC staff.

Sincerely,

Chelsea Sexton
Acting Chair of the Strong Plug-in Hybrid EV Coalition

~~Attachment 1.~~

~~Justification for the Strong PHEV Coalition's recommendations~~

~~Support for the progressive crediting system on Slides 22 and 23~~

~~The Strong PHEV Coalition strongly supports the new proposal for a sliding scale of PHEV credits as shown on slides 22 and 23 in the August 21 workshop presentation. This progressive system is a dramatic improvement over the prior proposal for a flat credit system. Because PHEVs with very large battery packs can electrify most of annual average miles driven during the course of a single day, they deserve increasing compliance credits.~~

~~Need to reward PHEV trucks that can provide 75% to 100% of their miles electric~~

~~The Strong PHEV Coalition believes it is important for the ACT regulation crediting system to encourage truck makers to produce and fleets to use plug-in hybrid electric (PHE) trucks that can provide more than 75% of their miles from an electric off-board power source.~~

~~However, we are not suggesting changing the progressive crediting system described above. Instead we are proposing that truck OEMs earn additional credit if they can show after being on the road for a while that the trucks they sold electrify between 75 and 95% of their annual miles (e.g. using telematics, on-board diagnostic devices or data recorders). Another option would be for fleets to earn additional credit in the upcoming ACT fleet requirement rule for doing the same thing. Providing bonus credits to fleets has the added advantage of encouraging the charging of PHEVs. We like both approaches because the collection of real-world usage data proves that electric miles occurred.~~

~~While it is unknown whether Strong PHE trucks that can electric almost all of their miles will be produced, we believe that the experience of the Advanced Clean Cars (ACC) regulation shows that CARB should try to encourage Strong PHE trucks to be manufactured. The ACC regulation's crediting system encouraged production of the PHEV from BMW³ with 126 mile all electric range (AER). Also, PHEVs such as the 1st and 2nd generation Chevy Volt PHEVs proved they can electrify more annual miles than some short range, all electric cars, and CARB's crediting system successfully encouraged this type of PHEV. Similarly, the Strong PHEV Coalition believes CARB should take a similar approach in the ACT regulation to encourage PHE trucks that can electrify 75% to 95% of their annual miles.~~

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Need for Strong PHE trucks beyond 2030

The Strong PHEV Coalition respectfully requests that the sunset date for new PHEVs to earn credits for regulated truck manufacturers be extended 10 years—from 2030 to 2040, especially for Strong PHE trucks. We have several reasons for our request:

- ***Because of the urgency of the climate and air pollution crises worldwide, it is important to take an all-hands-on-deck approach and have multiple types of zero-emission truck technologies including traditional PHEVs and Strong PHEVs***
 - Strong PHEVs offer more options for consumers which means a faster path to zero CO₂ worldwide
 - Many areas of the world are relying on CARB's leadership to commercialize new zero carbon solutions to transportation such as Strong PHEVs
 - Between 2030 and 2040 the requirements on eligible PHEVs could be very stringent in order to encourage the strongest types of PHEVs
 - The longer term goal should be PHEVs with 100% zero carbon electricity generation for almost all of their electric miles, and advanced biofuels for the remaining miles
- ***Allowing the Strongest PHE trucks to be eligible from 2030 to 2040 provides a better solution for commercial vehicles that provide services during major catastrophes and daily emergencies***
 - Because Strong PHE trucks are dual fuel that means they are particularly suited to provide services for society to recover from wildfires, earthquakes, hurricanes, floods, riots, and other catastrophes, as well as provide needed services in more typical daily emergencies (e.g. police, ambulance, fire, power outage recovery)
- ***Allowing the Strongest PHE trucks to be eligible from 2030 to 2040 helps low-income truck drivers***
 - We believe the used electric truck market is an important consideration in developing the ACT regulation, as many low-income truck drivers use or own used trucks. As such, the flexible nature of Strong PHE trucks makes them an important solution for low-income professionals who rely on used trucks
- ***Strong PHE trucks are an excellent solution for many parts of the world and a 20-year commercialization period (2020-2040) is needed to scale-up this technology***
 - In addition, we believe that at least some truck manufacturers will find a better business case to reach scale and get higher levels of vehicle adoption by producing both PHE trucks and battery electric trucks than only producing battery electric trucks. Such a result is good for truck maker competition, for consumers and the planet
- ***Strong PHE trucks are an excellent solution for the unique needs of rural areas***

- Strong PHE trucks are potentially a better option for the portion of the US and other countries that cover small and mid-size towns where trip distances (when needed) exceed urban megacity regions
- ***Allowing the Strongest PHE trucks to be eligible from 2030 to 2040 should result in less need and cost for away-from-home charging stations for commercial fleets***
 - Strong PHEVs don't need public charging and can rely on fleet-only charging which reduces the societal cost (e.g., grid upgrades, public incentives for charging stations)
 - Strong PHEVs charging in fleet applications have less cost to the grid because they charge at lower levels than battery electric trucks.

Need for additional questions on the mandatory reporting requirements on fleets

The Strong PHEV Coalition believes that CARB staff's proposed questions to fleets need improvements and additions especially to better understand fleet services, the communities trucks serve and their use cases. Specifically we recommend asking fleets:

- whether their current vehicle is used to help society recover after a catastrophe whether their current vehicle is used in daily emergency uses (e.g., ambulances or power outages, fire/ police services)
- about the amount of average daily and annual miles per category of vehicle and monthly hours of operation per category of vehicle
- the percentage of short trips vs long trips by category of vehicle
- how many vehicles in single shift, double shift or triple shift operations
- for an estimate of the percentage of daily or annual miles within disadvantaged communities.

Need for some use of non-survey data collection tools to get real-world data

The Strong PHEV Coalition respectfully requests that CARB come up with a method to collect real-world data from fleets and we are open to the exact solution. Perhaps, fleets who participate and provide such data from on-board diagnostics, telematics or other data recorder devices could be rewarded with extra compliance credits in the upcoming ACT regulation on fleets. Whatever the solution, we believe that real-world data is more important in most cases than the survey data questions proposed by CARB in the August 21 workshop, and should be encouraged.

Need for a higher minimum all-electric range (AER) for PHEVs

The Strong PHEV Coalition respectfully requests a higher minimum floor than the 10 mile AER shown for 2021 to 2023 production years (see slide 38 in the ACT workshop deck for August 21) if raising it does not negatively impact the progressive crediting system presented at the August 21 workshop. As our name suggests, we favor strong PHEVs. We also believe that truck manufacturers may want to start with milder PHEVs

with less AER, comparable to what car manufacturers did with PHEVs. However, given the current and expected reduction in battery prices, starting with 10 mile all electric range seems too low.

~~Need for to encourage one class of strong PHE trucks with compliance flexibility~~

~~The Strong PHEV Coalition believes that as a way to encourage stronger PHEVs that manufacturers of Strong PHEVs in truck class 2b should be able to generate and use or generate and sell these credits for compliance in either the ACC regulation or the ACT regulation. We are open to the details of how to do this, but believe that this is a simple way to encourage Strong PHEVs that are substantially better than PHEVs at the lower end of the AER scale.~~