

July 30, 2020

Clean Cars staff  
California Air Resources Board (CARB)  
Board 1001 I Street  
Sacramento, CA 95812

Submitted to [cleancars@arb.ca.gov](mailto:cleancars@arb.ca.gov);

Re: July 17 Clean Miles Standard Workshop

Dear CARB Staff:

The Strong Plug-in Hybrid Electric Vehicle (SPHEV) Coalition's advocacy team appreciates this opportunity to comment on the proposed Clean Miles Standard and offer modifications for your consideration.

The Strong PHEV Coalition established July, 2019 represents a group of over 20 electric car and truck experts with over 300 years of collective 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.

The Strong PHEV Coalition defines a Strong PHEV as follows:

*A Strong PHEV is a mid-range or 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 daily cold starts and be tested for performance and emissions on the most real-world, established test cycle. A Strong PHEV's engine should rarely or never come on when there's ample battery state-of-charge. A long-range PHEV should have zero-to-minimal engine maintenance for the life of the vehicle. A commercial PHEV should be able to use a commonly established connector for DC charging.*

With the specific goal to support California's and the United States' efforts to reduce GHG emissions, our coalition educates regarding PHEVs, especially Strong PHEVs (i.e., mid-range to long-range PHEVs) that drive most of their miles powered by clean electricity. The Coalition advocates for regulations and incentives that encourage the strongest PHEVs. We believe the Clean Miles Standard (CMS), once adopted, will have

a large impact on the rest of the world. Thus, it is important for the CMS regulation to send the correct signals to the world's transportation network companies (TNCs) regarding PHEVs and especially the need for Strong PHEVs.

We believe that regulations and incentives have not tried hard enough to encourage mid-range to long-range plug-in hybrid cars and trucks especially those that can achieve 90% to nearly 100% of their annual miles using electricity. We believe mid-range PHEV cars and trucks—and especially long-range PHEVs—in combination with battery electric cars and trucks, are better in the near-to-mid term than a scenario with only BEVs.

Strong PHEVs have the following key attributes:

- Complimentary to battery electric vehicles as we all seek zero greenhouse gases
- Ability to provide extended range during catastrophes
- Provide back-up power and resiliency to the electric grid
- Reduce range anxiety for commercial fleets
- Broaden the used EV market
- Expand EV opportunity to midsize and small towns
- Serve as a platform for advanced batteries, fuels and engines

One reason the CMS should include PHEVs is that the Advanced Clean Truck (ACT) and Advanced Clean Cars regulations both allow PHEVs. In December 2019, the CARB Board asked the Advanced Clean Truck staff, “why not unleash the creativity of engineers by being less prescriptive on the types of solutions as long as the goal is being met?”. As a result, staff extended the eligibility of PHEVs from 2030 to 2035 if they are a Strong PHEV (75 miles all electric range per charge) and are considering PHEVs as eligible for utility and government fleets in 2045 in the upcoming ACT fleet rule.

We understand that staff is concerned about how to prove that TNCs with company-owned or driver-owned PHEV drive in all electric mode. We believe this problem is solvable with either on-board diagnostic data, geofencing or similar technologies. We are similarly interested in making sure the actual program goals are being met, and adding a measuring requirement for TNC vehicles will provide CARB with needed data.

We further understand that staff is concerned that PHEVs will not be able to provide enough miles. While this might be true for some use cases, we believe this approach is unfair especially to disadvantaged communities and lower-income PHEV drivers who often do ride hailing as an additional part-time job. Many live closer to urban centers and entertainment districts than full-time drivers. Availability of affordable used

models like the Chevrolet Volt also enables the adoption of more plug-in vehicles than is likely possible with BEVs alone. Finally, manufacturers are already experimenting with geofencing on PHEVs<sup>1</sup>, which when launched can further provide benefits to urban centers, entertainment districts and similar areas. The CMS can and should encourage these technological tools to ensure that as TNC miles are indeed clean miles.

