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RECD. MAR 24 2011

Statement of Paul Staples in response to the Staff Draft 2011-2012  
Investment Plan for the Alternative and Renewable Fuels and Vehicle  
Technologies Program and Commission Meeting on March 7<sup>th</sup>. 2011

Hydrogen Infrastructure Funding

First of all, I must say that you guys work really hard, you really do, especially with the 20 percent cut, so I have to commend you on your hard work.

But I have to say that there are some real deficiencies in this next plan.

I must say that I'm a little bit concerned about the words "sustainability" and "green" used here today. It is used like pennies thrown out in a fountain, and it's meaningless because none of what was hailed here today as such, is sustainable. Because if you had sustainability as a requirement, every one of the dimes that you are spending would be going towards renewably generated hydrogen, because, it's the only sustainable option that exists, the only one that will sustain us well into the future, indefinitely. So, I wonder how much of that is a factor. It should be the main goal, as it is the intent of the funding. Sustainability.

Next, when this legislation was passed, it allocated \$40 million a year for hydrogen infrastructure. There's a reason for that. People will complain and say, oh, that's more than anything else. There's a reason for that. For the last 40 or 50 years, billions have been spent on everything from ethanol to battery electric vehicles (BEVs), with no success at all. And hydrogen had very little funding up until just around ten years ago.

So, it's playing catch up. And just like James Provenzano said earlier, every milestone that has been set for hydrogen since has been met or exceeded in the DOE Hydrogen Program. There is no other program that has done that. None, not a one in all the years they've been operating and all the years they've been funding renewable energy projects, not a one. Hydrogen is the only one. Yet, this administration is getting messages from you when you cut the hydrogen budget down to \$3 million. From 40 million a year to 3 million, you're killing hydrogen. Especially in the year Fuel Cell Electric Vehicles (FCEVs) are due to be rolled out. That sounds like it's personal and intentional to me and to many in the hydrogen community. It's just that no one will say so, fearing retaliation. I have to say, it looks very intentional. When someone comes to fight to get the hydrogen funding in this program, there are a lot of people that come together and support the funding -- make sure that it's there, and then all of a sudden everybody's got their hands in it, pilfering the funding. You must stick to the game plan. The game plan was the original \$40 million a year. That's what it needs. Otherwise, you're just trying to kill it, that's all. And that will not get you sustainability, it will not get you to any of your goals, it will not get to the President's goal of eliminating all of our oil imports from the Middle East by the year 2020 -- by the end of the decade. It won't happen. We'll continue to have these problems.

Also, there have been a few statements that have been made during the meeting (Mon. 3/7/11) that are just a little bit off the wall. For instance, "central generation of hydrogen should be the way we go, that we should spend our money on that." That's insane. The cost of centrally generated hydrogen

by renewable sources is enormous because of the delivery factor, because of the cost of the infrastructure to deliver it to the end-user - pipelines. Maybe in 20, maybe in 50 years centrally generated hydrogen from renewable sources will be the way to go. But the only reason for doing centrally generated hydrogen now is to feed the fossil fuel industry. That's it. Certain R&D funding should be funded to reduce the costs, but for now and the near future, if your funds are scarce, funding should be spent on what is doable now with hydrogen infrastructure.

Central Generation of Hydrogen makes no sense at this time. Distributed on-site/on-demand generation (DG) is the way to go. Central Generation may be viable in the distant future when pipelines can be laid (too expensive now - will take decades to accomplish), DG is doable now, and will take much less time to deploy, especially Electrolytic DG Fueling Stations (DGFS), which has the greatest potential for in state and in country manufacturing, as well as increasing the use and generation of renewable energy. But not for long. If we do not get off the dime and start, we will lose this technology to foreign manufacturing.

Funding for Fueling Stations (DGFS) is necessary now. R&D funding for FCEVs is important and should be supported, but it is not as necessary like DGFS. Even with all the money going into R&D and vehicle support, w/o DGFS, there will be no sales. With DGFS, significant vehicle sales will occur and drive the technology forward and improvements because there will be profit in it. Much like the computer. Improvements occur every year and sales drive them. This will not happen w/o DGFS in place, no matter how much is spent on R&D and FCEV support (rebates and incentives). Been doing vehicle incentives for years, to no avail. If infrastructure is available, they will sell, incentives or no incentives.

So, distributed generation is the only way that we can get this deployed in an economical and timely manner that can meet the demand. The automobile companies have spent billions, billions of dollars developing fuel cell electric vehicles. The federal government has spent hundreds of millions and we have spent tens of millions in this State alone, more than any other state, all at the requirements of the state and federal governments. A lawsuit was settled on this that required them to do this.

It's all going to be for naught if all those vehicles come out and nobody buys them, and the only reason they're not going to buy them is if there's no fueling infrastructure. Everyone knows that. And that is the key to this whole thing. That is why the funding was allocated for "Hydrogen Infrastructure!" They will sell because they are great cars, they're very well engineered, very well designed and they will sell because they'll meet the range, and the fueling requirements, and the fueling paradigm that everybody has and is comfortable using and operating, and is deployable now and in the future.

You'll have the support of all the automobile manufacturers, of many fueling outlets as well. All the gasoline stations will take a hydrogen fueling station, at least most all the independents eventually (over 90% of all fueling stations are independently owned). They don't want the other alternatives being proposed here – Bio-Fuels, BEVs. . There's no incentive, there's no reason for them to. Why should they want to put in battery chargers when they can only serve maybe 15 or 20 customers a day at their fueling station? Even the battery exchange method can only service 1 or 2 vehicles every couple of minutes, where currently they can service up to 12 – 15 vehicles in the same time period, and w/o them having to be built from scratch and eliminating all of their current operations. Why should they want to cooperate? They won't, it doesn't make any sense. Their business would be gone. No one wants biofuels either. All of them just finished relining their tanks at significant costs

(over \$300k each, plus loss of business shut down for a month or two – over \$1 mill before it is over). They won't do it again.

