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Subject: Let's Get Going  
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### Background

I'm William Korthof, a business owner, Southern California resident, and EV driver. I drive a 2002 Toyota RAV4-EV. Last month my odometer rolled past 100,000 miles and the car continues to perform and meet all my needs. This turned out to be an all-around incredible car: completely trouble free, nearly maintenance free, and cost effective.

My company, EE Solar, is a leading residential electrical solar contractor in California. In addition to installing solar panels, we are committed to a cleaner California. The ZEV program matters to us and we actually *drive* clean air vehicles every day: 8 electric cars, 6 natural gas vans, and a natural gas sedan.

### My observations

I've read the latest technology report, and I noted some problems:

- The report finds serious obstacles to hydrogen cars; on this point I agree.
- But the report understates battery technology. It fails to mention the mass-produced class of lithium batteries used by Tesla and AC Propulsion that power electric sports cars 200 to 300 miles. The report also omits advances in NiMH batteries, such as the 110 amp-hour models from Panasonic and Saft shown in 2001 (10-15% more capacity)
- The report dismisses viable options, such as lead-acid batteries. When GM improved EV1s with Panasonic lead batteries, the cars delivered a 100-mile range. Many drivers would choose plug-in cars with lead batteries over more expensive choices
- Flaws. The report suggests it takes a 30 kWh battery pack for a 75 mile driving range in a compact sedan. Not exactly... Using 10-year-old technology, the RAV4 EV has an EPA range of 50% more miles, in an SUV package that draws 25% more power than a compact car, and uses a battery pack that is 10% smaller. Together, the report mis-represents the technical capabilities of plug-in cars by a factor of 2. (150% x 120% x 110% = 2)
- The report's incomplete and flawed evaluation leads to suspect conclusions on the market potential of battery-electric and fuel cell cars

### Experience

Consumers are more eager for electric cars than ever. Today, five-year-old RAV4 EV cars are reselling for more than what than the original price, and more than double the price of a new gas counterpart. Battery electric cars already proved practical and effective, and time has shown us that sometimes, it takes regulations to get business to do the right thing.

ZEV mandate changes in 2002 allowed the car companies to abruptly halt this emerging market. The compromise with the car companies was supposed to lead to many fuel cell ZEV cars. Five years ago, chairman Lloyd insisted that fuel cell cars had tremendous promise, despite concerns from experts like Alec Brooks and Tom Gage. Time and billions of dollars in research have proven Lloyd wrong; hydrogen faces the same insurmountable laws of physics as ever. In all likelihood, these problems will prevent hydrogen from being a viable fuel for cars: five years, twenty years, or a century from now. The Fuel Cell pathway is a failure and won't put sizeable numbers of ZEV cars on the road.

### What to Do

Now as your agency considers ZEV program changes, I'd suggest a simple outcome as the key program goal: that California consumers have a selection of zero-emission options when they buy a new car. When the program succeeds, there should be a sizeable and growing number of ZEV cars every year.

The technology for plug-in cars is ready now and works. We need a ZEV program that gets real numbers of real ZEV cars on the road, not public relations gimmicks. We don't need hundreds of pages of complicated multipliers and partial credit substitutions. Californians should have choices like my RAV4 EV. Your program is key to getting that result. So Let's Get Going!

**Suggested New Schedule for ZEV program**

<b>Year</b>	<b>ZEV Mandate</b>	<b>All Trucks, SUVs, Cars</b>	<b>ZEVs</b>	<b>New ZEVs Cumulative</b>
2008	0.1%	2000000	2000	2000
2009	0.2%	2000000	4000	6000
2010	1%	2000000	20000	26000
2011	2%	2000000	40000	66000
2012	3%	2000000	60000	106000
2013	4%	2000000	80000	186000
2014	5%	2000000	100000	286000
2015	6%	2000000	120000	406000
2016	7%	2000000	140000	546000
2017	8%	2000000	160000	706000
2018	9%	2000000	180000	986000
2019	10%	2000000	200000	1186000
2020	11%	2000000	220000	1406000
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