

August 28, 2020

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

Submitted to EMFAC@arb.ca.gov;

Re: July 30 workshop on EMFAC

Dear CARB Staff:

The Strong Plug-in Hybrid Electric Vehicle (SPHEV) Coalition's advocacy team appreciates this opportunity to comment on the EMFAC workshop.

Established in July 2019, the Strong PHEV Coalition represents an independent group of over 20 electric transportation experts with more than 300 years of collective professional experience. We possess expertise in most disciplines of the EV industry including research and academia, vehicle manufacturing and deployment, policymaking, utilities, NGO advocacy, consumer education, EV fleet management, and charging infrastructure development.

With the specific goal to support California's and the United States' efforts to reduce GHG emissions, the Coalition educates regarding more electrified variants of PHEVs (i.e., mid-range or long-range PHEVs) that drive most of their miles powered by clean electricity. Additionally, the Coalition advocates for policies that include consideration for the strongest PHEVs.

We understand CARB Staff's concerns regarding high-power cold start emissions from PHEVs and believe this is an important topic to address. However, we also believe that not all PHEVs are the same, and that your presentations in workshops and to the CARB Board should better show this. For example, several PHEVs do not have the engine come on until the battery is depleted and have few cold starts. Perhaps your presentation could more clearly differentiate between non-blended PHEVs¹ and several types of blended PHEVs and show the big picture conclusion of their total daily NOx and THC emissions on a per-vehicle basis² versus ICE vehicles. In addition, their total low-power cold start emissions and high-power cold start emissions could be shown.

¹ We recommend defining a non-blended PHEVs as either no engine on until the battery is considered depleted for motive power or perhaps as able operate on the US06 cycle with no engine.

² For example, number of low-power and high-power cold start events times the emissions per event

We also understand that EMFAC modeling reflects the Advanced Clean Car (ACC) minimum requirements for PHEVs rather than a future ACC regulation that will likely address cold starts. However, we believe that for those PHEVs that have engine turn-on at lower speeds, the high-power cold start emissions issue is technologically solvable through control strategies (e.g., pre-heating the catalytic converter with the battery). We request that this message to come through in your future presentations and conversations with other CARB Staff.

We believe there are two main findings. As shown on your PHEV takeaways slide PHEVs provide substantial GHG emission reductions. As far as NOx and THC emissions, this issue can be solved technologically, and is even less of an issue for Strong PHEVs with engines that do not come on until the battery is depleted for powering the car or truck. And we support the high power cold start issue for PHEVs to be addressed in the upcoming Advanced Clean Cars II regulation.

The Coalition defines a Strong PHEV as 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 very low carbon fuel. Strong PHEVs must be safe and roadworthy in any driving mode, mostly eliminate daily cold starts, and be tested for performance and emissions on an established test cycle that most closely matches real-world driving. A Strong PHEV's engine should rarely—if ever—come on when there's ample battery state-of-charge, and require minimal or no engine maintenance for the life of the vehicle. If equipped with DC charging capability, SPHEVs should be able to use an existing, market-established connector for that purpose.

Strong PHEVs have the following key attributes:

- Complimentary to Battery Electric Vehicles, while supporting faster market expansion
- Can provide extended range and on-site auxiliary power during catastrophes
- May provide back-up power and resiliency to the electric grid
- Reduce range anxiety and infrastructure cost for commercial fleets
- Broaden the used EV market in all vehicle classes
- Expand EV opportunity to rural and disadvantaged communities
- Serve as a platform for advanced batteries, fuels, and engines
- Less cost to the electric distribution grid

We believe that regulations and incentives have not tried hard enough to encourage mid-range and long-range plug-in hybrid cars and trucks, especially those that can achieve 90% or more of their annual miles using electricity. We believe these PHEVs—

in combination with battery-electric cars and trucks, provide more opportunity to accelerate EV adoption in the near-to-mid term than BEVs alone.

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

Sincerely,

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