Additional solutions to CARB's concerns about minimal electric miles from PHEVs include:

- Adding a minimum all electric range per charge requirement (e.g. 40 miles) as this still allows for new or used models such as: Honda Clarity PHEVs, Chevy Volt, and Toyota RAV4 Prime.
- Adding a requirement for 6.6 kW or DC fast charge capability as this encourages more automakers to offer this feature. The 2019 Chevy Volt PHEV (6.6 kW) and Mitsubishi Outlander PHEV with DCFC port are examples. Because this is a tough requirement we recommend this be added in a few years, but not in the December proposal.

The Strong PHEV Coalition is also concerned about the CMS limiting the adoption of autonomous electric vehicles (AVs) by excluding PHEVs. Recent [Carnegie Mellon University](#) research found that BEVs as AVs could use up to half their range for the AV's computing needs and that hybrids are a better option especially in the early years. SPHEV's do not necessarily have this issue.

Finally, we recommend that PHEVs be eligible in the electric vehicle miles traveled (EVMT) requirements of the proposed CMS and that the GHG requirements of the proposed CMS (where PHEVs are eligible) be reformed. In the July workshop, Staff explained that 98 to 99% of the greenhouse gas reduction (GHG) requirements are met by BEVs and fuel cell EVs traveling electrically, which means that PHEV and other solutions that are not eligible for the EVMT requirement can contribute very little. We believe this is too stringent and that the better balance between the GHG and EVMT requirements should be created to better meet the spirit of the legislative directive.

- *should be able to use a common established connector for DC charging.*

Thank you for your commitment to zero-emission mile technology and the development of the ACT regulation and for the opportunity to comment. Our coalition looks forward to dialogue.

Sincerely,

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<sup>1</sup> For example, Ford's PHEV van in Europe.

Bob Graham and Chelsea Sexton  
Acting Co-Chairs of the Strong PHEV Coalition

Cc: Joshua Cunningham, Analisa Bevin

## Attachment 1.

### Justification for the Strong PHEV Coalition Advocacy team's recommendations

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

The Strong PHEV Coalition's advocacy team believes it is important for the ACT regulation crediting system to encourage truck makers to produce and fleets to use plug-in hybrid electric (PHEV) 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 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 PHEV trucks that can electrify 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 PHEV trucks to be manufactured. The ACC regulation's crediting system encouraged production of the PHEV from BMW<sup>2</sup> with 126 mile all electric range (AER). Also, PHEVs such as the 1<sup>st</sup> and 2<sup>nd</sup> 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's advocacy team believes CARB should take a similar approach in the ACT regulation to encourage PHEV trucks that can electrify 75% to 95% of their annual miles.

#### Need for Strong PHEV trucks beyond 2030

The Strong PHEV Coalition's advocacy team respectfully requests that the sunset date for new PHEVs to earn credits for regulated truck manufacturers be extended 10 years - from 2030 to 2045 for PHEV trucks with a 75-mile AER and past 2045 if also linked to an ultra-low carbon fuel for the second propulsion system. 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***

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<sup>2</sup> The ACC regulation allows a certain type of long-range PHEV (called a BEVx) to earn extra credit and count toward meeting BEV requirements rather than counting as a PHEV.

***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 2045 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 or other ultra-low carbon fuel for the remaining miles
- ***Allowing the Strongest PHEV trucks to be eligible after 2030 provides a better solution for commercial vehicles that provide services during major catastrophes and daily emergencies***
  - Because Strong PHEV 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 PHEV trucks to be eligible after 2030 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 PHEV trucks makes them an important solution for low-income professionals who rely on used trucks
  - For used trucks which typically have lower annual mileage, Strong PHEV trucks can provide an even greater percentage of annual electric miles than when they are new.<sup>3</sup>
- ***Strong PHEV trucks are an excellent solution for many parts of the world and a 20-year commercialization period (maybe longer) 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 PHEV 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 PHEV trucks are an excellent solution for the unique needs of rural areas***

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<sup>3</sup> As explained in footnote 2, we believe that fewer miles due to battery degradation will be less than reduction in total miles that occurs as the truck ages.

- Strong PHEV 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 PHEV trucks to be eligible after 2030 should result in less need and cost for away-from home charging stations for commercial fleets***
  - Strong PHEVs do not 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’s advocacy team believes that CARB staff’s proposed questions to fleets need improvements and additions especially to better understand fleet services, the communities that 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’s advocacy team 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.