

TESTIMONY TO THE CALIFORNIA AIR RESOURCES BOARD ON THE ZEV REVIEW Felix Kramer, Founder, The California Cars Initiative (CalCars.org)

Let's all recall the initial vision that fueled the ZEV mandate: to motivate and incentivize global mass-production of an ever-increasing portion of cars as zero-emission vehicles. For almost 20 years, states and nations around the world have watched and followed our lead.

After many setbacks, we now have that goal in view, thanks to the increasingly positive technical prospects and public and institutional support for PHEVs and EVs.

The **California Cars Initiative**, a non-profit advocacy and technology demonstration group of engineers, entrepreneurs, environmentalists and consumers, suggests the Board look at its options through one primary prism: what will best accelerate mass production of ZEVs.

We believe the Board now is uniquely positioned to roll out the red carpet and make this happen.

THE OPPORTUNITY FOR PLUG-IN HYBRIDS

Staff's *Figure 3.1 "Projected Achievement of Global Volumes"* presents PHEVs as the highway-capable vehicles that can reach "mass commercialization" soonest. We think it's not necessary to pick winners to recognize that electrification of transportation requires no new technology or infrastructure. We advocate PHEVs not as a single "silver bullet" solution, but as part of what's being called "silver buckshot."

If left on their own, an unknown number of years from now, one or more carmakers might begin to produce some quantities of PHEV passenger vehicles.

Why not sooner? They're waiting for affordable, 40-mile range, life-of-vehicle batteries. Yet the best way to test and evolve systems is to put them on the road. What if California said to carmakers, "We'll make it easy for you?" Please don't scrimp on safety -- but on the other factors, we'll go all out to help you get started." (By the way, we're in a race. If we don't act, we hope Washington State, Texas, or the US government will make it happen...)

The key is to stop making the perfect the enemy of the good. Today we're in a slow Pearl Harbor on climate change and energy dependence. In 1942 we geared up war production without waiting for perfect planes and tanks! California can catalyze worldwide change. How?

In Silicon Valley, over and over, expensive unfinished Version 1.0 products evolve into great best-selling Version 2 and 3 products. Working with others, the **ARB can facilitate carmakers' building "good enough" Version 1.0 PHEVs. They can start with line extensions for demonstration fleets of hundreds or thousands of cars.**

GM'S APPROACH -- AND ITS RELUCTANCE

On March 12, GM held an "Advanced Battery Technology Briefing". (See our report at <http://www.calcars.org/calcars-news/713.html>.) The *New York Times* reporter Matt Wald asked why the first batteries had to last the lifetime of the vehicle. He suggested this goal might slow PHEVs' commercialization. **Volt Chief Engineer Nick Zielinski** said batteries couldn't be considered a maintenance part. When GM took my question, I asked **Beth Lowery, Vice President for Energy and Environment** if GM had considered the possibility that legislators, government regulators and fleet owners could come together to support GM's production of PHEVs with a 75,000 mile/5 year warranty -- supplemented by third-party warranties on the first thousands of cars, thereby **eliminating risk factors to buyers and sellers.**

Lowery agreed that demonstration fleets were important and emphasized that GM was "in the business of getting things right." **She said the third-party warranty was an "interesting concept" -- but said it would be difficult to put in place.** When I asked point-blank if GM had discussed with any government officials either warranties or easing regulatory requirements, she said no. She reiterated that the company was very interested in consumer incentives and other government programs.

The carmakers have created a new chicken-and-egg situation. Pre-validating the full lifetime of batteries could be the barrier that delays the introduction of vehicles that might otherwise be ready sooner. Yet they can't see the first PHEV batteries as a maintenance part, akin, for instance, to tires, which are warranted separately from cars. And 40 miles is far more than most commuters' daily drive. But they are clearly open to new solutions!

FLEXIBILITY AT THE AIR RESOURCES BOARD

A week after the GM press conference, on March 21, ARB Information Officer Karen Caesar responded to a Marin journalist's inquiry about demonstration fleets with modified requirements.

"It's likely possible that plug in hybrids can be certified in California **without the 10 year warranty** -- if the car company does not want to use the vehicle towards ZEV regulation compliance."

"Clearly, plug in hybrids are a very exciting and promising technology. We recognize their significant

potential to advance technology that will lead to commercialization of ZEVs. **The ARB is working with automakers to figure out how to bring them to market.**"

THE OPPORTUNITY AND THE CHALLENGE.

The ARB can **communicate to carmakers that it could suspend its battery lifetime regulations** for demonstration fleets that do not receive credits. (The regulations for the rest of the emissions system will remain in place. The vehicles will have fully functional batteries at all time -- just ones that may be replaced during vehicles lifetimes.)

Alternatively, it can work with all interested parties to fashion a **third-party extended warranty program.**

Based on our discussions, we believe **leading battery suppliers might offer 50-75,000 mile 4-5-year warranties** for a limited number of cars for demonstration fleets. (These could also apply to after-market conversions.)

To reduce the cost of warranties, **utilities have indicated they might pay for "80% good" batteries** that could go into the basement of downtown office buildings to be charged at night and discharged during the day.

Federal and state legislators can modify legislation to apply proposed **government incentives for PHEVs to pay for battery warranties.** (And given the unexpectedly rapid

growth in attention to "vehicle to grid," advocates nationally project that incentives in the future could be supplemented by revenues from what Federal Energy Regulatory Commissioner Jon Wellinghoff calls "cash-back PHEVs.")

We believe that ARB pro-actively reiterating its flexibility could affect carmakers' development plans.

THE END OF BUSINESS AS USUAL

Carmakers partnering with all the stakeholders in this way would be unprecedented. It would also be appropriate given the urgency of climate change.

The first large demonstration fleets will give carmakers **market research** from drivers and help them "get PHEVs right" by improving other aspects of the car. They will help ensure that the **public has realistic expectations** about PHEVs. Meanwhile, the ARB will be able to address in parallel issues involved in **PHEV certification** for mass-production cars. And while carmakers get ready for volume production, given the rapid changes in the energy storage industry, they may have even **better battery choices in as little as two years.**

Opinion leaders with plugs and PHEVs (L-R): USDOE officials including Asst. Sec. Andy Karsner; Vice Pres. Al Gore with CalCars founder Felix Kramer; Robert Sawyer/George Shultz/Terry Tamminen; Pres. Bush and A123Systems CEO David Vieau; Republican Senator Brownback with Democratic Representatives; Maria Shriver; Pres. Clinton

"A coalition between the tree-huggers, the do-gooders, the sod-busters, the cheap hawks, and the evangelicals." – former CIA Director James Woolsey

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