So, this is the situation, you need to fund hydrogen based on the way the legislation was proposing or you are violating the intent of the legislation. Significant changes in funding allocation should go back to what the legislation originally allocated - \$40 mill/yr. This body has already reduced it to \$20 mill., then to \$19 mill., then \$15 mill., now \$3 mill.??? This program has been in effect for 3 years. By now, \$120 mill should have been awarded for hydrogen infrastructure. Barely 10% has been awarded. While the rest of those funds (nearly 90%) have been divided up amongst bio-fuels and EV recharging. There is plenty of federal funds for both of those. EVs are getting an unprecedented \$1.5 bill. They don't need CEC funds, they got plenty from federal funds, so does Biofuels. Both have been receiving mega funding for over 40 years with no success. Battery Electric Vehicles (BEVs) have been deployed by the auto makers every 20 years for over 100 years and have failed miserably everytime. Einstein said that was the first sign of insanity, my Dad would say it was the first sign of stupidity. Either way it is not smart.

You're basically throwing it to the wind and saying we're going to just take this money and carve it up any way we want, any way we can for our own favored alternatives, because that's what's going on here. It certainly looks like it to me, and many others in the hydrogen community. I'll bet if you can get an honest answer from those hydrogen advocates and stakeholders at the meeting, they would all agree with everything I am saying, at least about the perception of bias, especially when you consider the fact that hydrogen is the only thing that we are funding right now that is sustainable into the future, beyond anyone's vision, and you're cutting it off at the knees, especially the auto makers. This is wrong. This is wrong because everything else had its opportunity, everything else had its chance and it couldn't make it. This is the only one that can and that has proven that it meets or exceeds every goal that has been set out for it from the very beginning. Show me another option or another technology that has.

I know everyone brings their own beliefs, opinions, preferences, philosophies, and experiences with them to their jobs. However, when working for public service, you have to put those beliefs, opinions, preferences, philosophies, and experiences aside as not to apply a bias to your decisions. This appears at least, to not have been applied in this program. There appears to be a bias for biofuels and Battery Electric Vehicles (BEVs) in this organization. I know, I've had many discussions with several people and many agree, there appears to be a bias for it, and against hydrogen, at least that is the perception. And that needs to stop. Significant changes have been made to the intent of this legislation at the staff level, and not at the legislative level. You need to stop picking winners. You guys need to stop that, or at least change the perception if that is wrong, because perception is everything. You are picking winners by doing this, even if it is un-intentional, with this latest business plan, and previous business plans, you are not giving fair treatment to hydrogen. The only way to change that perception, even if it is wrong, is to do what the legislation intended, fund hydrogen infrastructure to the level that was originally allocated, \$40, million /yr until the vehicles have finished rolling out – 2012 – 2017 (or at least that same proportion if cuts need to be made across the board). All of your surveys and analysis are wrong. To change a fueling paradigm to incentivize sales of a new type of fueled vehicle requires as many fueling systems as possible to give the general public confidence enough to purchase them. Even more than a tax credit, a grant, rebates, even giving them away for free. If there is no fueling infrastructure, you won't be able to give them away, no matter how good the vehicle is. If you need to cut by 20%, it should be across the board, then Hydrogen Infrastructure would be \$32 mill, not \$3 mill (all to one mass transit entity – which is not

what the intent of the legislation, which was to put fueling infrastructure on the ground for the deployment of FCEVs), that's a 92% reduction??? Remember picking winners?

If the FCEV fails because government won't do it's part, and all that money they have invested in developing the technology, the next time government asks the auto makers to do something, most will probably tell the government to go to hell, and I would not blame them. Also, if FCEVs don't sell because the government fails to facilitate and fund hydrogen infrastructure, and neither will BEVs (they haven't in 100+ years of trying, why should they now.), the public will be soured for generations on electric drive, and we may never see them again. Playing right into the petroleum industry's hands.

Central generation doesn't make any sense. Fueling stations is necessary. Vehicle development at this time, I know the auto companies are probably going to disagree with me on this but, really, if the vehicles sell, they will develop the vehicle further, they will put more out there on the road to meet demand. So, we do not need assistance for vehicle programs as much as we need the infrastructure because the infrastructure's is the key to all of this. If there's no infrastructure, you've got no freaking vehicles selling, period.

Now, distributed generation is the only way that can be deployed in a timely manner that will achieve those goals. And, although federal cuts are being proposed right now they are not going to stand, they will not stand unless you guys facilitate it by cutting funding here. It sends a message and it's the wrong message, it's a bad message. And it's a message that we will regret, all of us.

And finally, if you believe the Tesla representative's claim for the range of their vehicles and for the costs (\$35K) of them, I've got some swampland in Arizona I'd like to sell you. Because the truth of the matter is, the batteries alone are going to cost \$30,000, even in mass production. So, he's looking at losing money for the first several years in order to get sales out there, with the hope that there will be enough sales, and they'll raise the price latter, however there won't be enough sales. Most people are not going to buy a vehicle that takes hours to recharge. If a person will need to travel further than the range of the vehicle you are offering, even just once in the lifetime ownership of the vehicle, while requiring more than a few minutes to refuel, 90+% of the consumer public will not buy the vehicle. That was proven in the last decade with a lack of sales, as well in consumer surveys.

Battery electric vehicles have been coming out every 20 years for the last hundred plus years and they've failed every time. Why is that? – Batteries!

Thank you,

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